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FOR QUALITY ASSURANCE IN EDUCATION - IQAA

THEMATIC ANALYSIS

Distance learning in Kazakhstan: challenges and prospects

Compiled by:

Sh.M. Kalanova, Doctor of Pedagogical Sciences, Professor;

A.Zh. Gabdullina, Candidate of Historical Sciences

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INTRODUCTION

The development of digital technologies, as well as the digital modernisation of the economy outlined in the Address of the President of the Republic of Kazakhstan to the Nation "Kazakhstan in the Era of Artificial Intelligence: Current Tasks and Their Solutions through Digital Transformation", has accelerated the implementation of distance learning in the higher education system of the Republic.

In the 2025–2026 academic year, 116 higher education institutions and 6 branches were operating in the country. At the beginning of the academic year, the total number of students amounted to 678,114, including 676,915 full-time students, 188 evening students, and 1,011 part-time students. Data on students enrolled in online learning are not available[1]. The number of higher education institutions delivering master's degree programmes amounted to 114, residency programmes – 24, and doctoral programmes – 79. The number of master's students totalled 42,613, while the number of doctoral students reached 9,491[2]. Data on students studying through distance learning are not available.

According to the Rules for the Organisation of the Educational Process using Distance Learning Technologies and Online Learning within educational programmes of higher and (or) postgraduate education, the proportion of courses delivered through distance learning is limited to no more than 20% of the total number of courses throughout the entire period of study in the following fields: law, choreography, music, aviation engineering and technologies, construction, maritime technologies, military studies, and veterinary medicine.

Distance learning is not permitted in higher education institutions implementing educational programmes in medicine, pharmacy, and teacher education, except in cases provided for by paragraph 2 of Article 37-2 of the Law of the Republic of Kazakhstan on Education.

For other fields of study, the proportion of courses delivered through distance learning may not exceed 50% of the total number of courses throughout the entire period of study.

When courses are delivered using distance learning technologies, teaching is conducted in a synchronous format, except for courses delivered through Massive Open Online Courses (MOOCs).

For reference: Synchronous learning format refers to distance or online learning involving real-time interaction (streaming) between participants in the educational process through information systems and communication technologies, enabling students to receive information, process it individually or in groups, and discuss it with other participants and instructors simultaneously within a unified time period.

Massive Open Online Course (MOOC) is a course designed for large-scale interactive participation using e-learning technologies and open access via the Internet.

Despite the rapid transition, higher education institutions face a number of challenges related to technical, pedagogical, organisational, and socio-economic aspects. This paper attempts to highlight the key barriers encountered by students, academic staff, and university management in the transition to distance learning.

Distance learning refers to education delivered through interaction between instructors and students at a distance, including through the use of information and communication technologies (ICT) and telecommunication tools. Within higher education, distance learning involves the use of digital educational resources, online platforms (for example Moodle, Canvas, UNIVER), videoconferencing tools, testing systems, and other instruments.

Online learning is a form of education within specific fields of study (qualifications) or training areas in which learners obtain technical and vocational, post-secondary, higher, and (or)

[1] Higher Education in the Republic of Kazakhstan (at the beginning of the 2025–2026 academic year) //https://stat.gov.kz/ru/industries/social-statistics/stat-edu-science-inno/publications/358722/. Accessed on:29.12.2025

[2] Postgraduate Education in the Republic of Kazakhstan (at the beginning of the 2025–2026 academic year) // https://stat.gov.kz/ru/industries/social-statistics/stat-edu-science-inno/publications/358716/. Accessed on: 29.12.2025.

postgraduate education through ICT and Internet-based interaction between instructor and student, regardless of spatial and temporal distance.

International experience demonstrates that distance learning requires not only technological infrastructure but also methodological transformation, staff training, and adaptation of the regulatory framework. In Kazakhstan, despite progress in the digitalisation of education, the implementation of distance learning formats continues to face several challenges.

Table 1. Number of educational institutions

	Number of independent higher education institutions	Of which, full-time			
		Full-time	Full-time with use of DOT*	DOT**	Hybrid format**
Republic Kazakhstan	116				
Abai	3	3			
Akmola	4	4	2		
Aktobe	5	5	1		
Almaty	1	1	1		
Atyrau	2	2			
West Kazakhstan	4	4	4		
Jambyl	3	3	1		
Zhetisu	1	1	1		
Karaganda	8	8	7		1
Kostanay	6	6	3		1
Kyzylorda	3	3	2		
Mangistau	1	1			
Pavlodar	4	4	2		
North Kazakhstan	2	2			
Turkestan	3	3	1		
Ulytau	1	1			
East Kazakhstan	3	3	4		
Astana	16	10	6		
Almaty	37	37	16	2	
Shymkent	9	9	3		

Source: Higher education in the Republic of Kazakhstan (At the start of the 2025-2026 academic year) //https://stat.gov.kz/ru/industries/social-statistics/stat-edu-science-inno/publications/358722/.Date of access:29.12.2025

*, **, *** – information based on an analysis of universities' official websites.

ANALYTICAL SECTION

1.1. The concept of distance learning and its main characteristics

According to the UNESCO UIS definition, higher education programmes corresponding to ISCED levels 5 and 6 are those that integrate information and communication technologies (ICT) and in which interaction between instructors and students takes place remotely, regardless of their geographical location and time.

Distance learning is characterised by the existence of physical separation between the instructor and the learner, which is not always associated with geographical distance. Interaction is carried out through various technologies: online platforms, videoconferencing, radio broadcasting, printed materials, etc. An important aspect is the possibility of both synchronous and asynchronous work, as well as students' independent learning activities and the use of digital educational resources.

In Kazakhstan, distance learning is defined as education delivered through interaction between the teacher and learners at a distance, including through the use of information and communication technologies and telecommunication tools.

Main characteristics:

- The absence of the need for the simultaneous physical presence of the instructor and the learner makes it possible to provide education regardless of time and place.
- The introduction of information and communication technologies (ICT), such as, for example, at Marmara University, where the distance learning system is a web application that enables the management of educational programmes, their documentation, monitoring, reporting, and publication. The Distance Learning System (UES) supports various modes of use, serving as a platform for online content for both parallel and extramural classes. UES offers class management both for classes conducted by instructors in classrooms and for blended learning used at the university.
- The organisation of learning activities: class schedules, modular structure, assessment system, communication between students and instructors, as well as among students.
- Interaction and feedback, where it is important to maintain quality through regular interaction, support, and communication.

1.2. Regulatory framework and statistical data

International and national legislation

In many countries, higher education and distance education programmes are regulated in a manner similar to traditional higher education (HE) programmes, including accreditation, certification, requirements for academic staff, obligations regarding student achievement, and other requirements.

Regulation in different regions:

- South-East Asia / Pacific region: research conducted by ICDE demonstrates the extent to which countries are prepared for open education, what regulatory frameworks exist, and where gaps remain[3].
- European Higher Education Area (EHEA): distance and hybrid formats are recognised as legitimate forms of provision (open learning, e-learning, blended learning), particularly after the pandemic.
- In Kazakhstan, distance learning is implemented in organisations of secondary,

[3] Global Quality. Prospects for Open, Flexible and Distance Learning in 2022. ICDE Quality Network Report. – Oslo, 2023. – pp. 17–26.

additional, technical and vocational, post-secondary, higher and (or) postgraduate education in accordance with procedures established by the authorised body in the field of education and the authorised body in the field of science and higher education.

In Kazakhstan, distance learning (learning using ICT and telecommunication technologies) has been officially introduced as a form of education on the basis of the Law of the Republic of Kazakhstan "On Education". The Order of the Ministry of Science and Higher Education of the Republic of Kazakhstan (hereinafter – MSHE) dated 21 May 2024 introduced the following amendments:

- For fields of study such as law, choreography, music, aviation engineering, construction, maritime technologies, military studies, and veterinary medicine, distance learning is permitted for no more than 20% of the total number of disciplines throughout the entire period of study.
- For other fields of study, distance learning may constitute up to 50% of the total number of disciplines.

At the same time, for educational programmes in medicine, pharmacy and teacher education, distance learning is not permitted under normal conditions (except in emergency situations or quarantine). In May 2025, the introduction of stricter monitoring of academic performance and the use of a "digital footprint" for students transferred to distance learning formats was discussed.

Thus, a full transition to 100% distance learning in higher education institutions of Kazakhstan has not yet occurred, as it is legally limited to 50% (for most fields) and 20% (for certain groups of disciplines). Formally, an "online learning format" is permitted as a licensed form of education, but with limitations.

The focus is shifting from the emergency transition to online learning (during the COVID period) towards hybrid and blended learning models and the broader digital transformation of universities. The development of digital infrastructure and platforms forms part of the national policy of digitalisation of higher education.

According to the UNESCO UIS database, the percentage of youth/adults who have achieved at least a minimum level of digital literacy skills (women) is presented below.

Table 1. Percentage of youth/adults who have achieved at least a minimum level of digital literacy skills, women

Country	2012	2015	2017
Austria	28.00		
Belgium	32.00		
Canada	36.00		
Chile		12.00	
Czech Republic	31.00		
Denmark	37.00		
Ecuador			4.00
Estonia	27.00		
Finland	40.00		
Germany	32.00		
Greece		13.00	
Hungary			27.00
Ireland	24.00		
Israel		25.00	
Japan	29.00		
Kazakhstan			**16.00**
Lithuania		18.00	
Mexico			8.00
Netherlands	38.00		
New Zealand		45.00	

Norway	38.00		
Peru			6.00
Poland	18.00		
Republic of Korea	28.00		
Russian Federation	26.00		
Singapore		34.00	
Slovakia	25.00		
Slovenia		25.00	
Sweden	42.00		
Turkey		6.00	
United Kingdom of Great Britain	31.00		

Source: https://databrowser.uis.unesco.org/view#indicatorPaths=UIS-SDG4Monitoring%3A0%3ADL.WITHTERTIARY&geoMode=countries&geoUnits=&browsePath=EDUCATION%2FUIS-EducationOPRI&timeMode=range&view=table&chartMode=multiple&tableIndicatorId=DL.WITHTERTIARY&chartIndicatorId=DL.WITHTERTIARY&chartHighlightSeries=&chartHighlightEnabled=true

According to the UNESCO UIS database, the percentage of youth/adults who have achieved at least a minimum level of digital literacy skills, men:

Table 2. Percentage of young people/adults who have attained at least a basic level of digital literacy, males

Country	**2012**	**2015**	**2017**
Austria	37.00		
Belgium	37.00		
Canada	37.00		
Chile		17.00	
Czech Republic	36.00		
Denmark	40.00		
Ecuador			6.00
Estonia	28.00		
Finland	43.00		
Germany	40.00		
Greece		15.00	
Hungary			30.00
Ireland	27.00		
Israel		28.00	
Japan	40.00		
Kazakhstan			**16.00**
Lithuania		17.00	
Mexico			13.00
Netherlands	45.00		
New Zealand		44.00	
Norway	44.00		
Peru			7.00
Poland	21.00		
Republic of Korea	33.00		
Russian Federation	26.00		
Singapore		40.00	
Slovakia	26.00		
Slovenia		26.00	

Sweden	46.00		
Turkey		9.00	
United Kingdom of Great Britain	39.00		

Source: https://databrowser.uis.unesco.org/view#indicatorPaths=UIS-SDG4Monitoring%3A0%3AICTSKILLEPRS%2CUIS-SDG4Monitoring%3A0%3AICTSKILLONLSFT%2CUIS-SDG4Monitoring%3A0%3AICTSKILLUPLD%2CUIS-SDG4Monitoring%3A0%3AICTSKILLFONLCRS%2CUIS-SDG4Monitoring%3A0%3ADL.F%2CUIS-SDG4Monitoring%3A0%3ADL.M&geoMode=countries&geoUnits=&browsePath=EDUCATION%2FUIS-SDG4Monitoring&timeMode=range&view=table&chartMode=multiple&tableIndicatorId=DL.M&chartIndicatorId=DL.M&chartHighlightSeries=&chartHighlightEnabled=true

In Kazakhstan, there has been an increase in a minimum level of digital skills among women – 16% – and among men – 16%.

1.3. Advantages and risks (for higher education institutions)

Distance learning has both certain advantages and a number of risks. One important advantage is accessibility for a larger number of students, for example students from remote regions or those who are unable to travel for studies due to family circumstances or health conditions.

Another advantage is flexibility, as students can choose the time, pace, and place of study, allowing learning to be adapted to individual needs and preferences.

Scalability and efficiency represent another advantage, as distance learning enables education of a larger number of students without the need for expanding physical infrastructure such as classrooms and student dormitories.

The implementation of innovations is also a significant benefit for the educational process. Higher education institutions continue to apply new technologies, multimedia resources, pedagogical approaches, and blended learning models.

The socio-economic aspect may also be considered an advantage for students, since distance learning reduces expenses such as transportation, accommodation, and meals.

Risks and challenges

At the same time, alongside the positive aspects, there are risks and problematic issues. One of the most significant risks is the potential decrease in the quality of the educational process, reflected in difficulties ensuring sufficient interaction, motivation, and student engagement in learning.

Assessment and monitoring of academic progress necessitate a reliable system for evaluation, preventing cheating, and ensuring academic integrity.

As noted above, innovation as an advantage may also have limitations, as technological infrastructure is not equally developed everywhere. This includes the availability of internet access, computers and other necessary equipment, reliable learning management systems (LMS), and support from IT services.

The risk area also includes regulatory and accreditation barriers, such as differences in recognition of diplomas, legal status of distance learning programmes, and licensing requirements.

Another problematic aspect is internal resistance to distance learning among both academic staff and students, including insufficient readiness for independent learning, limited online learning skills, and insufficient pedagogical competencies.

When studying remotely, students may experience isolation, and distance learning may influence social aspirations. As the experience of distance learning during the pandemic has shown, reduced face-to-face interaction and limited student life may negatively affect personal development and networking opportunities.

1.4. Quality assurance and audit

When auditing distance learning programmes, the following aspects should be evaluated:

- Legal and accreditation framework: the programme must be licensed and accredited in the country; the qualification must be recognised by regulatory authorities and employers;
- Programme structure and curriculum: there must be a clear structure of modules, learning outcomes, and assessment criteria; an appropriate balance between synchronous and asynchronous learning activities should be ensured; methodologies for assessing independent work, projects, and examinations must be developed and implemented;
- Technological infrastructure: availability of learning management systems (LMS), digital platforms, videoconferencing tools, electronic library resources, and multimedia tools must be ensured; technical and methodological user support must be established; system reliability and cybersecurity must be ensured (data protection, accessibility, backup systems);
- Qualifications and training of academic staff: experience in online teaching and knowledge of distance learning methodologies are required; higher education institutions should support professional development in this area;
- Student support services: mentoring, feedback channels, psychological and academic support services; assistance with technological issues and adaptation to the distance learning format;
- Monitoring, evaluation and continuous improvement: success indicators include academic performance, falling behind in the coursestudent satisfaction, and continuation of studies; feedback from students and academic staff; comparison of outcomes between distance and traditional learning formats;
- Security and academic integrity: measures to prevent plagiarism and cheating in exams are essential. Verification of student identity, where required.

1.5. Examples of international models

Open University of Cyprus specialises entirely in open and distance learning and applies modules and thematic units using the European Credit Transfer and Accumulation System (ECTS).

The Open University of Cyprus (OUC) is a public higher education institution offering accredited distance learning programmes at all levels (bachelor’s, master’s, and doctoral programmes). In addition, it offers short-term educational programmes and professional development courses via its platforms.

The Open University of Cyprus is oriented towards both the national and international academic community. Educational programmes offered by OUC are international in nature, well structured, and career-oriented in order to meet national needs and respond to student expectations, enhancing knowledge and skills in line with their aspirations and ambitions. The OUC emphasises its full alignment with the European Credit Transfer and Accumulation System

(ECTS), which enhances student mobility and strengthens cooperation with traditional universities.[4]

CNED (France) is one of the largest institutions providing distance learning programmes at all levels, including higher education degree programmes.

Educating more than 20,000 students worldwide (excluding France), including 17,000 school students, CNED represents the largest provider of distance learning in Europe and of French language instruction internationally. Its expertise also contributes significantly to the dissemination of French language and culture across five continents.

CNED plays an important role in both initial and continuing professional development of teachers of French as a foreign language (FLE), as well as FLE students, particularly through three complementary training programmes implemented in partnership with:

France Education International (FEI) – professional development system for FLE teachers (ProFle+);

The Alliance Française Paris-Île-de-France - diploma qualifying for teaching French as a foreign language - the Diploma of Aptitude for Teaching French (DAEFLE);

University of Grenoble-Alpes - FLE programme (DU and Master's 1 and 2).

CNED also prepares students for internationally recognised certificates in French as a foreign language, including TCF, DELF, and DALF.

2. Practice of implementing distance learning in higher education institutions of the Republic of Kazakhstan

2.1. Platforms and digital resources used

In Kazakhstan, several types of platforms have been used to implement the educational process, such as Zoom, Moodle, MS Teams, Google Classroom, etc. Research conducted by Kazakhstani scholars indicates that English language instructors at Al-Farabi Kazakh National University and Kh. Dosmukhamedov Atyrau University more actively used Zoom and Google Classroom, as these platforms are convenient for conducting videoconferences and structuring course materials.[5]

According to the present study, based on data from official websites of domestic universities, in 40 higher education institutions distance learning is conducted using platforms such as AIS Platonus, Moodle, and MOOCs, while in 12 universities distance learning is implemented through proprietary online and educational platforms. For example, Zhangir Khan University (Uralsk) developed its own educational platform NurProject[6].

One of the key international platforms actively integrated into the higher education system of Kazakhstan is Coursera. For example, in 2024 Kazakhstan was identified in the Coursera report as a leading country in the digital transformation of higher education. Many universities obtained licensed access to Coursera courses, and some courses were translated into Kazakh and Russian. For example, S. Amanzholov East Kazakhstan University obtained 850 licences in 2024; 1,707 students completed 2,266 courses and 3,017 certificates were received.

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[4] Open University of Cyprus // https://eoc.org.cy/members/open-university-of-cyprus/

[5] N.A. Utemgaliyeva, A.Zh. Mukhamedrakhimova (Al-Farabi Kazakh National University). The Effectiveness of Improving the Quality of Education through Online Platforms at Higher Education Institutions in Kazakhstan // Gumilyov Journal of Pedagogy. – 2025. – No. 1 (150). – pp. 95–105. ISSN: 3080-1710. https://doi.org/10.32523/3080-1710-2025-150-1-95-105

[6] A. Iskaliyeva, A. Issaliyeva, B. Kurmanova, A. Yermekova, A. Magauova, I. Bapiyev. Features of Distance Learning in the University Education System of Kazakhstan // Journal of Ecohumanism. – 2024. – Vol. 3, No. 8. – pp. 12646–12659. ISSN: 2752-6798 (Print), ISSN: 2752-6801 (Online). https://doi.org/10.62754/joe.v3i8.5916

Universities also participate in the project “Coursera in Kazakh language”, which involves translation and localisation of courses.

In addition to Coursera, a number of universities are developing their own LMS and hybrid solutions. Therefore, the integration of LMS and online platforms represents a promising direction. Regarding digital infrastructure, Satbayev University developed a digitalisation strategy for 2024–2025, including open access to online courses and participation in the Digital University model.

Thus, Coursera serves as an important external resource, but not the only one. Universities aim to integrate global online courses into their educational programmes, providing students with access to international content. The main emphasis remains on face-to-face learning with the use of distance learning technologies combining online and offline formats.

2.2 Examples of national higher education institutions

In 2024, the Independent Agency for Quality Assurance in Education (IQAA) conducted institutional accreditation in 12 higher education institutions of the Republic. The practice of implementing distance learning formats in accredited educational institutions has been analysed through the external review reports of external expert panels.

For example, at AlmaU the external expert panel recommended accelerating the transition to a unified information system integrating key business processes and managing all university information. This recommendation was implemented through the creation of the AlmaU Digital University, which integrates links to various digital services of the university except MOOCs.

At Karaganda University of Kazpotrebsoyuz distance learning is conducted according to the schedule via the university educational portal (https://plt.keu.kz/), where video lectures and learning materials are available, live communication is provided via online conferences, and communication with students implemented through email, social networks, or Skype. The list of MOOCs includes 74 courses (https://keu.edu.kz/images/stories/mooc/1.html).

At Al-Farabi Kazakh National University, during institutional accreditation, positive practice was identified in the existence of its own LMS enabling implementation of the key principles of student-centred learning, particularly allowing students to select individual learning pathways. As known, Al-Farabi KazNU is a leader among Kazakhstani universities in implementing MOOCs on the OpenEdx platform. The university operates the Office of Academic and Digital Innovations, which regularly provides professional development courses for academic staff (at least 72 hours) on new educational and digital technologies. The Office also delivers professional development courses in the field of MOOC design and application of new digital technologies for academic staff of partner universities.

At Zhangir Khan West Kazakhstan Agrarian Technical University more than 130 MOOCs in Kazakh and Russian languages have been developed.

At S. Amanzholov East Kazakhstan University the distance learning portal operates (https://euniver.vku.edu.kz/login).

In the external review report for institutional accreditation of the Kazakhstan-American Free University it is stated that the Moodle distance learning system is used for organisation of the educational process and provides access to educational and methodological materials, regulatory reference resources, and news feeds. Moodle also includes special accessibility features for students with disabilities. The automated information system Platonus is used to manage the educational process. The university website includes the E-KAFU section containing 12 digital services (Moodle LMS, AIS Platonus, Telegram bot, virtual admissions office, online dormitory, online library, academic calendar, MOOCs, Coursera etc.) supporting automation of the educational process.

ALT University actively implements digital technologies in the educational process,

creating a modern ecosystem of open learning. MOOCs are available at https://platonus.academy/. The external expert panel report indicates that several electronic platforms are used (Microsoft Teams, Zoom, Platonus), functioning both on computers and mobile devices. The Microsoft Teams and Zoom platforms provide access to video streaming services. The panel recommended planning the introduction of artificial intelligence to support students, as AI may assist in personalising the learning process and adapting it to individual needs, as well as in developing new teaching methodologies and analysing learning outcomes.

At the International University of Tourism and Hospitality 200 MOOCs are available on the university website.

The external review report of institutional accreditation of Kostanay Social and Technical University named after Academician Z. Aldamzhar indicates that since 2008 the university has used AIS Platonus to support the educational process. During the pandemic, Moodle LMS was also used for distance learning. However, experts noted lack of systematic structure of educational content in AIS Platonus, duplication of teaching materials between Platonus and the Educational Portal, and recommended increasing the share of open-source software solutions and integration of SunRavTestOfficePro local testing software with AIS Platonus. To reduce the human factor, consideration should be given to the possibility of conducting testing in AIS Platonus.

At the same time, MOOCs developed by the university's leading instructors are available on the university website. Prior registration is required to access the courses.

At Innovative Eurasian University an internally developed information system has been operating since 2019, alongside implementation of more effective AIS Platonus 6.0 integrated with the Unified Higher Education Platform, Financial Centre, State Database of Individuals, and National Educational Database. The university is connected to the AI-Sana platform.

At Shymkent University a MOOC platform provides opportunities for additional education and professional development. Upon successful completion of courses, certificates are awarded.

According to the external review report of Atyrau University, AIS Platonus operates alongside mobile applications Platonus Student and Platonus Tutor. New modules are continuously introduced, including modules such as *Weekly Academic Performance Tracking* and *Attendance Monitoring* using QR codes. The experts reviewed the modules accessed by students and master's students through selective access to the AIS.

In 2025 IQAA conducted institutional accreditation of several universities. According to the external review report, the Academy of Public Administration under the President of the Republic of Kazakhstan modernised digital and educational infrastructure (Smart Academy digital system, LMS Canvas, AIS Platonus, Microsoft Teams, Zoom, Moodle, integration with e-Qyzmet electronic resources). The distance learning system was implemented, server infrastructure upgraded, and all students and staff were provided access to digital resources. Electronic document management systems Documentolog and Outlook are used.

At the Egyptian University of Islamic Culture Nur-Mubarak Moodle platform is used for disciplines monitoring. At least four online courses were planned in 2024; however, open online courses for disciplines have not yet been developed or integrated into the educational process.

Caspian University fully transitioned to distance learning using Univer 2.0, Moodle and Zoom platforms. The university website includes an online platform integrating student service centre, dean's offices, Students' Affair, career centre, and research and innovation centre supporting remote delivery of the educational process.

In the external review report of the International Educational Corporation, positive practice was identified in the internally developed LMS iPortal based on Moodle, providing analytical data and integration of educational processes, ensuring effective interaction between students, academic staff, and administration, as well as synchronisation with the unified higher education platform. A mobile application for iOS and Android allows users to access system functions and receive notifications. The external expert panel recommended increasing the

number of MOOCs developed by academic staff to enhance accessibility and quality for distant learning and strengthen the university's academic reputation.

At South Kazakhstan Pedagogical University named after Ozbekali Zhanibekov, student surveys indicated active use of innovative teaching methods and digital resources such as Google Classroom, AIS Platonus, Moodle and YouTube. However, the external expert panel emphasised the need to implement a unified digital platform for student support.

The external expert panel also recommended expanding the practice of publishing MOOCs developed by academic staff on open platforms such as Coursera and Open.kz to increase accessibility and outreach.

2.3. Comparison of learning formats

Table 3. Comparative table of learning formats

Face-to-face (traditional)	Students attend classes physically and use campus infrastructure	Full interaction, supervision, laboratories, practical training	Limited by geographical location, requires physical presence, costly infrastructure
Distance learning (up to 50% or less)	Major part of learning materials delivered via ICT, online lectures, asynchronous materials	Flexibility, accessibility, possibility to study outside the university	Requires stable internet connection, digital literacy, reduced laboratory/practical components
Online learning (100%)**	Fully remote learning (permitted only for one university and/or with restrictions)	Maximum flexibility, minimal geographical limitations	Legally restricted, challenges related to practical components, possible accreditation issues
Face-to-face learning with the use of distance learning technologies	Combination of face-to-face and online components	Balance between flexibility and practical training	More complex organisation, requires resources and infrastructure

** Note: obtaining a degree fully through distance learning is officially possible only in two universities under specific conditions.

In Kazakhstan, face-to-face learning with the use of distance learning technologies predominates, where part of the disciplines may be delivered by distant learning but not the entire programme. For technical, engineering and laboratory disciplines, physical presence remains important; therefore, the limitation of distance learning to 20–50% is justified. Online learning as an independent format is limited in scale and restricted for certain fields of study. The key issue is ensuring quality of online components.

2.4. Accessibility of digital resources for students

Access to international courses has expanded in Kazakhstan: through Coursera many students have the opportunity to study topics beyond the national curriculum. Localisation of courses into Kazakh and Russian languages increases accessibility. Universities in regions are also increasingly involved in distance learning. Students are able to study with greater flexibility, combine work and study, and reduce transportation costs.

At the same time, unequal access to high-quality internet connection remains, particularly in remote and rural areas. Differences in digital literacy of academic staff and students have been

identified as a barrier. Practical and laboratory components are sometimes insufficiently developed in distance learning formats. Monitoring of academic performance and attendance in online formats is foreseen through the concept of a digital footprint, although implementation is not yet fully developed in practice.

In some fields (medicine, teacher education) distance learning formats are limited or prohibited, indicating that accessibility depends on the field of study.

Accessibility has significantly improved, particularly for theoretical disciplines and general courses. However, technological, infrastructural and methodological limitations remain for fully distance learning formats, especially those including practical components. The share of youth and adults who have completed an online course in Kazakhstan compared with other countries (any subject, both sexes, %) is also of interest. A steady increase is observed, from 3.20% in 2015 to 7.80% in 2023.

Table 4. Share of youth and adults who completed an online course (any subject), both genders (%)

Country	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Austria		2.90		4.10	4.10	4.70			15.70	22.00	20.00	16.60	18.10
Belgium		4.40		6.40	8.90	7.90		9.30	17.90	26.50	21.10	20.40	
Canada											33.00		
Chile												21.30	
Czech Republic		2.60		2.60	2.60	3.00		5.60	8.40	16.00	15.30	16.90	
Denmark		6.40		7.40		9.20			15.20	22.30	14.60	15.30	15.10
Ecuador													25.00
Estonia		5.80		8.70	8.40	46.10			21.70	31.40	25.60	26.80	
Finland		14.70		12.10	13.40				26.10	28.20	27.50	26.50	
Germany		4.20		4.10	3.80				10.60	12.00	9.60	8.90	10.10
Greece		4.20		5.10	5.40				13.40	24.30	21.70	12.00	
Hungary		4.20		2.90	3.80	4.00		5.60	12.30	11.90	11.80	11.60	11.60
Ireland		4.50		4.40									
Israel									14.10	16.50	20.70	35.30	
Japan							5.10	8.60	11.40	14.90	15.90		
Kazakhstan				**3.20**	**3.40**	**2.40**	**3.40**	**3.70**	**5.20**	**5.40**	**5.60**	**7.80**	
Lithuania		10.50		5.40	6.60	7.00		7.40	16.30	16.70	14.80	14.80	
Mexico		15.30	16.30			2.90		21.80	29.80	30.50	28.10	26.30	
Netherlands		6.60		7.80	9.20								
New Zealand	-	-	-	-	-	-	-	-	-	-	-	-	-
Norway		10.20		9.80	11.80	12.50			17.00	23.00	25.00	26.00	
Peru		2.90	2.80	3.00	3.70	4.20	5.30	5.70		16.30	15.90		
Poland				2.60	3.70	3.80	4.40	5.40	7.00	11.50	8.40	9.30	
Republic Korea		11.60	8.10	12.10	14.90	18.70	18.10	21.10	29.90	33.40	34.60	30.80	
Russian Federation		1.70	2.00	2.00	2.00	2.70	2.50	2.80	8.20	7.70	6.40	5.90	
Singapore						13.40					17.90	20.70	
Slovakia		4.20		3.00	3.30				9.40	15.70		14.80	14.40
Slovenia		3.80		3.20	2.90			5.40	9.50	24.80	26.10	20.40	
Sweden		6.30		6.50	7.60	16.30			20.70	24.70	21.70	20.10	17.90
Turkey		3.90			1.60	1.60			6.20	8.70	6.40	7.10	5.30
United Kingdom Great Britain		9.90		11.00	12.40				13.20				

Source: https://databrowser.uis.unesco.org/view#ndicatorPaths=UIS SDG4Monitoring%3A0%3AICTSKILLEPRS%2CUIS-SDG4Monitoring%3A0%3AICTSKILLONLSFT%2CUIS-SDG4Monitoring%3A0%3AICTSKILLUPLD%2CUIS-SDG4Monitoring%3A0%3AICTSKILLFONLCRS%2CUIS-SDG4Monitoring%3A0%3ADL.F%2CUIS-SDG4Monitoring%3A0%3ADL.M&geoMode=countries&geoUnits=&years=2010%2C2024&browsePath=EDUC ATION%2FUIS-SDG4Monitoring%2Ft4.4%2Fi4.4.1&timeMode=range&view=table&chartMode=multiple&tableIndicatorId=ICTS KILLFONLCRS&chartIndicatorId=ICTSKILLFONLCRS&chartHighlightSeries=&chartHighlightEnabled=true&indicatorPaths=UIS-SDG4Monitoring%3A0%3AICTSKILLEPRS%2CUIS-SDG4Monitoring%3A0%3AICTSKILLONLSFT%2CUIS-SDG4Monitoring%3A0%3AICTSKILLUPLD%2CUIS-SDG4Monitoring%3A0%3AICTSKILLFONLCRS%2CUIS-SDG4Monitoring%3A0%3ADL.F%2CUIS-SDG4Monitoring%3A0%3ADL.M

3. Challenges and barriers to distance learning in higher education institutions of Kazakhstan

3.1 Technical barriers

Requirements for educational institutions providing distance learning are regulated by the relevant Order of the Minister of Education and Science of the Republic of Kazakhstan dated 20 March 2015 No. 137. Higher education institutions must possess digital resources such as data transmission networks, information storage systems and software platforms, and must ensure cybersecurity, conditions for distance learning for students with special educational needs, as well as a system for monitoring the quality of educational services in accordance with the internal quality assurance system.

One of the main obstacles to fully-fledged distance learning is unequal access to high-speed internet, especially in rural and remote regions of Kazakhstan. According to the study by S. Askarkyzy and A. Zhunusbekova, many students experience difficulties connecting to online classes due to poor internet connection and lack of necessary technical devices[7].

There is also the problem of insufficient technical support from higher education institutions, lack of centralised services, and absence of high-quality learning platforms.

In Kazakhstan, 116 higher education institutions operate. According to data obtained from official university websites, in 116 universities face-to-face learning is conducted alongside elements of distance learning technologies (DLT): in 54 universities, face-to-face learning is conducted with the use of DLT; in 2 universities, distance learning is conducted; in 2 universities, hybrid learning is implemented; in the remaining universities only face-to-face learning is provided.

In those universities where only face-to-face learning is implemented, it should be noted that they are guided by the Law of the Republic of Kazakhstan "On Education". Thus, distance learning in higher education and (or) postgraduate education institutions implementing educational programmes in medicine, pharmacy and teacher education is not permitted.

In 58 universities, distance learning is implemented in accordance with procedures established by the authorised body in the field of education and the authorised body in the field of science and higher education.

As is known, one university in Almaty – K. Satbayev Kazakh National Technical University – has obtained a licence to provide fully distance learning programmes, and one university in Astana – Astana IT University – provides continuous distance education, which indicates the existence of regulatory barriers and a limited number of prepared institutions.

3.2. Methodological and pedagogical challenges

Most educational programmes in Kazakhstan were originally designed for face-to-face learning. Academic staff do not always possess the necessary competencies for designing and delivering interactive online courses, which reduces the quality of the educational process.

In addition, the absence of adapted learning materials, insufficient feedback, and insufficient monitoring of academic performance exacerbate the problem, reducing student motivation and the effectiveness of learning.

3.3 Insufficient digital literacy of students and lecturers

The transition to distance learning requires all participants in the educational process to possess certain digital skills. According to research by Almaz Sandybayev (Nazarbayev University), many students experience difficulties in using distance learning platforms, which

[7] S. Askarkyzy, A. Zhunusbekova. Implementation of Distance Learning in Higher Education Institutions of Kazakhstan: SWOT Analysis // Pedagogical Sciences Series. – 2021. – No. 2 (67). – pp. 51–58.

negatively affects their academic performance[8].

Academic staff also require additional training to master new methodologies and tools, which requires time and resources that are not always available.

3.4. Psychological and social aspects

The remote learning format contributes to social isolation and reduces personal interaction between students and instructors, which leads to decreased motivation and increased stress levels. Research conducted by Akimova S.M. et al. revealed that many students experienced emotional burnout, problems with concentration, and difficulties with self-discipline.

Distance learning also reduces opportunities for developing communication and practical skills, which is particularly important for creative and technical fields of study.

3.5. Regulatory and organisational constraints

Legislation of Kazakhstan in the field of distance education has not yet been fully adapted to modern realities. For example, no more than 50% of disciplines may be delivered through distance learning (exceptions include medical, pedagogical and technical fields, where restrictions are stricter). Licensing of universities for online learning formats occurs slowly, which constrains the development of distance learning.

There is also a problem of standardisation of the quality of distance learning courses and methods for assessing knowledge.

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[8] A. Sandybayev. The Impact of E-Learning Technologies on Students' Motivation: Student-Centred Interaction in Business Education // International Journal of Tourism Research. – 2020. – Vol. 6, No. 1. – pp. 16–24. https://doi.org/10.20431/2455-0043.0601002

4.Prospects and directions for development

4.1 Hybrid learning models (blended/hybrid)

Hybrid learning involves a combination of traditional classroom-based instruction and online components: part of the classes takes place in the classroom, and part is delivered remotely, with the possibility of asynchronous access. Such a model makes it possible to increase flexibility, expand coverage, take into account different learning styles and student circumstances (geography, accessibility), and at the same time preserve direct instructor–student interaction.

The pandemic showed that full distance learning is possible, but it is not ideal for all disciplines. Universities use blended formats; for example, the “Digital University” project at Satbayev University предусматривает a “digital campus”, 24/7 access to laboratories, online courses, and other resources. Partnership with Coursera implies asynchronous components and integration into the curriculum.

Prospects for development

- Universities will develop their own hybrid learning roadmaps: part of the courses will be transferred to the online format, while part will remain classroom-based, with course design purposefully oriented towards a blended format.
- Improving the quality of the online component: lectures, assignments, forums, and online seminars will be integrated with classroom sessions.
- Development of student support services (online tutors, consultations, chatbots), self-learning.
- A more flexible schedule and partial transition to remote learning: especially useful for master’s programmes, working students, and international programmes.

Risks and recommendations

- A high-quality methodology for designing hybrid programmes is required (content preparation, staff training, assessment of effectiveness).
- It is necessary to take into account issues of student motivation and self-discipline as a well-known problem of distance learning.
- Infrastructure (internet access, equipment) still differs across regions; therefore, it is important to ensure equal conditions.
- It is necessary to review the regulatory framework: how the remote component is assessed, how it is integrated with face-to-face learning, how monitoring is ensured, and also to clarify the definition of distance learning and online learning.

4.2 Use of AI, big data and analytics in education

In the field of non-formal education, a number of initiatives are being implemented in Kazakhstan to enable the rapid acquisition of IT skills. For example, the Tech Orda programme provides state-funded grants of up to 600,000 tenge for people aged 18–45 to study at private IT schools. According to Astana Hub, in 2025, 79 IT schools underwent accreditation and offered 159 courses in such areas as web development, 3D design, AR/VR applications, operating systems development, cybersecurity, Internet of Things (IoT), Big Data, mobile application development, and GameDev. Tech Orda covers a wide range of ICT-related courses. Particular emphasis is placed on competencies in Agile, product management, and artificial intelligence.

The hub notes that the programme has demonstrated stable results. Thus, in 2022–2023, 6,251 students studied at 91 IT schools. More than 40% of educational institutions and 46% of

participants represent the regions of Kazakhstan, which contributes to the even development of IT education across the country. In 2024, 3,465 grants were allocated, of which 2,465 were for the main stream and 1,000 were במסגרת specialised tracks for educators, including 300 for school teachers and 700 for university instructors. Students, future specialists from 70 IT schools, are completing their training and undergoing testing. Summer schools are also organised to develop programming and artificial intelligence skills, for example under the nFactorial School programme with the support of Chevron and Satbayev University.

Talent identification takes place through hackathons, while development takes place through incubators and accelerators. The Ministry of Science and Higher Education of the Republic of Kazakhstan, together with NVIDIA, Coursera, Huawei, Amazon, Binance, Microsoft, and Google, is implementing training programmes with free certification in artificial intelligence and machine learning.

In the field of formal education, since 2021 Kazakhstan has had an Atlas of New Professions and Competencies, on the basis of which, since 2023, higher and postgraduate education institutions have been updating curricula by introducing modules in machine learning, data science, cybernetics, artificial intelligence, and robotics.

In 2023–2025, forums were held on the use of artificial intelligence in various fields (finance, business, education), which drew attention to its possibilities. For example, on 26 September 2024, the VII Eurasian Forum on Quality Assurance in Higher Education was held at Maqsut Narikbayev University on the topic "Principles and Technologies Shaping the Future of Higher Education". On 26 September 2025, the VIII Eurasian Forum "Strategy Under Pressure: New Technologies and Challenges for Universities" took place. The events were organised by the Independent Agency for Quality Assurance in Education (IQAA) with the support of the Ministry of Science and Higher Education of the Republic of Kazakhstan.

AlemAI Centre, AI Sana – Satbayev University, ISSAI – Nazarbayev University, nFactorial School, and other educational platforms are carrying out active awareness-raising activities aimed at increasing public awareness of the advantages of artificial intelligence and the safety of its use[9].

AI (artificial intelligence) makes it possible, first, to adapt educational content to the student and, second, to offer personalised assignments, assistant chatbots, automated assessment, and prediction of academic performance**. Big data / educational analytics** makes it possible to collect and analyse data on students, their interactions with the platform, activity, and results, which makes it possible to identify risks (students falling behind) and take preventive measures.

Together, these technologies transform education from the model of "one instructor – the whole group" to the combination of "personalised learning, adaptive pathways, data-driven management".

In Kazakhstan, universities have begun introducing AI components: for example, at D. Serikbayev East Kazakhstan Technical University, the "Industrial AI" Competence Centre has been opened for the preparation (development) of AI solution projects for exploration, beneficiation, extraction, energy, and maintenance and repair processes. Particular attention is paid to strategic partnership with leading foreign universities.

The state strategy provides for the mandatory introduction of an "AI" course in all universities. In March 2024, the Ministry of Science and Higher Education of the Republic of Kazakhstan approved an Interuniversity Standard on the Use of Artificial Intelligence in Higher and Postgraduate Education. It defines the principles and methodology for the use of AI in the educational process, the forms of application of AI agents in learning, as well as the permissible areas of application for academic staff and students.

In 2024–2025, a unified higher education platform was launched, which combines educational programmes and automates learning management processes nationwide

[9] On Approval of the Concept for the Development of Artificial Intelligence for 2024–2029. Resolution of the Government of the Republic of Kazakhstan dated 24 July 2024 No. 592.

By Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated 18 March 2025 No. 121, the List of Universities of Kazakhstan granted priority access to the Coursera platform for integrating global online courses into their curricula was approved, as part of the overall strategy of digitalisation of education and integration into the global educational space.

In September 2025, powers related to innovation activity were transferred from the Ministry of Digital Development to the Ministry of Science and Higher Education, which strengthened the ministry's role in creating scientific and educational innovation hubs. By instruction of the Head of State, K.-J. K. Tokayev, the AI-Sana innovation programme is being implemented, aimed at training specialists in the field of artificial intelligence.

In the 2025–2026 academic year, 95 universities in the country integrated AI disciplines. For targeted training of personnel in this area, 38 new educational programmes were developed, including "Applied Artificial Intelligence", "Artificial Intelligence Engineering", "AI in Mining and Metallurgical Production", "Smart Technologies and Artificial Intelligence in Transport Engineering", and others[10].

Prospects for development

- Introduction of a student monitoring system: the use of LMS platforms with built-in analytics, tracking activity, lateness, low academic performance, and instructor intervention.
- Development of adaptive learning materials with AI recommendations: the student receives assignments, recommendations, and additional materials based on their profile.
- Instructors become "curators" of the process, while AI tools automate routine functions (test checking, task selection).
- Universities will begin to use big data for strategic management: analysis of in-demand skills, graduates, and supplementation of curricula.
- Ethical, legislative, and staffing aspects: training of personnel, formation of a policy on the use of AI in education (confidentiality, transparency of algorithms). Amendments to the State Compulsory Education Standard.

Risks and recommendations

- The introduction of AI requires significant resources: infrastructure, staff competencies, data.
- Training of instructors and administrators is necessary: not only technical skills, but also an understanding of the pedagogy of AI-based learning.
- Issues of ethics and privacy: student data, algorithmic decision-making, possible discrimination.
- The technology should not be overestimated: AI is an auxiliary tool, not a replacement for the instructor. (Foreign research emphasises that it is the synergy of AI + instructor that is effective).

4.3 VR/AR, virtual laboratories and immersive technologies

VR (virtual reality) and AR (augmented reality) create immersive learning environments: virtual laboratories, simulations, and interactive models, which are especially relevant for

[10] AI in Education: 95 Universities in Kazakhstan Have Integrated New Disciplines // https://www.inform.kz/ru/ii-v-obrazovanii-95-vuzov-kazahstana-integrirovali-novie-distsiplini-f8be73
. Accessed on: 23.10.2025.

technical, engineering, and medical disciplines. Such technologies allow the student to "enter" a situation that is difficult to organise offline (for example, dangerous experiments, remote sites, international cases). In distance and hybrid formats, they increase engagement and motivation and provide a sense of "presence" and interactivity.

At Karaganda University of Kazpotrebsoyuz, the VR/AR Lab is a specialised space intended for research and development of applications and technologies involving virtual and augmented reality[11].

VR/AR technologies are included in educational programmes: for example, the master's programme "Digital Economics" at Al-Farabi Kazakh National University includes mention of VR/AR/MR technologies.

Prospects for development

- Universities will create virtual laboratories, VR modules, and AR applications for key courses (engineering, medicine, architecture, IT).
- Integration of these modules with online platforms: students will be able to enter a virtual laboratory at any time and work online with models jointly with colleagues.
- Development of content in Kazakh and Russian, localised simulations and virtual environments, which will expand accessibility.
- Increased engagement of distance learning students, reduction of the sense of isolation, improvement of outcomes.
- Possibility of using VR/AR for academic mobility: students from different regions/countries connect to one virtual environment.

Risks and recommendations

- Specialised equipment and technologies are required (VR headsets, powerful PCs) – this may require significant investment.
- It is necessary to develop a pedagogically justified design for VR/AR courses: a merely "game-like" approach does not guarantee learning.
- Equal access for students from the regions must be ensured, and digital inequality must be taken into account.
- Testing of technologies and measurement of effectiveness: not all disciplines require VR/AR; selection is necessary.

4.4 Development of national online platforms and MOOCs

MOOCs (Massive Open Online Courses) and national platforms provide an open opportunity for learning, often free of charge or at an affordable cost, with access to high-quality learning materials. A national platform combines university resources, a unified course catalogue, certificates, and the opportunity to study from any point in the country. This contributes to the democratisation of education, academic mobility, and the development of lifelong learning.

In 2022, based on the findings of external expert panel reports, the Independent Agency for Quality Assurance in Education (IQAA) recommended that universities develop the system of Massive Open Online Courses (MOOCs) as an area for improvement[12].

[11] Karaganda University of Kazpotrebsoyuz Website. Laboratories and Specialised Facilities of the Department of Digital Engineering and IT Analytics // https://keu.edu.kz/ru/section-table/31-materialy/9913-laboratorii-i-spetsializirovannye-kabinety-10.html

[12] Thematic Analysis. "Activities of Higher Education Institutions of Kazakhstan in the Context of Implementing the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)." Independent Agency for Quality Assurance in Education (IQAA). – Nur-Sultan, 2022.

In Kazakhstan, in the second half of the 2022–2023 academic year, MOOCs were implemented in 35 civilian higher and postgraduate education institutions out of 102 (35%). The total number of MOOCs during this period amounted to 1,151[13].

State cooperation with Coursera includes the localisation of courses into Kazakh and Russian (152 courses) and the creation of terminology (8,700 new scientific/academic terms in Kazakh)).

Development prospects

- Development of a unified national platform, 'Open University-Kazakhstan', integrated with higher education institutions, enabling the creation and publication of MOOCs, certificates and micro-qualifications.
- Integration of the national platform with foreign platforms (Coursera, edX, etc.), localisation, joint courses and cross-border programmes.

- The development of credit recognition for MOOCs and online courses (ECTS-style systems) - the possibility of 'crediting' courses as part of a university's curriculum.
- Development of a service to enhance the qualifications of teaching staff and provide continuing education for specialists and professionals.
- Promoting academic mobility: students from regional areas (or abroad) gain access to courses at Kazakhstani universities or study remotely via the platform.
- Development of a micro-qualifications and modular learning ecosystem – students can take short online modules and then combine them into a degree or diploma.

Risks and recommendations

- It is necessary to ensure the quality of online courses (pedagogy, design, interactivity) – not merely video lectures.
- It is important to ensure recognition of these courses by universities and employers (system of certification, accreditation).
- Accessibility (internet, equipment) and student motivation are important.
- Linguistic and cultural localisation – courses must be adapted to the Kazakhstani context (languages, examples, context).
- Monetisation / sustainability of the platform: the platform requires a business model or state support.

4.5 Training instructors for digital pedagogy

The transition to distance, hybrid, and digital learning requires instructors to master not only course content but also digital methodologies: online course design, interaction in an online environment, use of LMS, analytics, AI tools, VR/AR. Digital pedagogy is the ability to integrate technologies and methodologies, manage the educational process in a distance or blended format, motivate students, and provide feedback.

At Al-Farabi Kazakh National University, a series of master classes entitled "Digital Workshop of Lecturer" on the use of digital technologies has been launched.

The project "Edu-collaboration.kz" provides for the creation of a model of digital competence for future teachers and an online course "Digital Educational Technologies".

[13] Analytical Report. Monitoring of the Implementation of Distance and Online Learning in Higher Education Institutions of Kazakhstan in 2023. Block 1, Item 5. – Astana, 2023. https://enickazakhstan.edu.kz/uploads/additional_files_items/182/file/1-5-monitoring-realizacii-distancionnogo-i-onlayn-obucheniya-2023-pervoe-po.pdf?cache=1690878674. Accessed on: 23.10.2025.

The review notes that training educators for digital formats is an important direction[14].

Prospects for development

- A systematic professional development programme for university instructors in digital pedagogy (online courses, certifications, master classes).
- Development of a system of digital competencies for instructors: mastery of LMS, creation of interactive content, use of AI/analytics, management of online groups.
- Formation of a community of digital educators (exchange of practices, cases, partnerships between universities).
- Introduction of methodological centres for digital pedagogy at universities or within centralised structures.
- Motivation of instructors: incentives for developing online courses, awards, recognition, and opportunities to participate in interuniversity project.

Risks and recommendations

- Instructors may resist changes: incentives, support, and methodological assistance are required.
- It is important not only to train technical skills, but also to rethink the pedagogical paradigm (from lecture to interaction, from control to support).
- It is necessary to take into account differences in the level of digital training among instructors of different ages and regions – a differentiated approach is important.
- The organisation must provide infrastructure and technical support: LMS, technical services, content designers, technical specialists.

4.6 Supporting academic mobility through online courses

Academic mobility traditionally implies the exchange of students between universities and semesters abroad. In the digital era, mobility can be expanded through online courses, virtual international programmes, and joint modules between universities of different countries. This strengthens internationalisation and allows students to gain international experience without the need to physically relocate, which is especially important for regions and less mobile groups.

National MOOC platforms create preconditions for opening courses accessible from any point in the country and the world. Partnerships with international platforms (Coursera) and integration of courses in English expand international reach.

Universities are developing distance formats, which makes it possible for international students or students from the regions to participate through online formats.

Prospects for development

- Introduction of international online modules (for example, joint courses with foreign universities, distance exchanges, virtual internships).
- Development of a platform for “virtual exchange”: students can complete parts of programmes at other universities in Kazakhstan or abroad online and receive credits.
- Active recognition of online courses within international academic mobility agreements.
- Expansion of English-language online courses of Kazakhstani universities for international students.
- Use of digital formats to expand access for students from the regions, remote territories,

[14] Research Project AR19680242 “Development of a Collaborative Digital Educational Environment for Higher Education Institutions within the Modernisation of the Teacher Education System of the Republic of Kazakhstan” // https://edu-collaboration.kz/ru/

and neighbouring countries.

Risks and recommendations

- A legislative and regulatory framework for the recognition of online courses in cross-border mobility (credits, diplomas) is required.
- The language barrier, cultural adaptation, and quality of courses must meet international standards.
- Issues of time, access, and interaction with instructors from different countries mean that support must be ensured.
- Infrastructure: stable internet, access to platforms, time constraints (students from the regions may face limitations).

Conclusions and recommendations

1. The analysis shows that distance education abroad is a sufficiently mature and recognised form of higher education, provided that there is appropriate regulation and quality assurance mechanisms. It offers significant advantages, especially in terms of accessibility and flexibility, but is associated with risks that need to be managed purposefully.
2. During 2024–2025, higher education in Kazakhstan has been moving actively towards digital transformation and the introduction of distance and hybrid learning formats. Legislatively, distance formats are limited by the proportion of disciplines (20–50%), which reflects the intention to preserve the practice-oriented component, especially for technical, medical, and teacher education fields.
3. Key platforms (in particular Coursera) and universities demonstrate successful cases: regional universities, localisation of courses, international integration. Nevertheless, significant challenges remain regarding infrastructure, quality of teaching in the online format, ensuring equal access, and integration of practice.
4. The situation is in a transition phase – distance learning and hybrid formats are becoming the norm, but not yet a universal standard with full replacement of face-to-face learning. More opportunities are opening up for students; however, the choice of field of study, educational institution, and format requires more careful analysis.
5. The problems and barriers of distance learning affect the quality of higher education in Kazakhstan. An insufficient level of technical provision and methodological preparation leads to reduced learning effectiveness and deterioration of student knowledge. Unequal access to distance learning technologies generates social inequality and limits educational opportunities for residents of remote regions. In addition, limited contact and lack of practical classes negatively affect the professional training of graduates.

Distance learning in higher education institutions of Kazakhstan is a modern and promising format of education; however, it faces a number of serious problems and barriers. Overcoming technical, methodological, psychological, and regulatory obstacles requires a comprehensive approach and systemic reforms. Only in this case can distance learning become a high-quality and accessible tool for training competitive specialists in the digital era.

Recommendations for the implementation and evaluation of distance programmes:

1. Develop a clear regulatory framework in line with international standards and ensure the recognition of qualifications awarded.
2. Create and implement high-quality instructional design that is student-centred and includes blended learning formats where necessary.
3. Invest in technological infrastructure and support (both technical and methodological).
4. Train instructors in distance learning methodologies and stimulate innovation in teaching.
5. Establish a monitoring and evaluation system with success metrics, feedback, and comparisons with face-to-face formats.
6. Ensure transparency for students: what the learning consists of, what the requirements are, what resources and support are available, and how assessment takes place.
7. Develop infrastructure: provide all university buildings and branches with quality internet, equipment, and LMS.
8. Support instructors: organise professional development courses in online learning, digital methodologies, and the design of interactive content.
9. Develop hybrid models that combine online theory and offline practice (especially for technical, natural science, and humanities fields).
10. Strengthen support for students: mentoring, online sessions, feedback, and equal access to resources.

11. Pay attention to the translation and adaptation of courses into Kazakh and Russian.
12. Monitor effectiveness: collect data on academic performance, engagement, graduates, and employment, and adjust learning models accordingly.
13. Pay particular attention to the regions and vulnerable groups (rural areas, small towns) so that digital inequality is not intensified.
14. Invest in digital infrastructure: development of internet networks and ensuring access to devices in rural regions.
15. Improve digital literacy: systematic training of instructors and students in the use of online platforms and distance learning methodologies.
16. Develop adaptive methodologies: create interactive and flexible courses with elements of feedback and student support.
17. Improve the regulatory framework: accelerate licensing and standardisation of the quality of distance programmes.
18. Psychological support: introduce services for psychological adaptation and motivation of participants in the educational process.
19. Hybrid learning models: combine face-to-face and distance formats for maximum effect