Problems of distance education in Kazakhstan during the COVID-19 pandemic

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Suggested Citation:

Abstract

Due to the spread of COVID-19, which has become a global pandemic, Kazakhstan began distance education in universities in mid-March. During the quarantine, there were several problems with distance education. The purpose of this article is to research the effect of the COVID-19 pandemic on the Kazakhstani educational process. The methodological basis of the study describes the general situation of science in distance education in Kazakhstan by the strengths, weaknesses, opportunities, and threats analysis. In addition, this article determines the current state of Kazakhstan's distance education system. At the end of the article, there are recommendations for solving major problems that have accumulated today. At the same time, this distance education process provides great opportunities for Kazakhstan, mainly the opportunity to develop the domestic information and communication technologies based on state information security. It is also an opportunity to lead people to protect themselves from COVID-19 safely in such a difficult global situation.

Keywords: distance education, Kazakhstan education system, information and communication technology (ICT), SWOT analysis, COVID-19.

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1. Introduction

Due to the spread of COVID-19, which has become a global pandemic, Kazakhstan began distance education in universities in mid-March. During the quarantine, there were several problems with distance education. First was the lack of access to mobile internet in most villages and even low speed in some large suburbs. Second, as a result of poor mastering of information technology by some teachers, especially older teachers, they are not able to fully provide the subject with teaching materials. Third, the provision of information and communication technologies (ICT) requires a lot of money and time, which in turn requires extra-budgetary funding. Fourth, the fact that some regions of Kazakhstan are not fully supplied with electricity also hinders the education process. The 2019–2020 coronavirus pandemic was confirmed in Kazakhstan on 13 March 2020. On 15 March, the President of Kazakhstan Kassym-Jomart Tokayev declared a state of emergency from 16 March to 15 April 2020. On 19 March, quarantine was placed on the cities of Nur-Sultan and Almaty where the highest cases were occurring (inform.kz, 2020). With this situation, the government decided to transfer pupils and students to distance education. Distance education has been praised for many benefits, e.g., adaptability and diversity. Limitations also discussed that the full success in implementation was not reached due to lack of financial resources and limited methods of evaluating individual learner's perceptions and knowledge (Barteit et al., 2020; Guthrie et al., 2010). The introduction of quarantine brings about large-scale preparation for organising a process so unusual for Kazakhstan's education system.

1.1. Theoretical framework

Of course, many Kazakh universities have been engaged in distance education in previous years, especially for students traveling abroad for academic mobility programmes. However, in most cases, it did not fully meet the requirements of students, teachers and organisers. The current situation in the country is aimed at solving these problems and creating conditions for the transition to this system with the support of all institutions and the whole country. However, this, in turn, necessitated the solution of the following issues:

1. A suitable platform for the distance education process;

2. Access of Kazakhstan to Internet and ICT;

3. A common methodology to increase the effectiveness of distance education;

4. Quality of education;

5. Social situation.

The Government of Kazakhstan and the Ministry of Education and Science have addressed the above-mentioned issues and taken a number of measures. However, the simplification of some issues will inevitably have a negative impact on the quality of education.

1.2. Related studies

However, the above five issues have a direct impact on the quality of Kazakhstan's education; in fact, the use of video lectures or video materials and ICT cannot replace the live teacher and direct communication. It is very important to develop research competencies in students and pupils. Research competence increases by various kinds of research works. In particular, students must carry out their research work in the laboratory with supervisors to increase their knowledge in research (Dauletov et al., 2019; Kozhabekov et al., 2019). The identical domestic platform for distance education is the most important factor in distance education. Because, firstly, it is a domestic platform adapted to the country's education system, which maintains information security; secondly, it increases the potential of the digital system; and thirdly, it helps the growth of the country's economic strength. Moreover, domestic learning platforms attract more learners than foreign ones as they meet the national standard of education. Local massive open online course (MOOC) providers

can be trusted since they are adapted to students' learning needs and interests. In addition, domestic platforms provide common data protection and data security (Ruiperez-Valiente et al., 2020). The higher level of hacker activity is more serious in developing countries than in developed countries. Educational organisations would have to pay special attention to the websites' enhanced security capabilities (Bongiovanni, 2019). Growing developments in cyber risks and hacker attacks enforce the public government agencies to adopt and improve the management of information security (Szczepaniuk et al., 2020). Now, Kazakhstani teachers and students are using platforms and online courses like 'Bilimland', 'Google Classroom', 'MOODLE', 'Univer', 'Platonus', 'Canvas', 'Daryn.online', 'Coursera', 'ZOOM', 'Microsoft teams' etc. Among these, the Moodle platform has been used for its versatility and superior rate of usability, compared with its competitors. Moreover, low cost and easy installation are the biggest advantages of e-learning, which can increase the application rate (Cigdem, & Tirkes, 2010). Domestic platforms like 'Daryn.online' and 'Bilimland' are mostly used during distance education. The purpose of this article is to research the effect of the COVID-19 pandemic on the Kazakhstani educational process.

2. Methods

2.1. Research Model

The purpose of the research was to analyse the strengths, weaknesses, opportunities and threats (SWOT) analysis of the data on distance education in Kazakhstan during the COVID-19 pandemic and analyse distance learning problems. We created a questionnaire for distance learning problems and collected data through Google Forms.

2.2. Participants

A total of 234 people participated in the survey. Of those surveyed, 27% were teachers, 44% were students and 29% were high school students.

2.3. Data collection tools

Questionnaire surveys are a popular data collection method for academic or marketing research in a variety of fields. In this article, the questionnaire surveys were conducted online (Google Forms), which were sent to the participants' emails and WhatsApp, and the answers were analysed.

2.4. Data Collection Process

The respondents' answers to the questionnaire, which was assessed on a 4-point scale (4 = excellent, 3 = good, 2 = fair, and 1 = poor) on the benefits of distance learning, are as follows: all participants considered distance learning to be the right solution in a pandemic situation and their access to learning at all times and places.

2.5. Data analysis

Data were processed and analysed based on the responses of respondents to the questionnaire on the problem of distance learning in Kazakhstan and a SWOT analysis based on the authors' own experience and data.

3. Results

3.1. A suitable platform for the distance education process

Currently, countries in the distance learning system pay for the platforms of other countries around the world. Notably, the need for a single domestic platform is very high, given that most of the current platforms are in Russian and more than 70% of Kazakhstan's population is Kazakh, and 60% of schoolchildren and 52% of university students speak Kazakh.

When asked which training platform you use, 28% of the respondents indicated the Online Mektep platform (school platform), which is used in schools in Kazakhstan, 21% Zoom and 17%

Microsoft Teams. The platforms listed in Table 1 are the main platforms used in Kazakhstan's education system.

Table 1. Platforms used in distance learning in Kazakhstan

Training platform	Percentage
Online Mektep	28
Zoom	21
Microsoft Teams	17
Individual platform of the educational organisation	12
Google Meeting	11
WhatsApp	8
Others	3

Answers to the question (Which curriculum platform are you using?)

3.2. Access of Kazakhstan to Internet and ICT

Information and communication technology is the main tool for distance education. To make distance education possible, it is very important to have the necessary equipment and Internet access. This, in turn, includes distance learning via the Internet (e-learning) and mobile learning (m-learning). Both learning technics require considerable time and good planning, because online teachers need to develop course materials before the course begins. In addition, financial management plays a big part in succeeding online programmes. Moreover, teachers who are technically skilled can make effective use of the technology and can promote learning among students (Rovai, & Downey, 2010, Howella, S. L., et al., 2004).
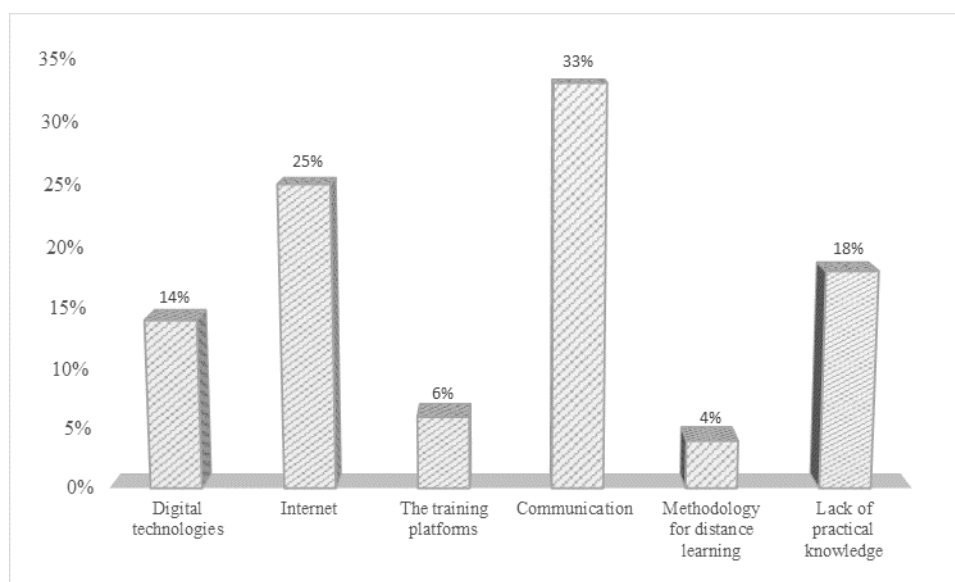

Figure 1. Problems in distance learning

When asked the problem of distance education in our survey, 33% of the participants said that communication is poor (teachers and students), 25% said that the Internet is poorly maintained, 18% said that there is no practical education and 14% said that digital technologies are unavailable (Figure 1). The results of this survey show that majority of the respondents argue that the quality of practical knowledge in distance education in the field of science is not provided, for example, important

practical works in chemical laboratories (Ayatzhan et al., 2020; Ydyrys et al., 2020; Tazhibayeva et al., 2020; Yessimova et al., 2020) cannot be carried out online in distance education.

3.3. A common methodology to increase the effectiveness of distance education

The main and most worrying issues in distance education are the quality of education and the assessment of knowledge in distance education. Kazakhstan has moved to updated educational content to reform and improve the quality of education, and has even set up pilot projects to teach some subjects in three languages to raise them to an international level. The main direction of the SWOT analysis in Table 2 is the quality of education. Pupils or students' perceptions of knowledge vary depending on their age and personal behaviour (Benish-Weisman et al., 2019; Desimpelaere et al., 2020; Folville et al., 2019).

Table 2. SWOT analysis of distance learning in Kazakhstan under quarantine

S-strengths	W-weaknesses
• Protection of public health; prevention of the spread of COVID-19. • Having experience of distance learning in some universities. • Availability of the state programme for the development of ICT. • Adaptation of people of Kazakhstan to new disciplines, new rules and new technologies. • Availability of electronic teaching aids and electronic textbooks. • Timely monitoring and resolution of problems by the Ministry of Education and Science of the Republic of Kazakhstan. • Transition to the reform of the modernised education system centred on students. • Learning of teachers ICT.	Incomplete provision of the teachers and students with ICT. Lack of a unique platform for the distance learning process. Non-availability of high-speed Internet. Lack of a common methodology to increase the effectiveness of distance learning. Problems of organising distance learning. Ineffectiveness of laboratory classes for natural and applied sciences. Difficulty in assessing students' knowledge.
O-opportunities	T-threats
• This would give an opportunity to reform the education system and direct students to self-study, solve problems and ask questions. • Allows the state to fully solve the ICT issues. • Encourages the development of a methodical complex for distance learning for domestic education specialists. • Increases the prestige of teachers in society. • Provides the education system with new innovative technologies. • It indicates that the development of the domestic IT industry and science is an important area	Decrease in the quality of education. Psychological stress for students and teachers. Distance of students from public relations. It is too much work for teachers to work with each student. Lack of development of specific skills in students. Dependence of pupils and students on the virtual world. The use of foreign learning platforms

of national security.	may pose a threat to national security.
• Kazakhstan, as a part of the world, knows what to do in the future in the event of such pandemics.	The risk of causing domestic conflict and violence.
• Provides inclusive education in the future and distance education for students from foreign and remote areas.	

3.4. Quality of education in distance learning

One of the ways to get quality education, both now and in the past, is the principle of 'learning by doing': the student understands and remembers by visually doing with hands (Foerster, 2018; Tordon, 2020). The respondents' answers to the questionnaire, which was assessed on a 4-point scale (4 = excellent, 3 = good, 2 = fair, and 1 = poor) on the benefits of distance learning, are as follows: all participants considered distance learning to be the right solution in a pandemic situation and their access to learning at all times and places. However, the criteria of economic efficiency and quality of education were underestimated (Table 3).

Table 3. Advantages of distance learning

Advantages of distance learning	Scoring
The right solution in a pandemic	4
Cost-effective	2
Quality education	2
The opportunity to learn at any time	3
Study any place	3

4 = Excellent; 3 = Good; 2 = Fair; 1 = Poor.

Distance education in the current quarantine situation does not comply with this rule, especially for science, medicine, technical and applied disciplines. Laboratory classes are the main methods of education for all natural sciences. There is almost no online virtual laboratory platform in Kazakhstan. Teachers in this field are now using videos and presentations. It means that the student does nothing in practice, and is limited to theoretical knowledge. Even in the humanities, the quality of education may become worse because students are not accustomed to distance learning in the past; they are just accustomed to living relationships. Moreover, especially due to the lack of scientific materials (textbooks, manuals and scientific articles) in the Kazakh language, students are limited to the information available on the Internet. About 20%–30% of students in the class improved their level of English in additional courses, understood the lesson well and did their homework. At the same time, the low level of general biological knowledge of students in their native language makes it difficult for them to study this subject in English; it can be concluded that trilingual education of natural sciences in Kazakhstan is not suitable for most of the Kazakhstani schools (Alibek et al., 2019). Because the tasks of all the students are the same, cheating is not avoidable. The evaluation of tasks in distance education depends on the time set by the teacher; the carrying out of the task and sending answers of the task depends directly on the ICT and the Internet. If a student has a problem with ICT, then his work is zero. At the same time, it is important to note that in the final exam for students, the students take it mainly in the written form, oral, project defence, test and they must take the exam on time. All these above-mentioned issues are dependent on ICT and the Internet.

4. Discussion

Currently, 3.2 million students of school are studying their fourth term (a full year of education consists of four terms in Kazakhstan) and more than 600 thousand students of university are studying by distance education in Kazakhstan. The education process is carried out in several directions. The Ministry of Education and Science initially offered the Zoom platform as a test for schools, but it was discontinued due to the fact that the platform was charged after 40 minutes and due to problems with Internet access. Another reason was the refusal of parents to pay for mobile networks. Thus, all the schools switched to education using the social network WhatsApp and TV channels (in Kazakh on the Balapan TV channel, in Russian on the Elarna channel). In addition, several Internet platforms were recommended for distance education: Kundelik, Bilimland and Daryn online. Universities, on the other hand, have experience in teaching online distance education, since they have been using Internet education for their part-time students. Therefore, they have used their own online platforms and Microsoft Teams during the quarantine.

However, the fact is that a lot of work has been conducted in Kazakhstan under the programme of 'Digital Kazakhstan' for 2018–2022. During the quarantine, there were several problems with distance education. First, the lack of access to mobile Internet in most villages and even low speeds in some large suburbs. Second, as a result of poor mastering of information technology by some teachers, especially older teachers, they are not able to fully provide the subject with teaching materials. Third, the provision of ICT requires a lot of money and time, which in turn requires extra-budgetary funding. Fourth, the fact that some regions of Kazakhstan are not fully supplied with electricity also hinders the education process.

Table 2 summarises the dangers of these issues; in fact, first of all, quarantine is a complex psychological process for people, according to some foreign sources, domestic violence during quarantine had increased by 30% (Boserup et al., 2020; Mazza et al., 2020). This situation primarily affects children in the family. For schoolchildren and students who do not go to school as usual, this can lead to psychological stress, which then increases their dependence on the Internet (Wang et al., 2020). Considering the role of social influences, scientists found that social factors had been described as playing a major role in students' achievement in higher education (Mishra, 2020). Children can be misled by accessing websites that have a negative impact on their psychology. As students complete the task at home, parents will help them, which can lead to family conflict and violence against the child (Contreras et al., 2020; Njelesani, 2019; Ryan et al., 2018). It will have a negative impact on children's behaviour. Moreover, students on primary school rely on their parents as they are not old enough to handle the technology, this in turn takes up a lot of time of their parents (Sekeris et al., 2019). The quarantine situation cancelled many republican patriotic, educational, sports events and celebrations. In such a situation, some teenagers who are active in public life and interested in sports and culture may move to a completely different field under the influence of the virtual world and fail to develop their abilities.

5. Conclusion

In conclusion, Kazakhstan, like other countries in the world, is experiencing the process of distance learning in education due to the spread of COVID-19. As noted earlier, there are several barriers to quality education, but the state has the ability to solve some of them. However, the main issue is the organisation of laboratory classes and examinations, and the dependence of students on the virtual world. At the same time, this distance education process provides great opportunities for Kazakhstan, mainly the opportunity to develop the domestic ICT based on state information security. It is also an opportunity to lead people to protect themselves from COVID-19 safely in such a difficult global situation.

Despite the SWOT analysis and the findings of the survey, there are several limitations to this study. First, we cannot say that some of the personal views of the respondents are public. Second, the

survey participants should consider the views of teachers, students and pupils, as well as other social groups in society. Third, this study was designed to analyse the problems that exist in Kazakhstan in the current distance learning, which are widely discussed. Fourth, this study focused on the teaching of natural sciences. The problems we have written about in the humanities may be different. In conclusion, further research is needed on the topic and on the basis of the recommendations made in the next section.

6. Recommendations

We, the authors of this article, make the following recommendations by assessing the state of distance learning in Kazakhstan:

1. Digital technology and the Internet should be available throughout the country, especially high-speed and low-cost Internet.

2. It is necessary to create a single domestic, intelligible learning platform in the Kazakh language in the Republic of Kazakhstan.

3. A virtual laboratory should be prepared for science lessons.

4. It is necessary to develop an effective methodology for distance learning, analysing the international experience of distance learning.

5. It is necessary to make changes in the methods of assignment, assessment and examination of distance learning.

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