

# DILEMMA AND COUNTERMEASURES OF EDUCATION DIGITIZATION POLICY IN KAZAKHSTAN IN THE POST- PANDEMIC ERA

---

**Giliziya Baishan**

Lecturer at the Shanghai International Studies University,  
Shanghai, China.

Doctor's degree Student of the Department of Political  
Sciences, L.N.Gumilyov Eurasian National University, Nur-  
Sultan, Kazakhstan.

E-mail: 02600@shisu.edu.cn

---

<https://doi.org/10.52536/2415-8216.2022-3.04>

---

**Abstract.** COVID-19 has accelerated the process of digital transformation of education in various countries. Kazakhstan has actively developed education digitization in recent years, but faced with a sudden pandemic, many problems have emerged in the process of online education. This has exacerbated the inequality of educational resources in various places, increased the cost of education and education, and caused problems such as the inability of online courses to guarantee the effect. This article explores the dilemma of the digital transformation of education in Kazakhstan and understands its safeguards by studying international experiences. Finally, suggestions and countermeasures are put forward. It is necessary to continue to promote the new infrastructure construction of education, build and share high-quality educational resources, strengthen the training system of teachers' information literacy, and rebuild the education evaluation mechanism based on digitalization.

**Keywords:** COVID-19, digitalization of education, transformation, online education, educational infrastructure, educational resources, information literacy, educational evaluation.

---

**ПАНДЕМИЯДАН КЕЙІНГІ КЕЗЕҢДЕ ҚАЗАҚСТАНДАҒЫ БІЛІМ  
БЕРУДІ ЦИФРЛАНДЫРУ САЯСАТЫНЫҢ ДИЛЕММАСЫ ЖӘНЕ ҚАР-  
СЫ ШАРАЛАРЫ**

**Гулицзын Байшань**

Шанхай шет тілдер университетінің аға оқытушысы, Шанхай, Қытай, e-mail: 02600@shisu.edu.cn

Саясаттану кафедрасының докторанты, Л.Н.Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан.

**Аңдатпа.** COVID-19 әртүрлі елдердегі білім беруді цифрлық түрлендіру процесін жеделдетті. Қазақстан соңғы жылдары білім беруді цифрландыруды белсенді түрде дамытты, бірақ кенеттен туындаған пандемияға тап болғанда, онлайн-білім беру процесінде көптеген проблемалар туындады, бұл әртүрлі өңірлердегі білім беру ресурстарының теңсіздігін тереңдетті, білім беру құнын арттырды, сондай-ақ онлайн-сабақтардың тиімділігіне кепілдік беру қиын болды. Бұл мақалада Қазақстандағы білім беруді цифрлық трансформациялаудың дилеммасы қарастырылады және халықаралық тәжірибені зерделеу негізінде қажетті қорғау шаралары талданады. Сонымен, білім берудің жаңа инфрақұрылымын салуды үнемі алға жылжыту, жоғары сапалы білім беру ресурстарын құру және бөлісу, мұғалімдердің ақпараттық сауаттылығын оқыту жүйесін жақсарту және цифрландыру негізінде білім беруді бағалау тетігін қайта құру бойынша ұсыныстар мен қарсы шаралар ұсынылады.

**Түйінді сөздер:** COVID-19, білім беруді цифрландыру, трансформация, онлайн білім беру, білім беру инфрақұрылымы, білім беру ресурстары, ақпараттық сауаттылық, білімді бағалау.

---

## ДИЛЕММА И КОНТРЕМЕРЫ ПОЛИТИКИ ЦИФРОВИЗАЦИИ ОБРАЗОВАНИЯ В КАЗАХСТАНЕ В ПОСТПАНДЕМИЧЕСКИЙ ПЕРИОД

**Гулицзын Байшань**

Старший преподаватель Шанхайского университета иностранных языков, г. Шанхай, Китай, e-mail: 02600@shisu.edu.cn

Докторант кафедры политологии Евразийского национального университета им. Л.Н. Гумилева, г. Нур-Султан, Казахстан.

**Аннотация.** COVID-19 ускорил процесс цифровой трансформации образования в разных странах. Казахстан в последние годы активно развивал цифровизацию образования, но столкнувшись с внезапно возникшей пандемией, в процессе онлайн-образования возникло множество проблем, что усугубило неравенство образовательных ресурсов в различных регионах, повысило стоимость образования, и также было сложно гарантировать эффективность онлайн-занятий. В данной статье рассматривается дилемма цифровой трансформации образования в Казахстане, и на основе изучения международного опыта разбираются необходимые защитные меры. Наконец, выдвигаются предложения и контрмеры для постоянного продвижения строительства новой инфраструктуры образования, создания и обмена высококачественными

образовательными ресурсами, улучшения системы обучения информационной грамотности учителей и перестройки механизма оценки образования на основе цифровизации.

**Ключевые слова:** COVID-19, цифровизация образования, трансформация, онлайн-образование, образовательная инфраструктура, образовательные ресурсы, информационная грамотность, оценка знаний.

---

## Introduction

In the 21st century, digitalization is being actively developed worldwide. Kazakhstan has also kept pace with the times. On December 12, 2017, the “Digital Kazakhstan” plan was proposed, and a series of plans were formulated to fully transform into a digital country. The Ministry of Education and Science of Kazakhstan is responsible for implementing the digitalization of education, vigorously training ICT professionals, and providing professional manpower for the country’s development of digitalization. According to the 2018 Digitalization Report of the Ministry of Education and Science of Kazakhstan, 65% of cities have Internet access, and only 35% of rural areas have Internet access. The Ministry of Education and Science of Kazakhstan plans to increase this figure to 89% and 67% respectively in 2019, 97% and 93% in 2020, and 100% in 2021, strengthen the educational infrastructure, gradually digitize education, and further promote Changes in teaching methods [1].

The sudden outbreak of COVID-19 in early 2020 has become a global pandemic, according to data from the “Education Policy Briefing During and Beyond the COVID -19” released by United Nations Secretary-General Antonio Guterres on August 4, 2020, It shows that the pandemic has caused the most severe damage to the education system in history. More than 191 countries and regions around the world have closed schools and teaching institutions, and nearly 1.6 billion students have been affected [2]. The pandemic has also brought considerable challenges to the digitalization of education in Kazakhstan, and at the same time has been forced to speed up the digitalization of education in Kazakhstan.

At the beginning of 2020, after the first case of COVID-19 in Kazakhstan appeared, the Ministry of Education and Science of Kazakhstan has successively issued many policy documents such as “Regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan on Distance Education During COVID-19 (Orders, Guidelines and Instructions)” to guide the normal functioning of the Kazakh education system. During the epidemic, the Ministry of Education and Science of Kazakhstan began implementing a distance education model in four directions. The first is distance education through TV channels. The second is distance education through broadcasting. The third is to conduct distance education by mail, mainly used for homework retention and collection. The fourth is to use online platforms, such as zoom, Microsoft teams, moodle, BilimLand, Daryn.online, Kundelik, etc. and guide teachers and students to ensure the continuous development of education through

these models. In response to the sudden onset of COVID-19, an unprecedented nationwide online education practice has accelerated the transformation of education to digital, but at the same time exposed many shortcomings of digital. How to grasp the opportunities and meet the challenges, realize the transformation of educational forms, the expansion of educational opportunities, the reconstruction of school space and the renewal of learning mode, speed up the comprehensive construction process of education digitization and lead the modernization of education is an urgent problem facing Kazakhstan's education [3].

### **Research methodology**

This paper uses policy analysis, literature research and comparative methods. Through policy analysis, the relevant literature on education digitalization policies in Kazakhstan in recent years is collected and organized to understand the progress of education digitalization transformation. Discuss the main problems of online education in Kazakhstan during the epidemic. By studying the digital experience of international education and based on the existing problems, put forward targeted suggestions for the digital transformation of education in Kazakhstan.

### **Discussion**

#### **The dilemma brought by the pandemic to the digital transformation of education**

##### **1. The pandemic has exacerbated inequalities in educational resources**

The digital construction of education in Kazakhstan is unbalanced between different regions, between urban and rural areas, and between schools, especially in rural areas. The level of school network construction and informatization application capabilities are significantly lower than those in cities. The sudden outbreak of the pandemic has exposed the inadequacy of education informatization construction in many schools, so there is no way to achieve online education, leading to further inequities in education. The resources required for the transformation of educational informatization include hardware facilities, basic equipment, teacher manpower and other multi- faced supports.

##### **2. The pandemic has increased the cost of education and access to education**

The sudden outbreak has imposed additional costs on schools and students. In the process of online education, schools need to bear the cost of course recording and various educational tools. Students need to buy computers, mobile phones and so on to listen to lectures online. More than 300,000 students in Kazakhstan have no access to computers during the pandemic. To this end, the Ministry of Education and Science of Kazakhstan decided to distribute school computers to students temporarily, and purchased 80,000 new computers to ensure the normal conduct of online courses. During the pandemic, schools in remote areas showed problems such as weak infrastructure construction, lack of planning for online materials and teaching materials, failure of information management, and failure to deal with them promptly. The quality of network connections has also become a common

issue faced by schools and students. In order to ensure the normal progress of online education, schools need to invest a lot of money to solve problems such as basic hardware facilities and system upgrades.

### 3. The effect of online courses cannot be guaranteed

Since the outbreak of the pandemic until early 2022, Kazakhstan has been using the online teaching model. Although the essential online teaching work is guaranteed at the level of the state and the Ministry of Education and Science of Kazakhstan, many problems are still exposed. For example, the learning atmosphere of online teaching classrooms is insufficient, it is difficult for teachers to grasp the real-time listening status of students, the interaction and emotional communication between teachers and students are insufficient, the network speed is slow, students are difficult to concentrate, and online teaching cannot achieve the expected results. Online courses have higher requirements for students' self-discipline in learning, and need their families to create a good learning atmosphere for students without interfering with online learning concentration. During the pandemic, online courses have brought greater challenges to practical courses such as experimental courses, physical education courses, and music courses. It is necessary for schools to innovate teaching methods according to the particularity of the curriculum in order to achieve the effect of the curriculum.

### 4. The pandemic has tested teachers' ability to transform digitally

Before COVID-19 pandemic, the concept of digital literacy and digital teaching in Kazakhstan was still in the early stage of exploration, and there was an insufficient experience in education digitalization practice. In the emergencies of COVID-19 pandemic, teachers are forced to contact online teaching, and learn to master and improve education digitization-related skills while using them. In this process, the quality of the courses is not up to standard, which affects the learning effect of students. Many schools in Kazakhstan do not have the ability to provide teachers with more digital resources, professional training, and reasonable incentive mechanisms, resulting in the inability to promote the rapid improvement of teachers' digital capabilities. At present, there are not enough teachers in Kazakh schools who can produce high-quality online courses, which is not enough to support the digital transformation of education.

## **Learning from international experience, taking the digitalization of education in China and Finland as examples**

### 1. The digitalization process of education in China

In recent years, China's education digitization has developed very well. In 2010, the Chinese government issued the Outline of the National Medium- and Long-Term Educational Reform and Development Plan (2010-2020), which clearly stated that information technology has a revolutionary impact on education development and must be highly valued. Since 2010, the Ministry of Education of China has led a number of departments to issue a total of 98 education informatization plans and related policy documents, and put forward clear ideas and specific requirements

from top-level design, development goals, key tasks, action measures: Strengthening digitalization Transform scientific research; give full play to the advantages of universities in the field of digital transformation in disciplines, technology, talents, etc.; support the digital transformation of cities and the construction of an intelligent society. The Chinese government issued the “Education Informatization 2.0 Action Plan” in 2018 and released “China’s Education Modernization 2035” in 2019, describing the phased characteristics of education informatization in the digital age. It also pointed out that it is necessary to promote the new infrastructure of education, create a new environment for the development of education digitalization, fully realize all schools’ access to the Internet, meet the needs of information-based teaching, and gradually popularize the application of wireless networks and smart devices in campuses. At the same time, digital teaching applications need to cover all teachers, learning applications need to cover all school-age students, and digital campus construction needs to cover all schools. It is necessary to further strengthen the information literacy level of teachers and students, build a large platform of “Internet + education”, build a new model of education personnel training, develop a new model of educational services, and explore the model of education governance in the information age [6].

2020, China has been vigorously innovating educational digital scenarios, focusing on replicable, scalable, and high-quality educational application scenarios, coordinate and promote the infrastructure of 10 types of educational application scenarios including teaching, learning, management, examination, evaluation and research, services, resources, practical activities, and home-school interaction. Promote the digitalization of education evaluation and carry out data-driven comprehensive evaluation of education. All localities will connect with the National Education Digital Resource Center to further integrate internal and external and social educational resources, improve the effective supply, and use efficiency of educational resources, and provide citizens with high-quality, balanced, rich and convenient learning support. Implement high-quality national information technology courses for primary and secondary schools and encourage and support educational institutions such as universities and community schools to build information literacy learning platforms and training systems for various social groups. China has comprehensively established and improved a sustainable development mechanism for education informatization, built a networked, digital, intelligent, personalized, and lifelong education system, and built a learning society where everyone can learn, can learn everywhere, and can learn from time to time. The overall level of educational informatization.

## 2. The digitalization process of education in Finland

With the rapid development of computer science and the trend of social digitization, Finland launched a new round of basic education curriculum reform in 2013, carried out education digitization activities at the national level, and fully implemented the new curriculum standards in 2016. The new curriculum standard clarifies that information technology literacy is not only the object and content of

learning, but also the means and tool of learning. It requires that all grades and all disciplines should use ICT technology reasonably and effectively from the basic education stage.

In the education reform action plan issued by the Finnish Ministry of Education and Culture, the Ministry of Education and Culture of Finland has taken many measures to promote information technology education and invested a lot of money every year to promote the reform of learning methods, the innovation of learning environment and the digitization of learning materials. The three dimensions have promoted the innovation of basic education. develop. Finland attaches great importance to improving the informatization and digital literacy of students and teachers and has developed an online model for teachers' professional development and related electronic resources to ensure that teachers can obtain MOOC resources and improve teachers' professional ability. The Finnish Ministry of Education selects and trains "digital teaching trainers" for all schools. These "trainers" are responsible for training and guiding other teachers to carry out digital teaching methods and strategies, so as to promote the digitalization of teaching in schools. In order to promote the implementation of intelligent education policies, Finland will launch a national-level education system focusing on student identity information management, school daily activity management, game-based education, programming and computational thinking education, digital ability evaluation of teachers and students, and university entrance exams. Implement a series of educational digital practice projects, and vigorously develop and construct a digital learning resource platform. This ensures that all schools have access to digital resources provided by national level platforms. In addition, in the process of teaching implementation, Finland pays attention to the integration and penetration of information technology education across learning and has adopted a series of measures such as innovative teaching environment.

### **Guarantee measures for the transformation of education informatization**

1. The government should promote the digital transformation of education in an all-round way, and strengthen the cooperation and linkage of departments

The digital transformation of education needs to formulate a reasonable plan and layout at the national level. It is necessary to promote the joint promotion of education, industry and information, finance, human resources, communication management and other departments. It is necessary to improve the organizational leadership structure of each department for the digital transformation of education, and to clarify the tasks of each department, positioning and responsibilities, establish an effective multi-subject, resource sharing, and coordinate to promote the national education informatization work. It is necessary to further improve the leadership mechanism, effectively integrate the strengths of management departments, business departments, and technical departments, and do an excellent job in the implementation of tasks. Strengthen the supervision and evaluation of the digital



transformation work of each district and each educational unit by the education supervision department, and regularly disclose the progress and results of the work.

2. Education departments should improve digital policy support and strengthen overall planning

Continue to improve the national education digital construction configuration standards, do an excellent in the financial education expenditure structure, and ensure the main tasks and key projects of digital transformation construction. Schools of all levels and types should increase their support for the construction of educational informatization. On the premise of ensuring the regular operation of schools, priority should be given to ensuring the funds required for the construction of educational informatization, and encouragement and guidance to improve the effectiveness and sustainability of digital applications. The online click-through rate of online courses, digital contributions such as participating in the digital construction of schools and opening online public courses are included as bonus elements into the teacher rank evaluation system. Set up a digital education department, improve the evaluation system and promotion paths.

3. The school should strengthen the cooperation of enterprises and scientific research institutions to promote the transformation of achievements

Give full play to the advantages of universities, enterprises, and think tanks, establish a government-industry-university-research collaboration mechanism, realize diversified investment, scientific design and promotion, and ensure the digital transformation construction and development support policy system. Guide and encourage universities, scientific research institutions, and enterprises to set up research platforms for digital transformation of education, build communication platforms, integrate the advantages of all parties, continuously stimulate the innovative vitality of scientific researchers, support the exploration and practice of digital transformation of education, and promote the application of scientific and technological innovation and the transformation of achievements. Support social institutions to participate in collaborative education in education and ensure diversified investment in the digital transformation of education.

4. Information departments strengthen network security and consolidate technical support

While promoting the digital transformation of education, strengthen the network security system and mechanism, implement the network security responsibility system, and take the school as the unit to implement the main responsibility for network security. Coordinate the construction of an integrated network security supervision mechanism, improve the ability of intelligent diagnosis and disposal of network security, and provide security services such as detection, defense, and response of key systems and key information facilities. While carrying out digital education, implement the network security registration protection system, strengthen the exchange and sharing of network security hidden dangers and letter information, and establish a normal network security attack and defense drill and training evaluation working mechanism.



## Results

Facing the post-pandemic era, how to promote the sustainable and in-depth development of digitalization of education in Kazakhstan is a matter of great concern to the education system and the whole society.

1. Build and share high-quality educational resources and focus on online teaching quality

In the post- pandemic era, accelerating the digitalization of education is an important task. Kazakhstan needs to customize the education system and education policy according to its own development situation and guide the digital transformation process of the education system. In this process, it is necessary to share educational resources and pay attention to the quality of online teaching to ensure the effective promotion of education digitalization. Kazakhstan needs to increase policy support for education digitization, increase capital investment, build an education sharing resource platform, and organize excellent teachers to build online classrooms for each course for students across the country. Focus on reproducible, scalable, and high-quality educational application scenarios, explore the construction of digital twin schools, and promote high-quality educational resources nationwide.

2. Promote the construction of new education infrastructure and create a combined online and offline mode of education digitalization

Kazakhstan needs to further develop education digital infrastructure, actively integrate into the new national infrastructure, promote 5G + cloud network integration, implement campus network upgrades, and reshape the entire chain of modern education. Through the practice of online teaching mode in the past two years, it is certain that offline teaching is an irreplaceable mode. If you can effectively combine the online and offline teaching mode, you will get twice the result with half the effort. The mixed teaching mode can not only play the leading role of teachers' guidance, inspiration, and teaching process, but also enhance students' enthusiasm and creativity. Therefore, under the support and guidance of the Ministry of Education and Science of Kazakhstan, schools need to promote and create a hybrid online and offline model vigorously. In this process, the most challenging thing to achieve is practical teaching. In this regard, schools should fully information technology to create a simulation practice application environment, build a cloud environment simulation training platform, and accelerate the construction of an online and offline hybrid teaching model that emphasizes both theory and practice.

3. Provide continuous learning programs and improve teachers' information literacy training system

most critical role in the digital transformation of education, both builders and participants. However, the qualifications and abilities of teachers in Kazakhstan vary widely. Kazakhstan should cultivate teachers' digital thinking to adapt to the development trend of the information age and improve teachers' ability to use information technology to solve problems. Therefore, it is necessary to do a good job in the training of teachers' technical ability improvement. Although artificial intelligence cannot completely replace the work of teachers in the future, teachers can carry out

teaching work more effectively through digitalization. Therefore, teachers should be guided to actively accept the concept of education digitalization and improve their enthusiasm. Promote the reform of educational technology public courses in normal colleges and universities, build future teachers' information literacy training bases, and support normal colleges and universities to use information technology to carry out basic research and practical application of education and teaching. Encourage and support educational institutions such as universities and community schools to build information literacy learning platforms and training systems for various social groups.

4. Promote the digitalization of education evaluation and carry out data-driven comprehensive evaluation of education

As the basic composition of future education, digital education will inevitably face the problem of evaluation in the process of development. For digital education, Kazakhstan should optimize educational evaluation concepts, technologies and tools, and rebuild an educational evaluation mechanism based on digitalization. Relying on accompanying data collection, establish long-term, cross-field, multi-dimensional portraits of teachers and students, strengthen education evaluation data governance, build digital files covering the life of teachers and students, and provide accurate guidance and guidance for student growth and teacher development. Strengthen the collection, analysis, feedback and application of educational dynamic evaluation results, and research and promote the application of students' comprehensive quality evaluation in examinations. Based on big data, continuously improve the education quality monitoring and evaluation system, support the multi-dimensional evaluation of educational talents, and support the early identification and training of top-notch innovative talents.

## Conclusions

In the post-pandemic era, the digital transformation of education in Kazakhstan is an irreversible and inevitable trend. Although the epidemic has exposed many problems in the implementation of distance education in Kazakhstan. However, this has also brought new opportunities to the digital transformation of education in Kazakhstan and accelerated the process of education digitalization.

Kazakhstan is in a critical period of digital transformation and upgrading of education. It is necessary to learn not only the technologies, experiences and practices of developed countries, but also the various attempts of developing countries. At the same time, it is necessary to objectively understand the stage of their own development and the development status of education in different regions of the country. Based on the targeted learning of advanced experience, a digital transformation path that suits Kazakhstan's national conditions is explored.

---

## References

1. Prime Minister of Kazakhstan website: State Program Digital Kazakhstan [Electronic Resource]. 2017. Available at: <https://primeminister.kz/assets/media/gosudarstvennaya>

- programma-tsifrovoy-kazakhstan-rus.pdf?ysclid=l4teb02z kf793933177 (Accessed: 21.03.2022).
2. The Paper.cn. UN: The COVID-19 pandemic has hit education systems, affecting nearly 1.6 billion students worldwide [Electronic Resource].2021. Available at: [https://www.thepaper.cn/newsDetail\\_forward\\_8596263](https://www.thepaper.cn/newsDetail_forward_8596263) (Accessed: 21.04.2022).
  3. Official website of the online law of Kazakhstan: Order of the Minister of Education and Science of the Republic of Kazakhstan dated April 1, 2020 No. 123 On strengthening measures to prevent the spread of coronavirus infection COVID-19 in educational institutions during the pandemic [Electronic Resource]. 2020. Available at: [https://online.zakon.kz/Document/?doc\\_id=39049590&pos=4;-106#pos=4;-106](https://online.zakon.kz/Document/?doc_id=39049590&pos=4;-106#pos=4;-106) (Accessed: 15.04.2022).
  4. Uvarova A.Yu. Frumina I.D. Difficulties and prospects of the digital transformation of spraying. Publishing House of the Higher School of Economics. Moscow. 2019
  5. Official website of the Government of Kazakhstan: National report on the state and development of the education system of the Republic of Kazakhstan (based on the results of 2019) [Electronic Resource]. 2020. Available at: [https://www.gov.kz/uploads/2021/3/11/004d895b28e14465fc4f257d faa0691d\\_original.17822697.pdf?ysclid=l4tffxl9vt660616799](https://www.gov.kz/uploads/2021/3/11/004d895b28e14465fc4f257d faa0691d_original.17822697.pdf?ysclid=l4tffxl9vt660616799) (Accessed: 15.04.2022).
  6. Official website of China's Ministry of Education. Education informatization plan and related policy documents [Electronic Resource]. Available at: [http://www.moe.gov.cn/jyb\\_xxgk/xxgk/neirong/fenlei/sxml\\_jyxxh/jyxxh\\_xxxh/xxh\\_xgzc/](http://www.moe.gov.cn/jyb_xxgk/xxgk/neirong/fenlei/sxml_jyxxh/jyxxh_xxxh/xxh_xgzc/) ((Accessed:27.12.2021)
  7. Shen Tao. Characteristics and Reflections of Online education in the Post-epidemic era. Computer Knowledge and Technology.2021 (32)
  8. Philip G. Altbach. COVID-19 has accelerated the transformation of internationalization of higher education. Management of Higher Education.2022 (1)
  9. Li Nannan. Opportunities and Challenges for the development of basic education in the post-epidemic era. Education and Teaching Research. 2021(11)
  10. China.org.cn. Zhang Zhiyong: Background and trend of school education reform in the post-epidemic era. Available at: [http://edu.china.com.cn/2020-07/20/content\\_76291234.htm](http://edu.china.com.cn/2020-07/20/content_76291234.htm) (Accessed:20.04.2022)