7

MOVING TO BLENDED LEARNING IN THE POST-PANDEMIC ERA

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7.1. Online learning in the Kazakhstani educational system

Online learning has become a reality in the modern Kazakhstani educational system. The pandemic has had a powerful impact on the learning process and forced students to adapt to new conditions. In all countries, there has been a transition of all activities to the online domain. As a result of the pandemic, digital transformation has accelerated, affecting all Kazakhstani universities, and online education has become an alternative to the traditional one. The restructuring of the higher education system took place with the help of innovative solutions and digital technologies, which simultaneously led to an increase in its competitiveness. Technological advances in artificial intelligence have become widely used in the daily work of educational institutions.

Students had to acquire knowledge and skills in unusual conditions, remain involved in the learning process, and maintain further learning motivation. At the same time, the pandemic has created conditions for inequality among students and increased ethical hazards. The purpose of the study is to analyse the results of the online education of students of the specialisation of Accounting and Auditing at Al--Farabi KazNU and determine their attitude to blended learning, which will become the paradigm of the post-academic era. A literature review of publications on digital technologies in education, blended learning, and the transition to online learning in the face of the COVID-19 threat was conducted based on the Science Direct, Google

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Scholar, and Elsevier databases. Longitudinal quantitative research was carried out among students of accounting and auditing (98 respondents). The study results showed how students' attitudes towards online learning and their level of satisfaction with the educational process have changed.

Nevertheless, most importantly, despite the difficulties of online learning, it must be stated that as a result of the breaking of organic ties between teachers and students, there has been an increase in transparency in the process of assessing educational achievements. The scientific novelty lies in the description of the experience gained by the universities of Kazakhstan during the lockdown. In post-pandemic times, even more blended learning is needed.

7.2. Literature review on the pandemic impact on the learning process in educational institutions

One of the measures taken by countries around the world to prevent the spread of COVID-19 was the complete closure of educational institutions, affecting 1,471,049,772 (84% of the enrolled) students worldwide as of March 31, 2020 (*Education*…, 2021).

One of the first studies conducted during the pandemic showed that introducing online learning during the pandemic was problematic and difficult for families (Dong, Cao, and Li, 2020). During the pandemic, two golden education rules were violated, namely availability and accessibility (cf. Dhanalakshmi, Anuja Mary, Shrijith, and Vijayaraghavan, 2021). Universities defended themselves against COVID-19 in three ways: social distancing, hygiene measures, and classroom practice changes (Liu and You-Hsien Lin, 2021). Social distancing has prompted the rapid development and implementation of fully-fledged virtual educational programs (Gelineau-Morel and Dilts, 2021).

All educational institutions have experienced the negative impact of the pandemic. Ratten and Jones (2021) believe COVID-19 could be a ground-breaking opportunity for entrepreneurship learning research (Ratten and Jones, 2021; Secundo et al., 2021). This means that the specialization of "Accounting and Auditing" in Kazakhstan is one of the most promising programmes since it is one of the educational programmes of direction 041 i.e. "Business and Management". Digital technology can foster an entrepreneurial mindset, driving the need to redesign traditional university programs to respond effectively to emergencies (Secundo et al., 2021).

There are interesting results of a study by Gupta et al. (2021), in which 248 students and 23 teachers took part, where 219 (88.3%) students found the online classes helpful. Poor communication was the main hindering factor, while convenience and access were seen as critical facilitating factors. Following the end of the lockdown, 135 (54.4%) students wanted to have online classes in addition to cognitive learning, and 42 (16.9%) were not opposed to online classes for both cognitive and psychomotor learning. Moreover, only 60 (24.1%) did not want online

classes. The majority of teachers (65.2%) supported the inclusion of online learning modules in the regular curriculum, and 69.6% suggested that the ratio of online classes to traditional classes should be brought to the level of 30 to 70 (Gupta et al., 2021). Introducing e-learning into an existing curriculum will undoubtedly require some work input, however it remains the only solution to maintain the learning chain during the COVID-19 lockdown.

A new reality in the education sector has surfaced. The COVID-19 pandemic has exposed and exacerbated inequality in developing countries (Oyedotun, 2020), in which the author argues that the digital divide between students and the faculty has suddenly become apparent, as Internet access depends on the area of residence. Poor quality Internet, electricity problems and lack of equipment are not the only problems. Lack of experience and prior training in online learning techniques in most cases led to the failure of the first online classes. At the outset, many teachers and students did not know how to use new technologies effectively. Particularly affected were students whose training involves conducting field, hands-on, and laboratory exercises (Oyedotun, 2020).

To minimize the negative consequences, many educational institutions began to use Massive Open Online Courses (MOOC) and Small Private Online Course (SPOC) in the educational process, which contain video lectures, tasks with feedback, interactive laboratory work, and all kinds of discussion forums (Brauweiler 2013, 2014c; Brauweiler and Noack, 2020; Brauweiler and Scholz, 2015). MOOCs and their variant, SPOC, allow teachers to organize classroom time with students more efficiently and reduce labour costs (Brauweiler 2014a, 2014b). Ortiz-Martínez, Castellanos-Mateus, Vergara-Retamoza, Gaines-Martínez & Vergel-Torrado (2020) believe that academic collaboration should be encouraged in developing MOOCs in order to narrow the knowledge gaps caused by the pandemic in medical schools. However, this strategy is also relevant for non-medical educational institutions. Qiu et al. (2020) also analysed the merits and demerits of distance and online learning during the epidemic and provided practical guidelines for the application of MOOC and SPOC.

It is important to note that Kazakhstani universities did not have much choice as they followed the Ministry of Education's instructions to switch to online education. In countries where universities have at least some autonomy, the decision to switch to online learning was made independently, e.g. in Germany around 400 universities switched at different points in time, and to the individual extent, to distant (or hybrid) learning methods. Freeman et al. (2021) conducted extensive research in American universities. Most educational institutions (n = 93) offered various face-to-face (F2F) types of study in the autumn 2020 semester by implementing 'preventive strategies'. The authors concluded that the diversity of COVID-19 prevention and testing strategies necessitates following national guidelines to equitably allocate resources to respond to the pandemic among higher education institutions (Freeman et al., 2021).

From the point of view of Adnan (2020), online learning is considered a possible alternative to traditional learning. Cook (2009) reported that online learning is better than none, and is similar to conventional learning. His findings are based on meta-analyses of extensive data (Cook, 2009). The recent digital revolution is accelerating due to COVID-19 (Poch et al., 2020). Most authors believe that digital technologies can increase competitiveness and help overcome the pandemic's consequences (Agosto and Giudici, 2020; Chettri Debnath, and Devi, 2020; Nadikattu, 2020; Papadopoulos, Baltas, and Balta 2020). Technological advances in artificial intelligence "may prove useful in the COVID-19 scenario" (Mohanty, Harun, Rashid, Mridul, Mohanty, and Swayamsiddha, 2020).

The need for e-learning will increase after the pandemic. Moreover, if before the pandemic, universities were interested in developing web-based learning, not all of them acted with "sufficient strength and confidence to implement these plans of action" (Jamalpur, Kafila, Chythanya, and Kumar, 2021). In a pandemic, it is safe to say that the majority have changed their attitudes towards e-learning and are now taking responsibility for leveraging e-learning effectively to build a strong innovation foundation (Jung and Lee, 2018). According to the authors, after the COVID-19 pandemic, demand for ability-based learning will increase, emphasizing short courses, miniaturized scale certifications, experiential learning, and work-based learning (Jamalpur et al., 2021).

Blended learning in the context of the pandemic has suddenly become paramount to education, and internationally there is a shift towards blended learning in large tertiary institutions (Jowsey, Foster, Cooper-Ioelu, and Jacobs, 2020). Farahani et al. (2020) showed that a blended learning approach could improve the learners' quality of counselling and communication skills. Previously, blended learning was mainly used in international educational programs (Klenner, Grimm, and Brauweiler, 2017). Time-wise, after the pandemic there will be significant demand for blended learning and F2F training, and this will not be the only form of training. Here again, issues related to suitable tools and methods in e-learning as well as those related to the assessment of educational achievement will come to the fore. Not all online meetings can be guaranteed and be of high quality, but the number of 'flipped' classrooms will be greater than in the previous teaching and learning practice (Jamalpur et al., 2021).

Digital strategies using innovative technologies help students adapt to the pandemic's impact (Brauweiler and Yerimpasheva, 2021).

In turn, online learning is divided into synchronous and asynchronous learning, and the former does not have to match traditional F2F timing. Students can interact with the lecturer, quickly ask questions during the live broadcast, and the lecturer can immediately provide feedback. Timely feedback is often not possible in traditional (F2F) and non-synchronous learning (Jamalpur et al., 2021).

A vital indicator of the educational system's effectiveness in a higher educational institution is an adequate assessment of student's educational achievements. The development and adaptation of a system for assessing students' educational

achievements in a pandemic is a strategic task of each educational institution. A graduate's competitiveness is determined by the presence of a fair, honest, transparent, and understandable system for assessing educational achievements. The peculiarity of the present times is that lockdown measures do not allow leaving all these problems unattended. Innovative solutions help to adapt to new realities. Yerimpasheva and Balgabayeva (2020) believe that reality is being transformed by global megatrends such as urbanization, digital technology, and consumer behaviour.

Furthermore, all this is important to take into account when implementing a new learning paradigm. Singh et al. (2020) recommend using the innovative Internet of Things (IoT) technology during locdown. The fourth industrial revolution offers a wide range of advanced digital information technologies (Javaid et al., 2020). According to Iivari et al. (2020), the COVID-19 pandemic has forced education to suddenly and unexpectedly use new information and communication technologies (ICT).

Vaishya et al. (2020) believe that artificial intelligence reduces task complexity and time. Many authors agree that artificial intelligence reduces workers' workload (Allam, Dey, and Jones, 2020; Haleem, Javaid, Khan, and Vaishya, 2020; Mulenga and Marbán, 2020; Pirouz, Shaffiee Haghshenas, Shaffiee Haghshenas, and Piro, 2020; Ting, Carin, Dzau, and Wong 2020; Vigil Martín, 2020).

Madurai Elavarasan and Pugazhendhi (2020) conceptualized aspects of using technology to "lend a helping hand in an epidemic". They argued that "the government must implement technological solutions" because technology is "a weapon in this war against surprises", and "technology and governance are key factors" in dealing with the aftermath of the pandemic (Madurai Elavarasan & Pugazhendhi, 2020). One can see a lifestyle change process that may have longer-lasting socio-psychological and behavioural consequences (Shaw, Kim, and Hua, 2020).

The pandemic has proven to be a "constructive disruptor" that provides an opportunity to restructure the existing traditional educational system (Rajhans, Memon, Patil, and Goyal, 2020).

Beaunoyer et al., (2020) found that a pandemic could exacerbate the digital divide, increasing vulnerability to COVID-19. To address this challenge, educational institutions must undergo a massive digital transformation to meet the younger generation's needs and their digital future (Iivari, Sharma, and Ventä-Olkkonen, 2020). A modern high-tech knowledge-based economy requires higher-order skills and forces students to find a relation between seemingly different concepts and approaches. Higher educational institutions face fundamentally new tasks in the current conditions due to the increasing competitiveness and the adaptation of graduates of educational institutions to changes in the labour market caused by society's digital transformation and the technological revolution. The development of new technologies and market competition requires specialists who can think creatively, make decisions independently, and freely navigate the world of rapidly changing information.

7.3. Methodology of research

The authors of this article conducted a detailed review of the literature on the magnitude of the pandemic's impact on the learning process. To obtain a complete picture of the pandemic's consequences on the educational system, they studied international organizations' websites and globally leading universities, moving on to collecting primary quantitative information.

The online survey was conducted using the Google Form program, among students of the specialization "Accounting and Auditing" at Al-Farabi KazNU, using longitudinal studies. The number of respondents who took part in the quantitative survey was 98 in June 2020 and 66 in March 2021. The first survey, conducted in the summer 2020, was a replica of that by Jowsey et al. (2020), from which a multiple choice question was drawn up, asked again after nine months.

The second survey was expanded with questions of the type following the Likert scale and rating scale. When asked, "I am satisfied with distance / online learning" (Likert scale), half of the respondents said that they strongly agree, while 85.7% of them agree to one degree or another. Online lectures and discussions were used most often (68%). Zoom is the most common technology used in e-learning (96.4%), followed by Microsoft Teams (82.1%). Less popular technologies are YouTube Streaming (21.4%) and Moodle LMS (21.4%). The most popular social media platform for communicating with students is WhatsApp (25%). In general, 74.9% are satisfied with the quality of the Internet. Given the statement "After the pandemic COVID-19, I want to use the blended learning format", 74.9% of the respondents agreed, against 25.1% of those who would not like it or would like it to a lesser extent.

7.4. Presentation of the research findings on the use of digital technologies at Al-Farabi Kazakh National University

Kazakhstani universities completely switched to distance learning in April 2020 and continued in the same format in the 2020-2021 academic year. The only exceptions were non-civilian universities and programmes that have switched to the blended learning format. The COVID-19 pandemic has had a significant impact on teaching accounting and auditing, as this specialization has always been practice-oriented and requires extensive hands-on training.

The benefits of using advanced technology in education are clear. Kazakhstani universities have always been interested in distance learning development, and some courses were transferred to the online format, for example, in KazNU named after Al-Farabi, the course "Information, and Communication Technologies" has been taught remotely for several years. In the new conditions, it was necessary to rebuild the higher educational system and find innovative solutions in the post-pandemic reality. Universities need to expand their digital technology use to cope with the pandemic's impact and remain competitive.

Jowsey et al. (2020) presented the results of a study in which they concluded that blended learning could positively influence student achievement when used effectively and aimed at supporting distance education. They identified several factors for successful blended learning:

– active engagement,
– teacher communication,
– family support,
– students feeling valued,
– learning supports.

Based on the results of a study by Jowsey et al. (2020), the authors compiled a multiple-choice questionnaire, presented to students two times: in the summer of 2020 and nine months later. In doing so, additional factors for successful blended learning were added. The authors wanted to know how critical blended learning factors in Kazakhstan differ from those identified by Jowsey et al. (2020). The results of the first survey are presented in Figure 7.1.

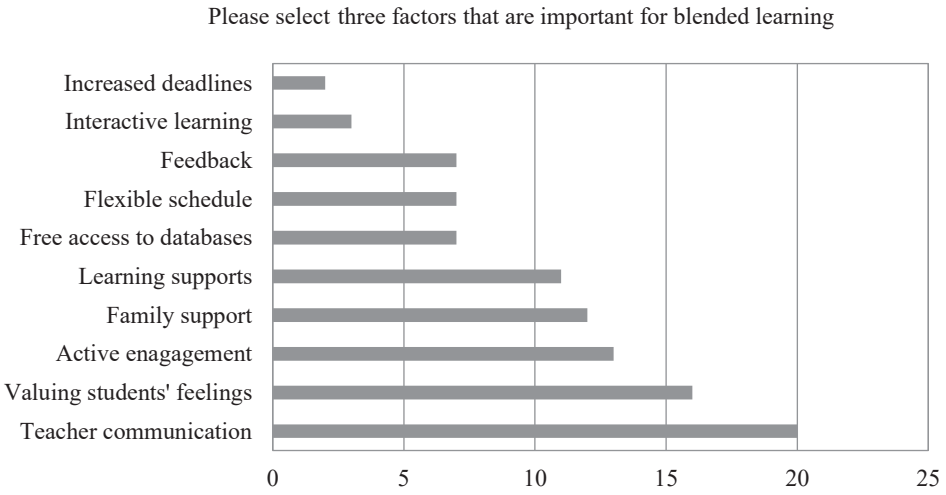

Fig. 7.1. Survey results obtained in June 2020

Source: own study.

The most significant factors for successful blended learning were the following: communication with the teacher (20%), respect towards students (16%), and active inclusion (13%). Based on the Pareto chart, the most critical factors for successful blended learning from the students' point of view in June 2020 are highlighted in Figure 7.2.

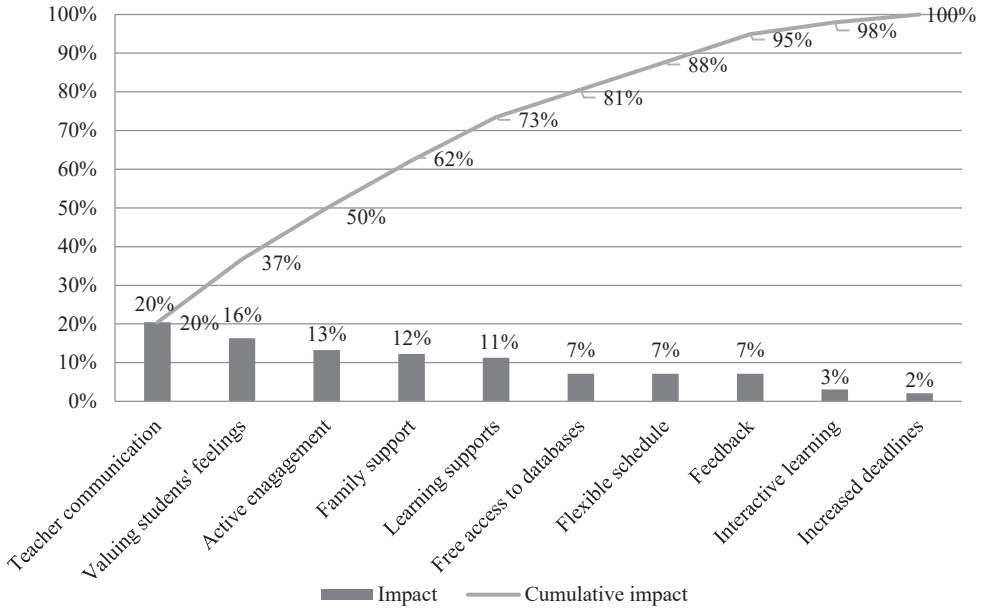

Fig. 7.2. Pareto diagram based on the results of a survey of 98 students of the specialization "Accounting and Auditing" of Al-Farabi KazNU (June 2020)

Source: own study.

The students attributed the following to the critical factors of successful blended learning:

– teacher communication,
– students feeling valued,
– active engagement,
– family support,
– learning supports,
– feedback.

As can be seen above, KazNU students' preferences in the summer of 2020 were somewhat different from those listed in the study by Jowsey et al. (2020).

An essential condition for successful blended learning in March 2021 for students was the following factors: communication with the teacher (13%), flexible timetable (13%), and free access to databases (12%). The Pareto chart shows the following factors for successful blended learning from the students' perspective in March 2021 (Figure 7.4).

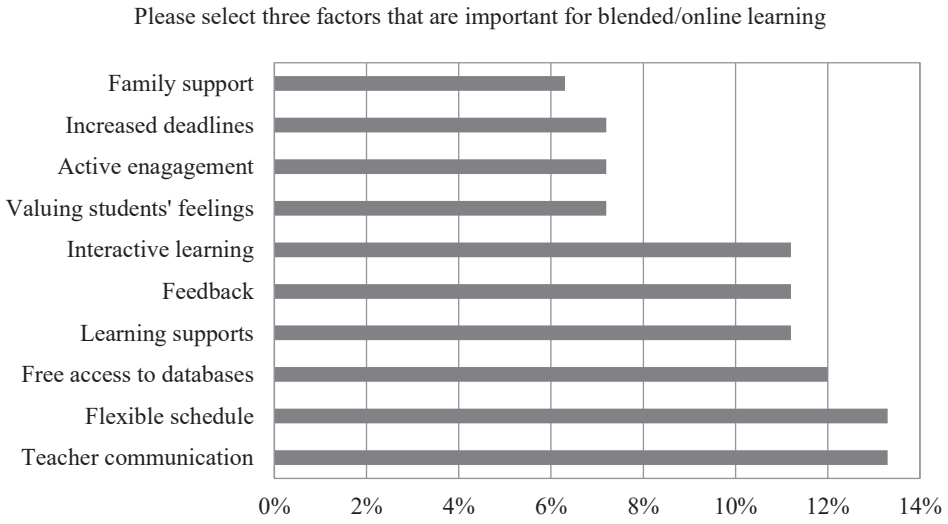

Fig. 7.3. Survey results obtained in March 2021

Source: own study.

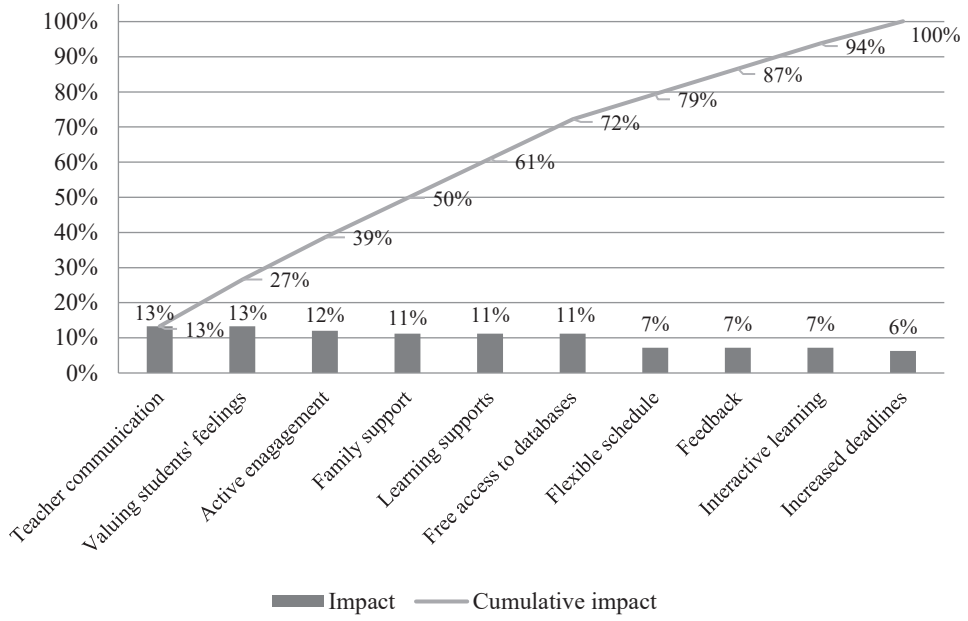

Fig. 7.4. Pareto diagram based on the results of a survey of 66 students of the specialization "Accounting and Auditing" of Al-Farabi KazNU (March 2021)

Source: own study.

The results of the second survey identified the following factors as essential for successful blended learning:

– flexible schedule,
– teacher communication,
– free access to databases,
– interactive learning,
– feedback,
– learning support.

As one can see, student preferences have changed. Their preferences are explained by the degree of adaptation to the situation, the degree of confidence, and lifestyle changes due to the deteriorating economic situation.

The petal chart shows the survey results for 2020 and 2021 regarding critical blended learning factors (Figure 7.5).

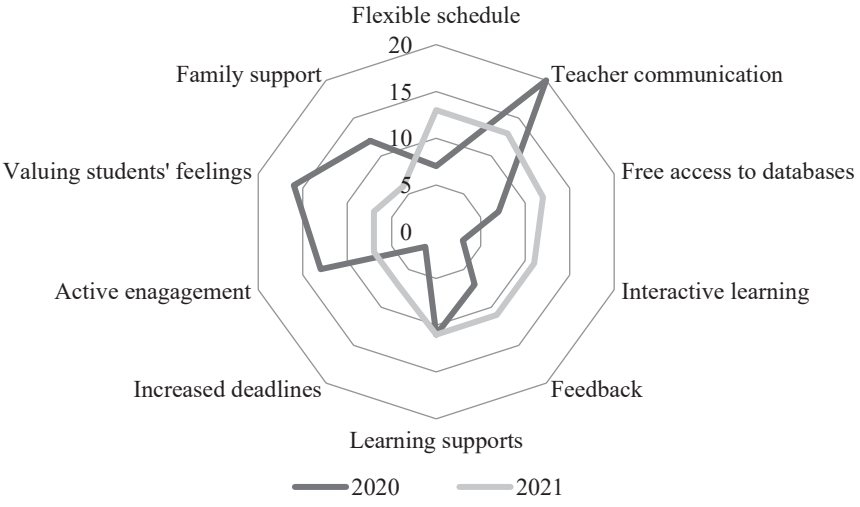

Fig. 7.5. Comparative analysis of value judgments of students regarding the factors of successful blended learning

Source: own study.

There are significant deviations in student preferences for 2020 and 2021. It is important to note that as the year has passed, students have adapted well to online learning, confidence has increased, and judgments and preferences regarding blended learning have levelled off.

Table 7.1. Comparison of the results of the study by Jowsey et al. (2020) and longitudinal research among students of KazNU on the factors of successful blended learning

	Jowsey et al. (2020)	June 2020 Survey Results	March 2021 Survey Results
1.	Active engagement	Active engagement	–
2.	Teacher communication	Teacher communication	Teacher communication
3.	Family support	Students feeling valued	–
4.	Students feeling valued	Learning supports	–
5.	Learning supports	Family support	–
6.		Feedback	Feedback
7.			Flexible schedule
8.			Free access to databases
9.			Interactive learning
10.			Learning support

Source: own presentation.

The survey results show that students have adapted to the new conditions a year after the pandemic, and the situation has become predictable. Undoubtedly, the pandemic had a significant impact on students' behaviour models. The authors believe that the survey results will provide food for thought for the stakeholders of the educational process.

7.5. Discussion and conclusion

The coronavirus pandemic has changed the world. Significant developments have taken place in the field of education. At the beginning of the pandemic, the Kazakhstani educational system was not ready to function under quarantine conditions, and this situation became a challenge. On the other hand, the COVID-19 pandemic has become a driver for an accelerated large-scale digital transformation. Before the pandemic, Al-Farabi KazNU experienced explicit and implicit resistance to introducing new information and communication technologies, however the pandemic left no choice for teachers and students and forced them to master many digital technologies in the shortest possible time. Electronic services are frequently used and have become a part of people's daily life. The digital leap, on the other hand, has made life easier for teachers. Now it can be quickly authorized for an electronic digital signature with which, for example, researchers can obtain copyright. It is easy to overcome the so-called "siloing effect" between the departments of such a large university as Al-Farabi KazNU by creating teams.

At the same time, the attitude towards blended learning is gradually changing in Kazakhstani society. However, the success of blended learning depends on many factors, such as the will of the administration, the interest of students, and the skills

of the teaching staff. Due to its flexibility, blended learning will become the most popular technology in the new academic year and beyond it.

The initial transition to online learning was challenging for both teachers and students. The low level of awareness of the platforms with which it was possible to conduct online classes (classes), and in some cases, the elementary lack of access to the Internet dramatically reduced the quality of education and created gaps in students' knowledge. The adaptation period took one to two months. Teams at all levels, from the Ministry of Education to advisers, curators, and university professors, took unprecedented measures to overcome the educational crisis and prevent the educational process from stopping.

Together with IT companies and educational institutions, the Ministry of Education and Science set up a project office where the experiences of the USA, Mongolia, Russia, and other neighbouring countries were studied (Yerimpasheva, Medukhanova, and Tarakbayeva, 2020). To switch to a new training format, the administration organized online training, and webinars were held. About a hundred civilian universities switched to the distance learning system. The advanced universities were the most prepared, as they had all the necessary infrastructure.

One of the educational system's achievements was the development of the Kazakhstani platform, Oqylyq.kz, which includes significant functionality, ranging from a user-friendly interface to a proctoring system and checking responses to plagiarism. Oqylyq.kz is successfully used when passing remote written exams and solves ethical issues using a microphone, webcam, screen recording, machine vision, and an automated algorithm. Oqylyq.kz's significant advantage is the Kazakhstani location of its servers, which increases the degree of data protection (Yerimpasheva et al., 2020).

Aucejo et al. (2020) insist that institutions must adhere to government guidelines and recommendations encouraging students to continue distance learning in this challenging environment (Aucejo, French, Ugalde Araya, and Zafar, 2020). Kazakhstani educational institutions adopted this recommendation. The Ministry of Education and Science of the Republic of Kazakhstan, together with educational institutions and IT companies, as soon as possible studied the international experience in the transition to online education. Online training courses and webinars for teachers were organized. Almost all universities of the republic switched to the distance learning system.

It should be noted that the leading universities were the most prepared since they had the necessary infrastructure. At the same time, a study by Chaturvedi et al. (2021) showed a large gap between the government's political aspirations and the implementation of this online education policy at grassroots level. Therefore, new policies and guidelines in this direction will help mitigate some of the negative impacts (Chaturvedi, Vishwakarma, and Singh, 2021).

The pandemic had a profound impact on the learning process and made students adapt to new conditions. In all countries there has been a transition of all activities to

the online domain. As a result of the pandemic, digital transformation has accelerated, affecting all Kazakhstani universities, and online education has become an alternative to the traditional one. The restructuring of the higher educational system took place with innovative solutions and digital technologies, which simultaneously led to increased competitiveness. Technological advances in artificial intelligence have become widely used in the daily work of educational institutions.

In April 2020, students of Al-Farabi KazNU switched entirely to online education. Educators could choose one or more platforms from the following list: Zoom, Google Meet, YouTube LifeStream, or Microsoft Teams. Asynchronous distance learning was carried out through the university platform Univer, Moodle LMS. WhatsApp, e-mail, and a mobile phone were also used to communicate in emergencies, when the Internet was unavailable, power cuts or technical problems occurred. The final exams depended on the curriculum and the faculty, and were organized through Zoom, Microsoft Teams, the Univer system (university platform), the Oqylyq.kz program, and Moodle LMS.

Electronic services have become commonplace for both students and teachers, awareness of digital technology has increased, and many have become part of people's daily lives. The failings in bureaucracy were reduced, and now the "siloing effect" can be easily overcome by creating electronic teams.

The use of online learning technologies has helped to preserve the educational infrastructure. There has been increased awareness of the importance of implementing blended learning, which reduces risk in an environment of unpredictability. The use of a variety of educational technologies certainly makes the learning process more flexible. It is crucial in the post-pandemic era to preserve and develop the skills acquired during distance learning. Therefore, some authors suggest leaving part of the professional training online (Geng, Law, and Niu, 2019). Despite the difficulties, new intelligent technologies certainly have advantages and are aimed at supporting sustainable learning.

Blended learning will become the most in-demand. The experience gained by Kazakhstani universities in 2020-2021 has no analogies. As a further research the authors propose to conduct surveys among teachers, which should be systematic to improve the implementation of blended learning. Comparative analyses among students of other countries will be useful to enlarge the scope of the findings.

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