Online distance education system in remote region in the Russian and Mongolian universities during the COVID-19 pandemic

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Abstract. The objective of the study is to compare the role of faculty between two universities in restriction regime conditions, to identify problems and future perspectives for the transformation of information technologies in universities. The study was conducted among 145 lecturers from Russia and 102 lecturers from Mongolia. The questionnaire consists of 20 questions related to the research topic. The anonymous study was conducted in July 2020 after the second academic semester. The analysis of the resulting survey showed 100% adaptability to online learning of the lecturers in the National University of the Medical Science in Darkhan and 75% adaptability to online learning of the lecturers in Trans-Baikal State University when they moved to the online learning approach. The effectiveness and quality of the transition to the online learning approach principally depend on the professional qualities of lecturers. The lecturers of the Mongolian university had an adequately high level of application of modern information and communication technology in distance learning in comparison with the lectures in Trans-Baikal State University. The implementation of the educational online process by lecturers should be focused on obtaining high-quality higher education, two university students. Survey findings point to the need for universities to continue to improve digital transformation, which is currently one of the most effective ways to engage students in the educational process.

1 Introduction

The spread of the coronavirus infection COVID - 19 has significantly influenced the transformation of the global education system. The radical transition from offline learning to a distance learning format actualizes research to analyze the specifics and dysfunctions of distance education [1]. In a short time, the COVID-19 pandemic contributed to the mandatory transition of all educational institutions to a remote mode of operation using distance learning technologies (DOT) [2]. Not all educational institutions of the countries were ready to urgently continue the educational process in a distance format [3].

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The intensity of the development of distance learning (DL) during a pandemic only increases faculty loads and makes stressful conditions among university lecturers. Classes conducted by teachers at home did not always guarantee quality due to technical conditions and the efficiency of Internet resources.

According to Housseine and Rabha [4], Bordonskaya et al. [5], in the current digital era there is a great need for capability and mastery skills of information and computer technologies (ICT). During the quarantine period, lecturers were compulsory to replace traditional teaching offline with online learning. Online learning cannot be successful without the participation of an instructor who is an organizer and facilitator of the learning process [6]. The success of the offering DL and the communication between the lecturer and the student fully depends on the teaching methodology chosen by the lecturer, the ability to design it in a distance format, using various ICTs, selection, and structure of the content of training sessions, maintaining communication links [7, 8].

Considerable importance is the conscious attitude of lecturers to the mandatory transition of teaching online, taking into account their personal and professional qualities [9]. Rama et al. [10], believe that, to a greater extent, the attitude of lecturers can be a determining factor in assessing the success or failure of any educational practice in teaching.

According to the analytical research on the use of information technology conducted before the pandemic found that no more than 44% of university faculty used the Internet in their scholastic didactics. The remainder of the lectures no longer would operate various information resources and tools to enhance the teaching didactics. At leading, the appeal to online technologies included only the demonstration of their lecture material, without student participation [11, 12].

Adamczyk et al. [13], Alajmi [14] focused on the importance of introducing e-learning in universities, predicting the future development, role, and place of ICT in education.

The significance of the study was to identify what forms and methods of Development Opportunities Training (DOT) are most effective in Russian and Mongolian universities, as well as existing problems among instructors, and what is the potential, of further e-learning?

The purpose of our study was to identify comparative indicators and existing problems in Russian and Mongolian universities, during the transformation of information technology during the COVID-19 coronavirus pandemic.

2 Materials and methods

Effectiveness of university suggestions by transitions in distant learning:

1. To analyze the adaptive capabilities of faculty and to research the effectiveness of the measures offering by the university during the transition to distance learning.
2. To identify the challenges and problems faced by lecturers in Transbaikal State University and the National University of Medical Science in Darkhan and to analyze the further outlook for distance learning.

The study was conducted among 247 lecturers from regional universities: 145 lecturers from Transbaikal State University (TBSU) and Chita in Russia and 102 lecturers from the National University of Medical Science (MNUMS) in Darkhan, Mongolia.

79.3% were women, 20.7% were men, 69.6% were from Transbaikal State University (TBSU) and 30.4% were men from the National University of Medical Science (MNUMS) in Darkhan.

The ages of the participants ranged from 25 to 70 with the dominant age group of 36-50.

In terms of pedagogical experience at Transbaikal State University (TBSU), age indicators from 6 to 35 years were 91.1%. On the contrary, in MNUMS, the main number of respondents with work experience from 1 to 15 years was 65.8%.

Transbaikal State University (TBSU) had a scientific degree of candidate and doctor of science were 110 staff, 4 lecturers from MNUMS. The academic title of associate professor and the professor was 58% at (TBSU) and 43.8% at the National University of Medical Science, Darkhan Medical School MNUMS.

The questionnaire developed by the researchers included a study of the above tasks and consisted of 20 questions. The questionnaire has been translated into Mongolian.

The study was conducted after the end of the second academic semester in July 2020. Data on the results of the survey were provided via Google forms.

The issues under consideration were analyzed, discussed, and allowed for research by independent experts from among the professors of Transbaikal State University (TBSU) with at least 25 years of work experience. Preliminary approval of the scientific management MNUMS for conducting anonymous sociological research was obtained. The research did not violate the rights of the respondents who took part in the survey. Educators were informed about the objectives of the research and provided electronic informed consent before participating in the case study. Transbaikal State University (TBSU) and the National University of Medical Science, Darkhan Medical School (MNUMS). Ethics Committees reviewed and approved the research protocol and the online survey.

3 Results

The research results were summarized and formulated after processing the obtained data using statistical analysis. The processing of the deduced data was carried out using the SPSS 22 package, Microsoft Excel and Google Table.

The results of the research showed that Mongolian lecturers adapted 4.7 times faster to the new circumstances of online distance teaching, compared to TBSU (Fig. 1). Simultaneously, practically similar data were responded to by the lecturers of the two universities, who experienced some difficulties. The number of respondents from TBSU, who expressed their opinion that they could not fully adapt to the online format of the educational process, prevailed 3.5 times more. The reason for facing now relates to both subjective and objective factors. Twelve lecturers of a Russian university said that they could not fully adapt, as required by online distance education.

Fig.1. In your opinion, have you adapted to the new conditions in the distance education approach?

It was important to find out the opinion of the participants about the organization of the transition to online distance education in TBSU and MNUMS. All participants in the study

agreed that online DL is a mandatory measure, and they believe that the time will come for the transition to the classical style of learning. Mongolian colleagues are more motivated to master and introduce modern information technologies into the educational process. In our opinion, this is due to a younger team of the university faculty who are fluent in Information Communication Technology. In addition, MNUMS faculty are 2 times more likely to conduct a more detailed analysis of the situation that has arisen, considering all options for possible alternatives to improve the pedagogical approach. 31.7% of TBSU lecturers assume that the effectiveness of DOT is significantly exaggerated, which is 3.6 times more in comparison with the results from MNUMS.

100% of Mongolian respondents stated that the management of the university promptly and introduced the normative documents on the algorithm of work. In TBSU, these indicators were only 74.5%.

A positive outcome on organizing assistance to university lecturers was obtained from MNUMS teachers, who in 43% of cases stated that they participated in preparation seminars for distance learning, which is 2 times more than in TBSU.

Regarding technical consultations for university lecturers on the use of ICT, these indicators are also high in MNUMS (95.7%), which is 4.8 times higher than the indicators registered in a Russian university. It is pointed out that the administration of the university provided 40 Mongolian lecturers with computers and other equipment for uninterrupted work at school.

It was also of great importance to take care of maintaining mental stability, reducing the stress of lecturers caused by overloads in pedagogical approach, during the transition to online distance education. 26.1% percent of MNUMS respondents applied for help, in contrast to TBSU, where this assistance was not provided.

The respondents of the 2 groups showed indistinguishable data on the availability of access to the university learning management system (LMS-platform) - 82, 9% in TBSU and 77% in MNUMS.

The reality of the indicators of individual use of the LMS platform before the pandemic revealed significant differences in the motivation of lecturers from the two countries online distance education. MNUMS faculty regularly worked 2.6 times more than TBSU. Before the transition to DL at a Russian university, the online format was used only for correspondence students and was not the main platform of the educational process. These indicators are confirmed by high numbers (58.6%) of TBSU lecturers who do not work on the LSM platform.

The need to use a variety of digital platforms and video services during the coronavirus pandemic confirmed the importance of having special training for faculty for qualified work with video service systems (Table 1). The use of audiovisual channels for understanding and perceiving materials in the DO system is the only effective way to intensify the ability to process information. The research participants from TBSU used their own university platform 1.4 times less than their Mongolian colleagues. However, when referring to messengers and mobile communications for consultations, the indicators are 2 times higher than those of faculty from MNUMS. The use of e-mail, social media, and online platforms showed no difference in the results obtained between the two groups.

The preference for the alternative of recommended resources for advanced training by lecturers of the Russian Federation and Mongolia intelligibly demonstrated the same data on the use of their information resources.

To compare the indicators of the used forms of online teaching in universities, the following concluded: an online course in synchronous online mode is reliably 2.3 times more in MNUMS than in TBSU. Similar numbers are registered for the placement of instructional materials for independent work of students in the format of video lectures on the online resource used.

Table 1. What resources have you used to work distance education? (Check the entire version).

Survey responses	TBSU, Chita		MNUMS, Mongolia	
	n	%	n	%
Own university platform	92	63.4	93	91.3
Email	137	94.5	89	87
Messenger	74	51	26	26.1
Social networks	66	45.5	31	30.4
Online platform	49	33.8	35	34.8
Telecommunication network	102	70.3	31	30.4
Other (write)	11	7.7	4	4.3

Other: Own development for testing, Skype, Chats in Slack .; Jitsi meet, Zoom, YouTube, WhatsApp.

Thus, in a Mongolian university, the number of those who answered positively is 2.8 times higher. The use of e-mail to send students their practical work, test assignments, as well as communication between an instructor and a student was more preferable for faculty of a Russian university: 80.7% at TBSU and 52.2% at MNUMS. 2.4 times more often, than the lecturers in Trans-Baikal University recommended to students links to available electronic resources. Conducting online seminars and posting materials for independent work of students in text format on online resources did not reveal significant differences in the data obtained in the 2 experimental groups.

Analyzing the data on lecturers who need help and informational support in organizing DL, significant differences were revealed between the research participants in the provision of technical means. Those who need TBSU are 1.9 times more. Practically the same number of survey participants responded with no need for technical assistance. The only question that concerned 26 Mongolian lecturers was how to conduct an interactive online course and involve students in online learning? Given the asynchrony and individual passage of electronic courses, there is no real communication between the two participants in the educational process. There is no prompt feedback. It all depends on the level of involvement and positive impressions of the students after studying the proposed materials. The interest and desire of the student to continue to study this subject and to show, in the future, their positive results, mostly depends on the professionalism and writing proficiency of constructing an interactive outline of the subject being presented.

A key issue was to clarify the problems faced by lecturers when switched to online distance education. (Fig.2). About half of the faculty of the two universities expressed concern about the ways and methods to intensify their work on the formation of students' motivation and participation in learning with the use of DOT. In addition, lecturers of TBSU 2 times more often expressed their concern about the proposed unprocessed forms and methods of monitoring students' background knowledge. The same indicators are stated for facing obstacles in organizing teamwork with students, as well as adapting their lecture material.

Fig. 2. Challenges in transition to online distance education (Check the entire version).

Other: There is no technical feasibility in the regions; Low quality of education; It takes 5 times more time, which interferes with scientific and methodological work, spends personal resources - the Internet, own equipment, electricity, etc. Initially, students are in different conditions: different technology, different Internet speed, etc., which complicates interaction. Students with poor technical equipment are thrown overboard.

The data obtained practically did not differ among the respondents of the two universities on the following problems: the eagerness of lecturers of the two universities to conduct online classes in the same form as offline - 31.7% (TBSU) and 39% (MNUMS); lack of understanding of the existing differences between full-time and distance learning, as well as synchronous and asynchronous interaction - 26, 2% and 21.7%, respectively, in TBSU and MNUMS; lack of comprehension of the capabilities of various platforms and resources for using online distance education - 31% and 26.1%.

When asked what expectation you see for yourself in mastering DOT, the response was received: 48.3% of Mongolian lecturers plan to improve their qualifications in the field of DL in the near future, which is 1.2 times more than the participants in the study from the Russian group. In addition, 23.5% of faculty from MNUMS plans to make distance learning a component of their work, which is 1.4 times more than in TBSU. Simultaneously, 18.2% of Russian faculty plan to create their own online course, which is 2 times higher, compared to MNUMS, and 69 people from TBSU plan to expand their knowledge of working on remote platforms. In a Mongolian university, this figure is insignificant - 33 people, due to the presence of lecturers who have a sufficiently high level of with the use of DOT.

I was surprised by the rather large number of negative responses of lecturers from TBSU - 22, 1%, who do not see the outlook for themselves in this distance education, which is 2.5 times more than at a Mongolian university.

The final question of the questionnaire was to identify the inclination of the faculty of the two universities to continue working in the future in a distance mode. Representatives of MNUMS (26.1%) confirmed their ability to work remotely, which is 5.4 times more than faculty from TBSU.

Change post, education in a pandemic will certainly require a conceptual and philosophical rethinking of both the teaching and learning and an emphasis on the objects of the educational process: teacher-student, including the distribution of roles, creating a line of interaction, as well as the use of a variety of classical and electronic forms of educational materials.

Lectures during the transformation of the transition to distance learning (DL) may not have sufficient time and comprehending of how to adjust and change their teaching, in accordance with existing information technologies [15, 16].

The study revealed the existence of the same problems that should be taken into account both by the administration of the Russian and Mongolian regional universities and by faculty when providing educational services using DOT. In the Federal University of TBSU, located in a remote region, education is mostly free compared to MNUMS. At the same time, in the universities of Mongolia and Russia, there are a number of problems in organizing DL, such as financial - it is necessary to re-equip the information LMS platform of the university, to purchase computer equipment instead of outdated, as well as an organizational plan: the presence of an older category of lecturers who are pessimistic to work in an online format and do not want to improve themselves to new educational conditions using information technologies. Quite high figures were revealed among lecturers from MNUMS, compared to TBSU, who use synchronous teaching, posting their video lectures on online platforms, which, of course, contributes to the understanding and assimilation of this subject by students.

Thus, working in a hybrid format before the pandemic allowed MNUMS faculties to more adapt to the transition to a distance teaching format. The ability of the administration of a Mongolian university to provide its faculty with technical means only contributed to the improvement of the quality indicators of online distance education, and the provision of psychological support to the lecturers in need from MNUMS contributed to their resistance to stress.

4 Conclusions

The blended learning approach used before the pandemic at MNUMS impartially influenced the higher results of the study in comparison with the data of TBSU. It showed that Mongolian lecturers were significantly better adapted to DL. Age lecturers of TBSU experienced certain struggling in adapting to DOT. More diverse sources of offered continuing education courses were preferred by TBSU lecturers to acquire for their knowledge gaps in ICT.

The obtained results of the study confirm the goal of our study that the effectiveness and quality of the transition to a distance learning format predominately depend on the professional qualities. The lecturers of the Mongolian university have a reasonably high level of application of modern information and communication technologies in distance learning in comparison with the faculty of TBSU.

The implementation of the educational online distance process should be focused on obtaining high-quality education by students.

The situation during the COVID-19 pandemic motivated an adequately substantial number of lecturers, with a predominance of MNUMS, who realized the need to continue self-improvement through professional requalification, acquiring various information technologies, and revising educational platforms.

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