The impact of the pandemic on the quality of education and the image of a university

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Abstract
The objective of the article is to identify the nature of the impact of the pandemic on the quality of education and the image of a university that uses distance education and artificial intelligence. The research methodology includes a complex of general scientific and special methods. A questionnaire and detailed interview have been formed with regard to the indicators of the leading rating systems of higher education. The data obtained have been summarized and analyzed using a focus group. The regression analysis has been used to examine the connection between students' motives for making life easier in the context of the pandemic and distance education and the dangers of the professor-student-administration system. The sustainable links and tendencies of changes in the quality of education and the image of a university have been revealed. The following traps for students are referred to the stable connections: the absence of a valid system of control over the authorship of the executed works; the possibility of the unauthorized use of various electronic sources during the answer; the coronavirus quarantine leads to the erasure of the boundaries between the study and everyday life, personal space and social environment of students; the growth of students' desire to have high marks in the subjects with the decrease of interest to study. Tendencies: the increase of the workload of professors and supporting (technical) staff; constant redistribution of time spent on the performance of official duties with a different degree of efficiency; the growth of willingness, a desire of the administration and university professors to improve the competitiveness of the university as a high-tech educational organization, included in the world map of science; the growth of dissatisfaction with the distance form of education, the degree of efficiency of return on investment in human development; the decrease in the responsibility of students to acquire knowledge through distance learning. The practical relevance of the work lies in the possibility of considering the identified sustainable links and tendencies to improve the education system at both national and global levels. This will enable attention to problem areas at the local level to achieve their overcoming with minimal financial and human losses through proactive actions. The theoretical relevance of the work lies in adding scientific and methodological elements to the theoretical foundations of the concept of development of higher education. The authors studied for the first time the problems of the impact of the COVID-19 pandemic on the quality of education and the image of a university. The originality of the research is determined by the original methodological model, which allowed the participants of the educational process to assess the essence of the ongoing changes associated with the coronavirus quarantine and with the help of an expert group to identify sustainable links and tendencies in changes in the quality of education and the image of a university.
Key words: pandemic, artificial intelligence, distance education, competitiveness, efficiency

Introduction

The evolution of humanity in the new millennium is rapid but fragile. Vectors of economic development from time to time change their direction. The world economy

is constantly feverish. Leaders of leading states and large companies are looking for ways to solve emerging problems and crises.

Crisis phenomena constantly harm the economy and large companies. It is very difficult for small and medium-sized businesses, which are less protected from crisis phenomena and do not have the necessary "safety cushion" and the ability to diversify their activities (Psychogios, Prouska, 2019). The crises of the late 20th and early 21st centuries have caused significant damage to many enterprises in various business areas. This was especially evident during the global economic crisis in 2008-2009.

Information and digital technologies (Győri et al., 2019), active implementation of artificial intelligence (AI), development and competent use of human potential (STATdat, 2020; Cicea et al., 2019) are among the main sources for overcoming crises and achieving high competitiveness. It is undeniable that all these solutions lie on the educational plane. The formation of a new philosophy of being, behavioral patterns, mechanisms of sustainable development (Ridho et al., 2018), and the digitalization of society is organized and carried out by people in various fields of activity at all levels of government (Yun, 2018; Alzoubi et al., 2019; Kamal, Adouane, 2020). Their professionalism and value system are the foundation of the future of humanity. Scientists, researchers, and university professors try to keep up with time, to discover the essence of emerging problems on time, and to identify ways to solve them. However, the fundamental elements and foundations of the development of society should remain unchanged.

The deepest crisis broke out in the first and second quarters of 2020. The European, world economy felt the impact of the pandemic. The coronavirus epidemic was caused by the rapid spread of the SARS-CoV-2 virus and COVID-19. Although China's authorities launched an active fight against coronavirus back in December 2019, it was not quickly localized and all countries began to look for forms, methods, and tools to protect and counter COVID-19 (Shang et al., 2020; Horowit, 2020).

Last year (2019) put forward new completely unfamiliar demands on the economy, health care, the whole world. The pandemic has made significant adjustments to the plans of everybody. First, the gradual and then comprehensive restriction of the movement of people and goods struck a powerful blow to the economies of all countries (Belov, 2020; European Commission, 2020), especially those related to tourism and hospitality (Connley et al., 2020; ILO, 2020). Restrictions on activities have reduced productivity and worsened socio-economic conditions. The foundations of every individual, company, country, society as a whole are being reformed.

The education system has suffered a serious blow. It has been particularly felt by those educational organizations that have not yet had time to prepare technologically for the transfer of information and education using technical means that allow remote interaction with the students and administration. The problem is the training of professors, some of whom theoretically and practically have not mastered digital and information technologies.

At the same time, universities in many countries of the world have long been involved in the digitalization of the educational process, the introduction of distance learning systems, elements of AI, and advanced technologies and teaching methods. This has allowed for effective and timely application of the latest achievements in science and technology and implementation of innovations in the educational process.

One of the areas of improvement of personnel training is the introduction of distance education systems in its various forms and degrees. There are approaches from transferring all education to a distance format to a complete rejection of innovative forms.

The most significant growth of coronavirus disease in Russia was revealed in March 2020, which was the reason for the announcement of quarantine by the country's leadership. Restrictions were introduced on the movement of people and goods in

certain regions of the country, borders were closed, and Russian citizens were urgently evacuated home. Extensive information support, local and global restrictions, and financial market turmoil began to have a significant impact on all areas of the Russian economy, especially the oil and gas industry, transport, aviation, retail, and tourism and hospitality (Barinov, 2020).

Educational organizations in response to the pandemic have been moved to distance learning. The efficiency of higher education institutions began to change due to the different level of development of digital technologies in higher education institutions, the degree of their introduction into the educational process, and the use of AI in university management and students' education. This began to affect the quality of education, image, and competitiveness of universities as a high-tech educational organization included in the world map of science. Significant changes are taking place in the quality of education and the image of universities that uses distance learning and AI.

The need for qualified specialists determines the demand for education in various educational organizations, including universities. They prepare specialists capable of significantly increasing the competitiveness of organizations in all spheres of business and the public sector. This is especially important in the context of the crisis. Even a small number of creative, talented, systemically thinking employees aimed at results can take the company out of the most difficult crisis situation. However, before such specialists enter the labor market, they need to be identified, their talent revealed, they need to be taught a systematic approach and the ability to form projects and bring them to the end. This can be done by universities, the targets of which are continuous development, the involvement of research and teaching staff in achieving strategic goals to improve the competitiveness of the university, mastering digital, innovative technologies that allow developing those competences of students who are most in demand in the labor market.

In this study, we sought to assess the impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI, focusing on the regime and schedule of universities under quarantine conditions, the approaches and technologies used in the faculty-student-administration system, the nature of changes in the image and competitiveness of universities. The topic of the article is relevant and new. The results of the research can be useful and instructive for improving the training system both on a national and global scale. This will enable attention to problem areas at the local level to achieve their overcoming with minimal financial and human losses through proactive actions.

Literature Review

The most important phenomenon in recent decades has been the global crisis that erupted in 2007-2008. It has significantly changed the business environment (Sawyer, 2011). Some large companies went bankrupt, others were forced to merge with their competitors (Shastitko, 2008; Soininen et al., 2012). Small and medium-sized businesses have partially diversified and partially resisted, but many entrepreneurs have had to stop doing business (Paul et al., 2007). There has been a recession in the American economy (Allen, Carletti, 2010).

The banking sector also did not come out without losses. During the crisis, banks reduced the number and volume of lending, reducing the ability of businesses to overcome economic problems (Belás et al., 2014). The tourism industry was significantly damaged (Veretekhina et al., 2017). The crisis forced a more careful approach to different types of resources: to conserve and multiply nature (Rybakova et al., 2019; Ushakov et al., 2018), to work skillfully with personnel (Buley et al., 2016), to identify talents and competently involve young people in the labor process

(Nikiporets-Takigawa, 2018; Vinichenko et al., 2016; Effron, Orth, 2014), and to prevent ethnocultural conflicts (Oseev et al., 2018).

During the crisis wave, the "Year of the MOOC" was announced as part of the Third Industrial Revolution in 2012, which gave a start to the widespread implementation of online learning. According to Bryan Edward Penprase (2018), it was planned to replace traditional education with online courses. As an advantage, it was suggested that online courses would expand the opportunities for universities and attract more students to study.

Michael Staton (2012) formulated a scheme for the distribution of roles in higher education. It suggested that the functions of the professor should be distributed. Part of the responsibilities remained in the system of personal interaction between professor and learner, including coaching and mentoring. The other part of the educational process was moved to the Internet. This included the development of content and its placement in an electronic environment.

The American Consortium for Online Learning (LACOL, 2020) demonstrates a positive experience. It has succeeded in uniting efforts to find and implement the most advanced and effective forms and ways of using digital learning opportunities in the humanities. Working groups and teams are formed to manage the project. The experimental base is timely summarized and delivered to all consortium members.

The desire of a large number of people in India, China, and the USA for higher education has led to the demand for distance learning. However, the synchronization of individual learning environments and online technologies has not yet happened everywhere. There is often an inflection towards the formal introduction of distance learning, without the scientific and methodological justification of the share and forms of mastering the competencies specified by professions and occupations. Some universities that have completely switched to online learning have lost their client base and gone bankrupt.

The economy, which had started to recover, was again caught in the spiral of another crisis — COVID-19. The forecast for 2020 is disappointing. Restrictions on the movement of goods, services, and people will lead to lower demand and consumer confidence in producers and, as a consequence, slower economic growth (OECD, 2020). Staff cuts, wage cuts, and non-payment of wages have begun (United Nations News, 2020; Bartik, Hershbein, 2020).

Business structures associated with mass events and movement — sports, tourism, and hospitality — were among the first to experience the impact of the pandemic (Abello, 2020). The introduction of social distance, self-isolation at home, closure of cafes and restaurants, and prohibition of active travel have dealt a tangible blow to the hospitality industry (Ozili, Arun, 2020). By restricting and completely closing borders even between allied states, the leadership sought to reduce the risks of the coronavirus' rapid development (Zimmermann et al., 2020). At the same time, measures were taken to reduce the impact of the economic crisis caused by the pandemic, various measures and the quickest ways out of the situation were developed (Gopinath, 2020).

The international education system and national systems of education, youth development, personnel training have found themselves in a difficult situation. They also felt the impact of the pandemic and had to adapt online to the new realities. Those educational organizations that have incorporated information and digital technologies into education have benefited.

The human resources policy both at the state level and in particular universities is complex and ambiguous in the context of education system reform (Nakhratova et al., 2017). With the fourth industrial revolution (4IR), the nature of higher education is changing somewhat and its importance is increasing (Gleason, 2018). Bryan Edward Penprase (2018) believes that it needs to be given the task of ethical and intercultural

engagement, with flexible approaches at the core. This will enable communities to understand the essence of changes and adapt quickly and qualitatively to the innovative 4IR technologies that are being implemented. Higher education must be constantly ready to adjust curricula that allow all participants in the educational process to improve the quality of education.

New methods of education and game technologies should develop in students those soft and hard skills that will be in demand in the labor market in the future (Matraeva et al., 2020; Kirillov et al., 2016). The severity of this problem is confirmed by studies by Shi, Y. (2020). The active introduction of AI into accounting makes many of the competences of accountants obtained at the university unclaimed. A person is inferior to a robot in the question of error-free production of calculations, which makes it less competitive in the labor market and increases the risks of losing a job. In the conditions of the pandemic, the risks of unemployment from AI increase significantly.

The 4IR brings with it the digitalization of society and the introduction of AI in all spheres of life, including education. S. Belciug and F. Gorunescu (2019) consider the interaction of natural and AI in decision-making. Options and possibilities of intelligent systems to support management in decision-making. A.I. Sukhorukov et al. (2018) proposed their approach to the development of information management and identified the main tendencies of its evolution in the emergence of a new digital economy ecosystem.

Studies by Lisa Burrell (2019) show that AI can arouse both positive, better qualities and negative ones. In the education system, when making decisions, it is important to consider the risks emanating from AI, and the formation of theoretical and methodological foundations of the ethics of interaction between natural and AI. Paul Daugherty et al. (2018) are concerned that the systems of human evaluation using AI sometimes set criteria that can lead to racial, gender, and sexual discrimination. Regarding the collection and storage of large amounts of data on a person, professor, or student, issues of information security and the ethics of personal data use are on the agenda (Xu et al., 2020). Some American scientists have proposed an intelligent system based on AutoViDev video signals. It provides an opportunity for automatic analysis of human behavior and forecasting the possibility of targeted and efficient use of human potential. It is important for determining the direction of students' training at the stage of university enrollment (Ossmy et al, 2019). Turkish researchers are also concerned with the use of AI in predicting human behavior and social exchange (Abubakar et al., 2019). Zhao Tong et al. (2020) offer new approaches to using AI in the cloud computing environment based on Q-learning. K.-R. Koch and J.M. Brockmann (2019) suggested using AI to determine a multidimensional model with a laser scanner in machine learning.

There are changes in the qualitative and structural characteristics of scientific and pedagogical workers; the most important competences of professors in terms of increasing the competitiveness of the university are being identified (Zinkovskii, Khlebovich, 2014; Sanko, 2019). The management is increasingly trying to get into the essence of teaching through specific performance indicators. The existing world ranking system of higher education institutions is forcing these actions. The management of the Ministry of Science and Higher Education of the Russian Federation and Russian universities are trying to rank among the best universities in the world. However, the transition to new performance indicators cannot bring immediate results.

According to QS World University Rankings, the leading Russian university in 2020 is the Lomonosov Moscow State University. Lomonosov Moscow State University took 84th place. American and English universities are traditionally at the top of the rating (QS WUR, 2020).

In 2020, the World University Rankings conducted a study in the field of higher education for the UN sustainable development goals (SDG) in three main areas: research, outreach, stewardship. It evaluated 768 universities from 85 countries. According to the Times Higher Education University Rankings 2020 version, the top three were Universities of Auckland (New Zealand), University of Sydney (Australia), and Western Sydney University (Australia). Among the young universities with a history of no more than 50 years, The Young University Rankings 2020 selected as one of the best universities in Hong Kong, Singapore, France, Italy, South Korea (The World University Rankings, 2020).

According to Shanghai Ranking's Academic Ranking of World Universities 2019, eight American and two English universities were also ranked among the top ten (ARWU, 2019).

Earlier results may change significantly under the impact of the pandemic. This study will focus on selected university performance indicators that affect the image and rating in a pandemic.

Methods

The research methodology was formed considering the approaches and methods of the previous research, which revealed the motivational aspects of the use of AI and the most appropriate technologies that increase the efficiency of the university (Vinichenko et al., 2020). This work is, to a certain extent, its logical continuation.

The objective of the study is to identify the impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI.

Scientific tasks were formulated to achieve this goal:

1. To study the scientific-methodical basis revealing the basis and nature of the state of scientific knowledge on the impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI;
2. To determine the extent and nature of the impact of the pandemic on learning quality;
3. To identify the impact of coronavirus quarantine on the image of a university that uses distance learning and AI.

The hypotheses were introduced in the work:

H1. The impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI is diverse, multifaceted, and systemic; the essence and depth of its impact in the short and long term have not yet been studied.

H2. The crisis caused by the COVID-19 pandemic may have a negative impact on a university's rating and vice versa, as well as an opportunity to significantly strengthen its position in international ratings.

The research methodology was systemic and included general scientific and special research methods. The main research methods were: content analysis, questionnaire survey using online service Google Form, observation, in-depth interview, focus group, and methods of statistical analysis. Due to the limitations associated with the pandemic in Russia and other countries, the survey, in-depth interview, and focus group were conducted using the Internet and programs that provide digital and video communication.

The team of authors was a cross-functional team. A flexible methodology for studying the nature of the impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI was jointly created, based on a set of different approaches within a self-organizing group in identifying tendencies, identifying and formulating sustainable links in the professor-student-administration system. The developed research methodology, in our opinion, should reduce the risks

of subjectivism by means of a collegial approach to solving research tasks through conducting a group of short cycles on blocks and elements.

As part of the first scientific task, with the help of content analysis of literature, the scientific and methodological basis was studied, revealing the basis and nature of the state of scientific knowledge concerning the impact of crises and the pandemic on the quality of education and the image of a university that uses distance learning and AI.

To solve the second and third scientific problems, a questionnaire was developed. The main criteria for assessing the impact of the pandemic on the quality of education were the following: the relevance of the professor's work; the professor's workload; the vector of change in the quality of education; the nature of the dependence of students' interest on the availability of classroom work; the degree of difficulty in working in a remote format. This questionnaire was subjected to expert analysis by specialists in the field. After that, the experimental test on correctness, conformity to the sphere of research, and clarity of the formulated questions with a group of scientific and pedagogical workers of other sample was carried out. The identified shortcomings were considered when refining the final version of the questionnaire for the sociological survey. To improve the reliability of the obtained results, the respondents were instructed on how to fill in the questionnaires the day before the survey.

This was followed by a survey using the Google Form online-service and an online survey method. The survey was anonymous. After the sociological survey, the working group processed the results and conducted an in-depth interview. An in-depth interview was used to identify the opinion of academic and teaching staff on private issues of the impact of the pandemic on the quality of education, image, and international rating of a university that uses distance learning and AI.

The study was conducted between April 15 and June 15, 2020. The sample set (n=471) was made up of representatives of 23 higher education institutions in the Russian Federation, with a total set of n=245,100 people. The sampling error was 4.75%, with a 95% confidence probability. The selection was made based on quota features: gender, age, academic degree, academic rank, length of service in the university (Table 1).

Table 1: Socio-demographic characteristics of the respondents (in %)

Category of employees		Educator
Gender	male	37%
	female	63%
Age	under 30	8%
	31 to 40	14%
	41 to 50	42%
	51 to 60	29%
	over 60	7%
Academic degree	Doctor of Sciences	17%
	Candidate of Sciences (PhD)	64%
	no degree	19%
Academic rank	Professor	11%
	Associate Professor	45%
	no rank	44%
Length of service in the university	less than one year	0%
	1 to 5	5%
	5 to 10	11%
	10 to 15	36%
	over 15	48%

The analysis of the data in Table 1 shows that the majority of the participants in the sociological survey were female employees over 40 years with PhD degrees and associate professor with more than 10 years of work experience. This leads to the conclusion that the majority of the respondents were experienced professors with degrees and ranks.

The sociological study was conducted in accordance with the ethical requirements for scientific research. The empirically obtained data were processed using descriptive statistics. The information was processed with the help of Excel and IBM SPSS Statistics 22 programs, and for open questions of surveys — manually, with the subsequent systematization of data. Synthesis and analysis of the obtained results became the basis for achieving the research objective.

To achieve the research objective, a focus group was engaged. It consisted of 12 experts from the administrative, scientific, and pedagogical staff of Russian universities of the category of Vice-Rector, Dean of the Faculty, Head of the Department, Professor, and professors of foreign universities. The group was focused on problematic issues identified in the course of a sociological survey and in-depth interview.

Results

The impact of the pandemic on learning quality

The analysis of the results of a sociological survey conducted using Google Form (Table 2) revealed that the use of distance learning due to the pandemic had had a negative impact on the professors' workload. The vast majority of the respondents (91%) noted a significant increase in workload. In in-depth interviews, the professors outlined the essence of the problem according to several indicators.

Table 2: Answers to the question: "What do you think has changed in the work of professors in the transition to distance learning in the conditions of the pandemic?

	Agree	Disagree
Importance of the professor work decreased	37%	63%
Professor load increased	91%	9%
Quality of training decreased	67%	33%
Without classwork, student interest reduced	74%	26%
In the conditions of the distance format of work, it became easier to work	18%	82%

Source: own research, 2020

First, not all participants of the educational process were ready to transfer all forms of communication in the professor-student-administration system to remote form in those programs (Skype, Zoom, TrueCont...) that were offered on the market of information services. The transition to distance learning was impeded by the high dynamics of changes due to the urgency of introducing quarantine restrictions. The majority of professors had sufficient technical means to conduct all forms of distance learning. The experience of the advanced introduction of the distance education system in several universities had had a positive impact. This allowed achieving pedagogical goals without constant direct contact between the professor and the student. At the same time, the academic disciplines were timely structured in such a way that the distance learning part of the training had a limited number of competences that could realistically and reliably be developed by students.

Students who had to urgently change their place of residence, go to summer houses in the suburbs, or return to their permanent residence were in a difficult situation. They did not have time to bring with them several completed tasks in various disciplines. It was difficult to maintain stable communication with the weak Internet in several areas where students were located. Besides, not everyone had enough technical means to maintain video communication. It was difficult and inefficient to conduct business games interactively with such students. Lectures were also held without clear feedback. Only the professor's head could be seen on the monitor screen, partially transmitting emotions and energy. Active participation of all students and dialogue was practically impossible, which significantly reduced the learning of the lecture material. Students' interest in the lesson, teaching materials, and learning in general was decreasing. This was noted by 74% of professors. Paradoxical and striking was that with the decline in students' interest in learning, responsibility for learning outcomes, reduced time and effort to master the teaching material, there was a growing desire to have high grades in the subjects. This was an attempt to pass wishful thinking off and cheat and reassure oneself and parents — the main sponsors of education.

Unscrupulous students would turn on their mobile device at the study so that formally their participation in the class would be visible and they would engage in other activities. This had a negative impact on the quality of learning. Sixty-seven percent of respondents noted a decline in the quality of learning (Table 1). Inattentiveness and dishonesty of students resulted in poor learning and late completion of tasks. Professors gave unsatisfactory marks and sent tasks for revision and reworking. As a result, the number of inspections and interactions with a particular student who had little understanding of the program increased significantly. The professor spent a lot of time on negligent and weakly progressing students, without increasing the workload of a certain position by a year.

Another challenge in achieving the quality of learning was the performance of study tasks instead of students by other individuals on a commercial basis. As a result, the system of distance learning in the student's office provided good work with someone else's authorship. The scheme of unauthorized use of teaching material and hints from unauthorized persons in the course of answering the task, on the credits and examinations was simplified in the professor-student remote communication format.

The deanery and the technical support service were in a difficult situation. They had to work almost round the clock. The deanery had to constantly change the schedule of professors' classes and form new ones because the part-time and distance education students went to the session. The load on the staff of the deanery grew due to the increase in the information flow, the growth in the number of individual applications from students and professors, and the dismissal of several employees who could not withstand the overload. The technical support service also operated under extremely heavy workload, including weekends. Besides providing classes, it was necessary to establish an effective system to monitor the conduct of classes. It was semi-automatic. The information collected during the week was processed on Sunday, as some sessions were held on Saturday until 10:10 pm. By 8:30 am on Monday, a new schedule for professors and students had to be posted on the distance learning system. These timeframes forced professors and students to be under constant stress and complicated the planning of teaching and research work. Besides, the introduction of quarantine has led to the planning of 6-12 hours of classes per day for professors, including Saturdays. They were not able to regain their strength and prepare well for the next classes.

Only a small percentage of the respondents said that working in a remote format had become easier (18%). This is more true for professors who combine their work with administrative functions. Deans and heads of departments were given more time to

perform administrative functions by saving time on the way to university, as well as reducing contact with staff and external visitors.
All this affected the status of the teaching staff. The decline in the significance of professors' work was noted by 37% of the respondents. This is mainly due to some unwillingness to read lectures and conduct practical classes by a certain part of professors in a new format. Some students made false conclusions about the content of study at the university, having received quite easily high marks at the expense of the work of others and unauthorized use of teaching material from the Internet and other sources in the credits and exams. Supporters of the full transition to distance learning more and more actively began to promote the idea of giving up professors and using only their lectures, practical classes, and workshops recorded on video.

The nature of the impact of coronavirus quarantine on the image of a university that uses distance learning and AI
The analysis of Figure 1 data showed that the impact of coronavirus quarantine on the image of the university is controversial.

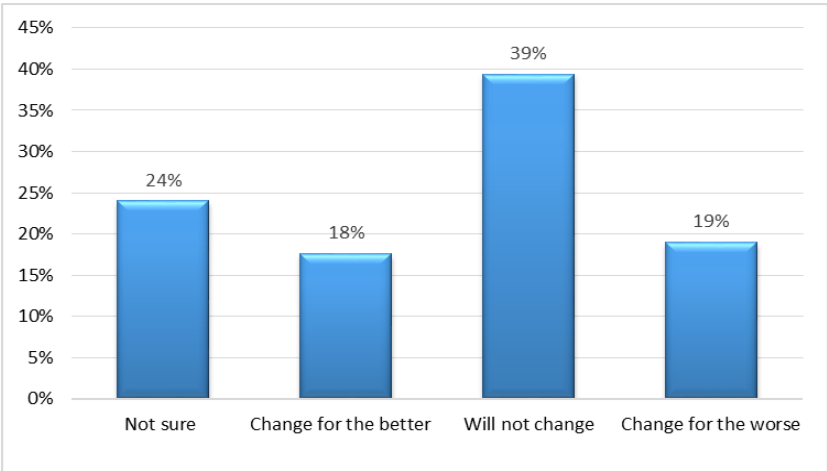

Figure 1: Results of answers to the question: "How will the image of the university change after the epidemiological crisis?"
Source: own research, 2020.

Supporters of the fact that the image of the university will change for the better (18%) and the worse (19%) were approximately the same, with a small advantage in the negative direction.
In-depth interviews revealed that this is the active part of professors who constantly monitor the nature of the ongoing changes. Professors see the prospect of improving the image of the university in the improvement of the distance learning system. Although this system has been operating for more than five years in several universities, it is not yet perfect. Several shortcomings manifested themselves during the pandemic. The negative sector of the respondents linked the deterioration of the image of the university with the growth of profanation in the system of educational services, violation of harmony in the professor-student-administration system, emergency administration of the educational process, significant overloads, weakening (termination) of direct interaction with representatives of the real sector of

the economy, parents' dissatisfaction with the decline in the quality of education, and substitution of the terms of the contract for receiving educational services.
A surprising number of those who did not see the impact of coronavirus quarantine on the image of the university (39%) and those who had not decided on their opinion on this issue (24%) was slightly alarming. As a result, more than half of the respondents did not realize the depth of the ongoing socio-economic changes in the world due to the pandemic and the nature of their impact on Russian society, economy, and education. This category of the respondents had not yet realized the nature of the impact of coronavirus quarantine on key indicators of university efficiency, its role and prestige in the system of social education, and attractiveness among partners and clients — current and potential students.
However, a large number of respondents (61%) believed that the university would remain competitive as a high-tech educational organization (Figure 2).

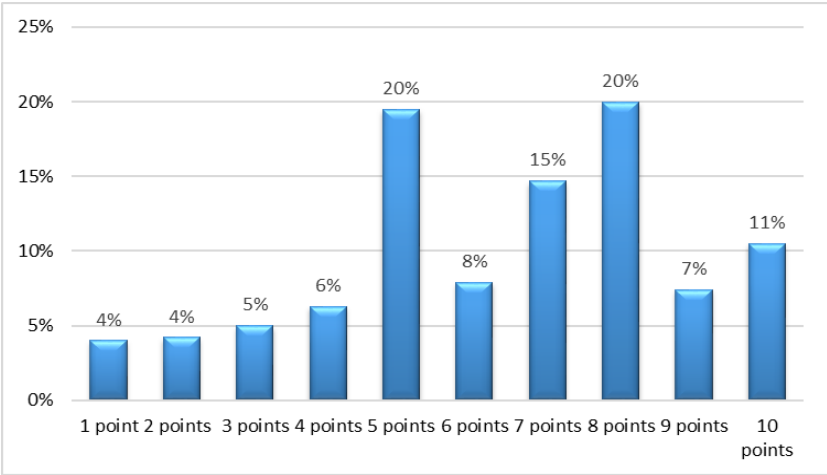

Figure 2: Results of answers to the question: "How do you assess the competitiveness of the university as a high-tech educational organization?" (where 1 is the lowest degree, 10 is the highest)
Source: own research, 2020.

One-fifth of the interviewed professors assessed it by 8 points. An in-depth interview revealed that this opinion was based on the experience of modernization of universities conducted in recent years. The most breakthrough areas of technological transformation are identified and methods for their implementation are developed. Technological clusters are being created and options for the use of AI in training systems are being considered. Educators create electronic teaching materials in Russian and foreign languages and post them in the distance learning system. The methods of teaching disciplines are being improved, gamification, coaching, and AI elements are being actively used.
Low marks (1-3 points) were given by 13% of the respondents. They believed that not all opportunities of the university were used to improve its competitiveness. Several professors were dissatisfied with the priority of distance education; some of them were not very happy with the widespread introduction of technologies. There were opponents of the grading of the university. Negative assessments did not mean that these respondents were opposed to the dynamic development of the university. Often this was due to their own, personal vision of the possibility and/or expediency of

transformation, introduction of certain technologies, and refusal of the management from a classical academic school.
The opinion of the respondents about the status of a university in the system of world science was slightly different (Figure 3).

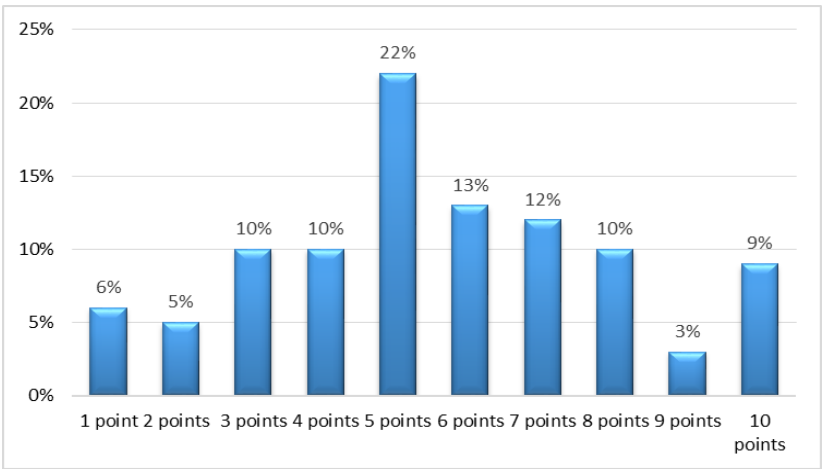

Figure 3: Results of answers to the question: "How do you assess the competitiveness of the university as an educational organization included in the world map of science?" (where 1 is the lowest degree, 10 is the highest)
Source: own research, 2020.

In the positive opinion sector (above five points) slightly less than half of the respondents (47%) were found. The highest number of respondents in the private evaluation defined the average level (5 points) of university research achievements and the degree of international research communication (22%). The results of this survey revealed a real picture of academic mobility, the level of interaction between professors and foreign scholars, and the depth and thoroughness of their scientific studies.
A small number of the respondents, who gave their votes for the maximum evaluation of the university, speaks about the share of active researchers, who work to the maximum for the strategic goals of the university development. It should be noted that this is quite a good percentage, as in any group of societies, talented, dynamically developing ones, as a rule, no more than 10-15%. They can also include self-assured professors who do not always adequately assess the situation.

Discussion
The indicated topics and identified problem areas were brought up for discussion by the group. The quality of education raises serious concerns among the experts. During the discussion, a **tendency** to reduce students' responsibility for acquiring knowledge in their studies was revealed. There is a growing superficial, non-serious approach to learning. During online lectures, they are formally present at the lecture without video output, actually doing other things without getting into the studied subject.
Educators say: "If we continue to increase the time online or fully transfer education to it, then we (the professors) will work long — there will be no one to replace. Students are getting silly, they cannot learn and solve rather simple tasks. Even if we meet personally, it becomes more and more difficult to explain how to approach

problems". Paradoxically, students accuse professors of their poor knowledge amid their laziness and non-serious attitude towards learning. As a result, the respect and status of professors are falling. This correlates with the research (Ilina et al., 2018).

The growth of dissatisfaction with the distance form of learning and the degree of efficiency of the feedback on the invested funds in the development of the human potential of their children by the main investors of education — parents of students was revealed. This **tendency** became particularly strong during the pandemic. In distance learning, students, especially full-time students, understand learning material worse and devote less time to preparing for classes. Parents see what their children are doing all day long. As the ones who studied offline and received a good education begin to resent the fact that the investment in children's education which is important for the budget of the family does not meet expectations. Parents feel the profanation of this form of education. The search for alternative, more reliable higher education institutions is beginning. This has a negative impact on the image of a university, which to some extent correlates with the research of scientists M.V. Vinichenko et al. (2018). Students are outraged by this attitude to themselves, apply to special organizations and courts, express their indignation on the Internet, and write open letters to university rectors and the Ministry of Science and Higher Education of the Russian Federation.

The pandemic has significantly increased the burden on educators and supporting (technical) staff. This **tendency** has become sustained under coronavirus quarantine conditions. There are various reasons for this. One of them is ineffective time management of managers and their confidence in the fact that under the conditions of the pandemic (quarantine) professors are constantly in the workplace organized by them at home. Therefore, some managers set tasks in a 7*24 mode. The mentality of students is changing, who are also increasingly eager to establish communication with professors and administrative (technical) staff as if it's part of their duty. Often students try to solve their problems with the deanery outside of its regular working hours and send their works for checking by the professors on weekends, requiring urgent feedback.

During the education process in the context of the pandemic, there has been a **tendency** to continuously reallocate the time spent on performance duties with varying degrees of efficiency. The content of the time budget is changing. There is no need to spend time on travel, face-to-face contact, or long meetings with large numbers of staff. Reduced time for administration, professors, and students has both positive and negative effects. On the one hand, it frees up time for studying and performing functional duties. The administration can remotely set tasks and also remotely check them. Time is saved on communication with those employees, professors, who are constantly on business and simply waste the manager's time. Educators can interactively conduct classes, provide certain information, set tasks for students online, and check the work done by students through distance education systems. Students anywhere in the country or planet can learn and acquire knowledge. Bryan Edward Penprase's (2018) studies demonstrate the expediency of interactive and high-tech learning.

However, the professor-student-administration system achieves an effect where every link and every element works conscientiously, professionally, effectively, complementing and helping each other. The costs of the university to provide professors with technical means and programs for conducting classes online are reduced. Creation by professors of workplaces at home allows university management to save money on maintenance of facilities and equipment of workplaces.

On the other hand, there are risks. For the administration, there is a temptation to switch all management to remote form and lose real control and understanding of what is happening. Moreover, with the active introduction of AI into the management

system, a person can be invisibly substituted by a robot, creating the danger to society. Professionals are also at risk of being replaced by AI. However, this path is dangerous and unpromising for the social environment.

At the same time, educators are being entrusted with increasing duties and responsibilities. What was done by the administration, academic and technical staff of the university, now lies on the shoulders of professors. Technical and organizational preparation and conduct of classes, technical self-monitoring and reporting are now the responsibility of professors. They have to prove the fact of conducting the class with recordings of lectures and practical exercises. The hope that students will then see the record of a lecture or practice session is justified in 5-7% of cases among extramural students. As a result, the professor performs many side administrative functions that are not related to the essence and methodology of classes. This leads to increased workload, fatigue, and distractions for professors and creates nervousness that negatively affects the quality of students' learning.

Students in the professor-student-administration system are affected by a group of factors and fall into the trap of pandemic and distance learning. **Traps** are stable connections, dependencies that are seemingly attractive and make life easier for students but carry danger and harm.

The first trap is the absence of a valid system for monitoring the authorship of the work. Students follow the path of least resistance and fall into this trap. Existing anti-plagiarism testing systems can only detect incorrect borrowing and not actual authorship. As a result, professors check the works of unknown authors, often created for money not by students but by special agencies specializing in providing such services. The second trap is the possibility of unauthorized use of various electronic sources and AI when answering the professor. This allows getting high grades but not knowledge. Acquisition of such demanded competences on the labor market as systematic thinking, creativity, responsibility for results, ability to think, reflect, and generate new ideas with this approach is impossible (Unilever, 2020; Nikiporets-Takigawa, 2018). The third trap is coronavirus quarantine, which erases the boundaries between study and life, personal space and social environment. The lack of skills to form effective time management leads to the wrong prioritization, pushing the study to the background. The fourth trap is the increasing desire of students to have high grades in the subjects while the interest in learning decreases. An attempt to pass wishful thinking off as real leads to self-deception and deception of the main sponsors of education — parents, for budget or target forms of education — the state and business. The mentality shows that it is important to have not knowledge but higher education and it is not necessary to work in this specialty. Moreover, students begin to see not themselves, but professors as the culprits of their failures. They demand "magic", the transformation of bad works into talented ones, and professors have to act as "Khottabych", a fairytale slave, a gin from a bottle.

Professors need to help students overcome and avoid these traps. Gaming teaching methods (Shakhovska et al., 2020; Demchenko et al., 2018) and talent identification technologies (Rutishauser et al., 2018) are helpful here.

The identified problems have a negative impact on the image of a university in the short term and what is especially dangerous — in the long term. According to the experts, a special danger is caused by the disturbance of harmony in the professor-student-administration system, parents' dissatisfaction with the decrease in the quality of education, students' dissatisfaction with the organization of the educational process, the administration's attitude towards them, the growth of profanation in the system of educational services, and the bias towards distance learning.

The competitiveness of the university as a high-tech educational organization is in the positive zone of the respondents' evaluation. This correlates with many Russian and foreign studies of the experience of innovation in education and the use of distance

forms of education (Gleason, 2018; Penprase, 2018; Ossmy et al., 2019; Matraeva et al., 2020).

However, there is dissatisfaction among experienced educators with the priority of distance education in the training of personnel. Their dissatisfaction and fears are correlated with the opinion of the main sponsors of students' education — parents. Pressure on distance education may lead to a decrease in the image of the universities already known by their scientific and pedagogical schools, to search for alternative ways of education in those universities where academic excellence has been maintained or abroad. The introduction of technology should help the pedagogical process, not replace it. To ignore this will significantly harm the competitiveness of universities in the long term due to a gradual decline in the quality of education, the outflow of the best educators and scientists, and a decrease in the flow of applicants.

The competitiveness of a university as an educational organization included in the world map of science has fewer supporters. However, there are quite a few of them. The grade is mediocre (5 points). It is natural. The vector of scientific developments and publishing activity in Russian science has been internal for a long time. It is problematic to reconstruct and come out under the standards of international scientific approaches and standards in a short period, because of the system inactivity. It is also not easy to establish international communications and increase the number of professors and scientists who are fluent in foreign languages, conduct joint scientific research, and publish the results in international high-rating journals indexed in the WoS and Scopus databases.

In general, we can state that there is a clear **tendency** of management and professors' aspiration to increase the competitiveness of a university as an educational organization included in the world map of science.

Every university goes its own way. At the Russian State Social University (RSSU) to a certain extent, this problem was solved by the grading and introduction of a promising system of motivation and stimulation of university staff (Kirillov et al., 2015). This allowed an increase in the number of scientific publications in international editions indexed in the WoS and Scopus databases. It has become a tradition for this university to hold international congresses, with materials being placed in the WoS database. However, in 2019, there was an urgent need to improve the quality of studies with their placement in highly ranked journals indexed in the WoS and Scopus databases (Vinichenko et al., 2020). The underdeveloped network of international communications with both universities and foreign scientists has reduced the efficiency of the university. This problem cannot be solved in the short term. It is necessary to work thoughtfully with advanced scientists, to create and develop scientific schools, academic communities, effective teams, and another improvement of the system of motivation and stimulation of scientific and pedagogical staff.

Alan Bryman (2007) believes that the degree of success is in the area of educational management. It depends on the level of training of all levels of university management and the ability to create creative, hard-working project teams. It is important to respond quickly and adequately to social challenges. The dynamics of changes in the image of a higher education institution and its international rating depend on it. According to S. Belciug and F. Gorunescu (2019), it is useful to use AI in decision-making.

Conclusion

The study confirmed the **hypotheses**: **H1**. — The impact of the pandemic on the quality of education and the image of a university that uses distance learning and AI is diverse, multifaceted, and systemic; the essence and depth of its impact have not yet been studied in the short and long term. **H2**. — The unsustainable, constantly changing higher education ecosystem has been affected by the crisis caused by the

COVID-19 pandemic. It may have a negative impact on the image and rating of a university or, vice versa, it may significantly strengthen its position in international rankings.

The study was conducted during the pandemic by drawing on the experience of Russian universities. Identified sustainable links and tendencies are mostly objectively comprehensive for any conditions of the educational process. These include **tendencies** to increase the load on professors and supporting (technical) staff and constant redistribution of time for performance of duties with varying degrees of efficiency. These tendencies are typical for many national education systems due to the high dynamics of society development, increasing volumes of information, and the necessity to constantly improve the forms and ways of conducting classes. The pandemic has only intensified their dynamics.

The growth of aspiration, the desire of the management and professors of higher educational institutions to increase the competitiveness of the university as a high-tech educational organization is objective and comprehensive. This **tendency** reflects the essence of academic education — continuous development based on world achievements in science.

At the same time, the trends on several issues are restrictive, inherent either only to the period of the pandemic or to countries actively integrating information technologies into the educational process.

The **tendency** of growing dissatisfaction with distance learning, with the degree of efficiency of feedback on investment in the human development of the children by the main investors in learning — parents of students is typical for those countries where generations X and Y highly appreciate the fundamental, systemic knowledge obtained mainly in the classical offline form. They have limited acceptance of distance learning, assigning it mainly an informational function with test control.

The **tendency** of students to reduce their responsibility for knowledge acquisition through distance learning is fragmented and may change the vector of development when moving towards a mixed form of learning with offline classes.

The **tendency** of striving to improve the competitiveness of a university as an educational organization included in the world map of science is characteristic of developing national education systems, which for several reasons have focused on other aspects of higher education.

The identified **traps** for Russian and foreign students are generally multicultural and interethnic. These **sustainable links, dependencies** that are externally attractive, make life easier for students but carry danger and harm due to objective reasons and the psychological identity of the person.

The order of use in theory and practice of the identified sustainable links and tendencies is in the sphere of skill and professionalism of the education management, scientific and pedagogical workers, as well as all participants of social and economic interaction, striving for effective and profitable investment in the development of human potential and competitiveness of organizations.

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