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## HISTORY OF EDUCATION INFORMATIZATION DEVELOPMENT OF CHINA AND KAZAKHSTAN

Informatization of education is the process of preparing people to live and work in modern information society improving quality of education through using ICT. According to world experience, policy of educational informatization started to implement in developed countries in the last century. One of them was neighboring People's Republic of China. Having gained independence our developing country began to create and implement the first program of educational informatization to raise educational system to the world level. The purpose of article is to compare developing way of informatization policy in China and Kazakhstan. The case-study applied studying education informatization policy of two countries. This comparative case-study method based on state documents, state programmes, educational laws, ICT plans and projects. The history, theoretical and practical significance of informatization policy, its penetration in educational system, development, shortcomings and achievements on the basis of comparative analysis of experience of China and Kazakhstan were considered.

**Key words:** Informatization policy, state programs, comparative analysis.

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### Қытай мен Қазақстандағы білім беруді ақпараттандырудың даму тарихы

Білім беруді ақпараттандыру – бұл білім беру үдерісінде адамдарды қазіргі ақпараттық қоғам жағдайында өмір сүруге және жұмыс істеуге дайындау, ақпараттық-компьютерлік технологияларды кеңінен қолдану арқылы білім беру сапасын арттыру. Әлемдік тәжірибелерге сүйенсек, білім беруді ақпараттандыру саясаты өткен ғасырдың соңғы жылдарында дамыған мемлекеттерде іске асырыла бастады. Солардың бірі көршілес мемлекет Қытай Халық Республикасы еді. Сол кездің өзінде енді ғана тәуелсіздігін алып, дамып келе жатқан еліміз білім беру жүйесін әлемдік деңгейге көтеру мақсатында ең алғашқы білім беруді ақпараттандыру бағдарламасын құрастырып, жүзеге асыра бастады. Бұл мақаланың мақсаты – Қытай мен Қазақстандағы білім беруді ақпараттандыру саясатының дамып келе жатқан әдісін салыстыра зерттеу. Екі елдің білім беруді ақпараттандыру саясатын зерттеу барысында кейс-стади әдісі қолданылды. Бұл салыстырмалы кейс-стади әдісі мемлекеттік құжаттарға, мемлекеттік бағдарламаларға, білім туралы заңдарға, АКТ жоспарлары мен жобаларына негізделген. Қытай мен Қазақстанның тәжірибесін салыстырмалы талдау негізінде мақалада ақпараттандыру саясатының тарихы, теориялық және практикалық маңызы, оның білім жүйесіне енуі, дамуы, кемшіліктері мен жетістіктері қарастырылды.

**Түйін сөздер:** ақпараттандыру саясаты, мемлекеттік бағдарлама, салыстырмалы талдау.

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### История развития информатизации образования Китая и Казахстана

Информатизация образования – это процесс подготовки людей к жизни и работе в современном информационном обществе, повышение качества образования за счет широкого использования информационных и компьютерных технологий. Согласно мировому опыту, политика информатизации образования стала реализовываться в развитых странах в последние годы прошлого века. Обе страны активно развивают систему образования, расширяют использование компьютеров и ИКТ в образовании. Целью статьи является сравнение подходов и политики информатизации образования в Китае и Казахстане. При изучении политики

информатизации образования двух стран был применен метод кейс-стади. При использовании сравнительного метода изучения конкретных случаев рассмотрены государственные документы двух стран, государственные программы, законы об образовании, планы и проекты в области ИКТ. На основе сравнительного анализа опыта Китая и Казахстана в статье рассмотрены история, теоретическая и практическая значимость политики информатизации, ее проникновение в систему образования, ее развитие, недостатки и достижения. Выявлены синхронизированные направления развития информатизации в обеих странах, особенно в начале рассматриваемого периода. Проиллюстрированы и различия в планировании и реализации информатизации образования.

**Ключевые слова:** политика информатизации, государственные программы, сравнительный анализ.

## Introduction

Level and temp of development of the informatization process in all spheres of society which characterized by implementation of information and communication technologies are determined the state of the economy, the quality of education and the role of people in the world. Informatization of education is the main connotation and distinctive feature of modernization of education process and it is an effective tool for promoting educational reform, managing educational innovation, improving the quality of education in the information age as well. Therefore, in order to increase the effectiveness of general education in all developed countries, large-scale programs of informatization of education are being implemented, significant funds are being invested in the development and introduction of new information technologies. Thereby, to level off with educational system of high-developed countries, to adopt and implement new state programmes on educational informatization are significant ways of showing our young developed Kazakhstan to the world. In this comparative study, we must take into account that two countries' economic situation, education system, development trends are completely different, as well as, the Republic of China is a socialist country, and Kazakhstan is a democracy. However, the educational informatization policy of both countries was adopted in the same year, but the level of development is different. As a result of that, the purpose of our research is comparative study of educational informatization policies of the two countries.

## Materials and methods

The informatization of education is an important factor in the whole educational process. Today, the global development of the process of informatization of society includes the world community of all developed and developing countries, including

the formation of a new information environment among people living in Kazakhstan and a new information order in their professional activities and lives (Kerimbaev N.N., 2010). The formation of a new information environment, the introduction of a new information rules is a process that goes together with the informatization of education. It is known that before gaining the independence, the education system of Kazakhstan was part of the USSR, and in any educational establishments were used electronic computers. At that time in the early 1980s, Deng Xiaoping proposed the establishment of a digital university telecommunications in People's Republic of China, later the Center for Digital Education Transformation was created. Since 1986, the computerization of primary and secondary schools has moved from the experimental level to the planned level. At the same time, the implementation of the concept of providing students with audiovisual resources for the development of distance learning (three machines and one stage – “computer, projector, projection screen, teacher”) began (Chen Qi, 1990).

At that time, Kazakhstan was in the period of gaining its independence. On December 16, 1991, the Constitutional Law “On State Independence of the Republic of Kazakhstan” was adopted. Although the country has been in crisis since independence, new directions have begun in the educational system. That is, to improve the quality of education, to develop new reforms in educational institutions, educational policy and others. Later, the first Law of the Republic of Kazakhstan “On Education” was adopted in 1992. The first law was aimed at creating an independent national science and technology policy and management science of the country.

## Literature review

The terms “informatization, educational informatization, informatization policy” were fully given different definitions by domestic and foreign schol-

ars. The term “informatization” has been used improperly, in contrast, to the underestimation of the word, which is why it is understood in various ways. A detailed explanation was given by I.V.Robert.

The scientists explain “informatization of education” as purposefully organized process providing the education sector with the methodology, technology and practice of creating and making optimal use of scientific and pedagogical, educational and methodological developments, focused on the realization of the capabilities of information and communication technologies (ICTs).

D.M. Kalmanova believes that the informatization of education is a multifactorial and complex process that provides the opportunity to build an open education system, development of systemic and dialectical thinking of schoolchildren. As well as, it is an effective organization of cognitive activity, the formation of local systemic and functional knowledge of students; fundamentality, which implies an orientation to the identification of deep essential foundations and connections between the various processes of the world (Tazhigulova A.I., 2009).

According to A.D.Ursul, “Informatization is- a systematic process of information acquisition as a fund of management and development with the use of media for the purpose of creating an information society and continuation of further development of civilization progress on it. Its goal is to massively improve intellectual activity using new information technologies, to meet the demands of post-industrial society, to radically improve the quality and effectiveness of training new types of specialists, to form new information culture”.

According to A.I. Rakitov, I.V. Sokolova, Y.A.Yakovec, the process of informatization consists of several areas: computerization, mediatization and intellectualization.

- mediatization – the process of improving the means of collecting, storing and distributing information;

- computerization – the processing, storage and presentation of information based on computer technology;

- intellectualization – the processes of developing the ability to perceive information and generate new knowledge, i.e. increase the intellectual potential of society, including the use of artificial intelligence (Muldebekova K.T., 2014).

The issue of informatization of education was also studied by Kazakhstani scientists. Kazakh scientists, such as: M.K. Nurgaliev, D.M. Dzhusubalieva, A.K. Mynbaeva, A.I. Tazhigulova, Zh.A.

Karaev, N.N. Kerimbaev, G.B. Akhmetova and others did research papers on informatization of education especially as informatization of primary, secondary, higher education, distance learning, the use of electronic textbooks in the educational process, the development of information competencies of teachers.

According to some scientific backgrounds, the term policy was distinguished and identified by many scholars as followings. Education is always implicitly or explicitly a political issue (Bell L., 2013). What is taught, what is not taught, how students are taught and how educational institutions are organized are fundamentally political questions. Education cannot be disconnected from wider views about the society in which it is located. Thus reproducing and reinforcing what exists are implicitly political but no less so than explicitly mobilizing for radical change. The extent to which the focus of policy is on conserving or changing is largely determined by political responses to the prevailing dominant discourses.

Traditional approaches to policy analysis tend to assert that policy consists of aims, goals or statements of what should happen in any given set of circumstances. One succinct definition of policy is that ‘policy is whatever governments choose to do or not to do’ (Adams P., 2014). Harman Harman explains this definition as: the implicit or explicit specification of courses of purposive action being followed, or to be followed in dealing with a recognised problem or matter of concern and directed towards the accomplishment of some intended or desired set of goals (Harman G., 1984).

### **Comparative research on educational informatization policies (1997-2020)**

The transition from industrial to information civilization of the modern world, the system-forming factor in the development of society is the information and communication sphere, which actively affects the political, economic, and social components of state activity, determines the processes of globalization of the economy and public relations. The introduction of informatization can be considered as one of the most important means of reforming the entire education system.

The current stage of the development of the Republic of Kazakhstan is characterized by its entry into the world community. The degree of consistency and its independence depend on the level of development of the economy, production, culture and social sphere. The degree of technological de-

velopment of each country determines not only its economic power and the standard of living of the population, but also the position of this country in the world community, the possibility of economic and political integration with other countries, as well as the solution of national security problems. At the same time, the level of development and the use of modern technologies in a particular country is determined not only by the development of the material base, but mainly by the level of intellectualization of society, its ability to produce, assimilate and apply new knowledge. Everything is closely connected with the level of development of education in the country and the problems and informatization of education. Informatization of educational system is one of the key conditions the identify the subsequent accelerated development of the economy, science and culture (Imangozhina O.Z., 2002).

The processes of informatization in modern society and closely related reform of educational activities are characterized by the improvement and mass distribution of modern information technologies. Nowadays, the teacher is required to possess skills not only in the field of ICT, but also to be responsible for the professional use of ICT in his direct activities. Analyzing various points of view regarding this concept, we came to the conclusion that “informatization of education” is, first of all, a social process that is part of the process of informatization of a society that affects all members of an educational institution; its goal is to implement

new information technologies and resources into the learning process that increase the quality of knowledge and contribute to the formation of the competence of students (Mukushev S.B., 2010).

The process of informatization of the educational system goes together with the second important process – modernization. The purpose of modernization of education in accordance with the Law of the Republic of Kazakhstan on Informatization – is creation of a sustainable mechanism for the development of the education system. Economy and demand for the development of the social sphere, science, engineering and technology, federal and territorial labor markets, as well as the future needs of their development are key factors in the modernization of education. The results of modernization should be the creation of a multi-level system of education, the creation of an effective system of assistance to graduates in recruitment, the formation of their readiness to choose a job, as well as to start their own business (Muldebekova K.T., 2014)

The methodology of our research work was held by collecting publications of Kazakhstani and foreign scientists and national reports about Kazakhstani education, state programs on educational informatization policies, projects.

As we have mentioned above, implementation of informatization into educational process had started with adoption of creating an informatization policy. It can be seen that both countries began realization of informatization policy at the same year.

**Table 1** – Comparative research on educational informatization policies of China and Kazakhstan between 1997 – 2020 years

The time of program	The name of Chinese plan	The time of program	The name of Kazakhstani plan
December 30, 1996	Five-Year Development Program of School Computer Education (1996-2000)	September 22, 1997	State Program of Informatization of Secondary Education System for 1997-2002
December 30, 1998	Action Plan for Invigorating Education Towards the 21 <sup>st</sup> Century	August, 2001	The Concept of Informatization of Education System in Kazakhstan for 2002-2004
July 1, 2001	National Tenth Five-Year Plan of Education	October, 2004	The State Program for the Development of Education in Kazakhstan for 2005-2010
September 4, 2002	The Tenth Five-Year Plan for Educational Technology		
February 10, 2004	2003-2007 Action Plan for Invigorating Education		
May 8, 2006	2006-2020 National ICT Development Strategy		

The time of program	The name of Chinese plan	The time of program	The name of Kazakhstani plan
May 18, 2007	Eleventh Five-Year Plan for National Education Development		In 2007, the Law of the Republic of Kazakhstan “On Informatization” was adopted. Since the 2007/2008 academic year, in accordance with the instructions of the Head of State, an online learning system has been introduced in the schools of the republic.
2010 July	“The plan of national of education (2010–2020).”		
	“The program Development of Education Informatization (2011–2020)”, “Education Informatization”	December, 2010	The State Program for Development of Education in Kazakhstan for 2011-2020 The program was implemented in two stages: the first stage: 2011-2015; second stage: 2016-2020.
June, 2016	“13th Five-Year Education Informatization Program” published by the Ministry of Education of China	2015	The State Program for Development of Education and science in Kazakhstan for 2016-2019
2018	The Ministry of Education of China noted that informatization of the country’s education has reached unprecedented rapid development, the project “three links and two platforms” was also implemented.	2019	The State Program for Development of Education and science in Kazakhstan for 2020-2025

### Overall survey on Informatization policy of education in China and Kazakhstan

From 1997 till 2020 there were made four main educational state programs according to the informatization of education. The process of informatization of education system has started in 1997 in the Republic of Kazakhstan. However informatization of education in Kazakhstan had started during the Soviet period and subject as “Information Study” was implemented into educational process in 1985. The government supported the project related to applying personal computers, the Internet in education. This program consisted of five stages:

- Beginning of the computerization of secondary schools;
- Providing the computerization of secondary schools;
- Completion of the computerization of secondary schools;
- Creating information system of managing education;
- Functioning information system of managing education.

This program was first experiment of using information and communication technologies for

further development of educational system of the Republic of Kazakhstan. By implementation of program 4103 schools of 8197 were equipped with computers, among them 2367 were rural schools. Till the end of 2001 year the rest of 4094 schools were supplied with computer techniques.

During this period Chinese first national plan of development of informatization education, which entered into *tenth Five – year plan* of development of national education. In this document set new goals and tasks. They are following:

1. actively to promote the reform and development of educational informatization, to accelerate the modernization of teaching and to transform the digital university;
2. actively to develop school digital education, to exceed its level;
3. to strive to improve the quality of educational programs, to carry out the construction of telecommunications satellite television networks and to manage educational flows;
4. to focus on creating auxiliary audio-visual training materials and gradually forming create a series of audiovisual training materials;
5. to conduct in-depth research in the field of digitalization of education.

6. Due to the “Action Plan for Invigorating Education Towards the 21<sup>st</sup> Century”, the State Council approved realization of “the project distance education”, created an open education network and a continuing education system. From this period the era of digital education in China had began. After it, all the remote rural schools in China increased using distance learning with the help of digital technologies.

The main purpose of National Tenth Five-Year Plan of Education in 2001 and The Tenth Five-Year Plan for Educational Technology in 2002 were to promote the widespread use of high-tech educational resources in urban and rural areas and to enhance educational outcomes, as well as three transfer modes were organized for educational content in rural areas: training points of reproduction of compact disks, points of preview broadcasts of educational content on satellite communications and computer classes.

During this period, educational informatization in China has developed rapidly and achieved outstanding results. By the end of 2002, the number of computer owners in primary and secondary schools in China reached 5.84 million; more than 26 thousand network lines were built. This made it possible to make an important contribution to solving the problem of a lack of training resources in primary and secondary schools in China, teacher shortages and poor quality education and teaching.

The second State program of Informatization of Education in Kazakhstan for 2002-2004

The goal of the second program:

- to make standards and certificates that providing quality of technologies and resources of informatization of education;
- to prepare and implement electronic teaching materials in state and Russian languages;
- formation of a unified state information system for the management and monitoring of the education system;
- to create a unified information environment.

The second program was planned for implementation during 2002 and 2005. According to the second program schools connected to the Internet, it was carried out in accordance with the sectoral interdepartmental program “Internet – schools”. In order to implement this program, Kazakhtelecom JSC had expanded the network “Kazakhstan Internet” where high school and university students could access the Web resources of Kazakhstan. 570 schools of the country were connected to the Internet, including 100 rural schools. Providing the village with the telephone needed to connect rural schools to the

Internet remains a challenge. The idea of this program was to supply rural schools with lack of textbooks and teaching aids, visual aids and laboratory equipments. Therefore, in the process of creating an information infrastructure for education government pays special attention to rural school.

“Action Plan for Invigorating Education between 2003-2007” was implemented to the educational system of the People’s of Republic of China. Due to this plan, the major attention was paid to higher educational establishments, in West China launched a project as “Campus computer network construction project for universities” that means in 152 universities of China developed high speed networking between campus networks and CERNET. In 2003 the ‘Modern distance education project-pilot demonstration programme’ was launched in China to integrate the use of satellite communications with optical fibre networks. The Ministry of Education announced the launch of the ‘Networks between schools project’ at the National Information Technology Conference for Elementary and Secondary Education in 2000. The goal was to achieve Internet access in about 90% of the elementary and secondary schools across the country, share online educational resources among elementary and secondary teachers and students, enhance educational quality of all the elementary and secondary schools, and offer continuous professional development for teachers to enhance their ability in the development and delivery of quality instruction within 5–10 years (MOE, 2001).

Later, the Higher Education Department of the Ministry of Education of China launched the ‘Project of constructing networked courses for the new century’, with the aim of constructing nearly 200 networked courses, a case database and a test-questions database. In 2003 the Ministry of Education initiated the ‘National high quality course construction project’. More than 3900 national high quality courses were selected from courses nationwide and submitted by universities, colleges, higher vocational colleges, and networked education institutes (including military academies) between 2003 and 2010. With the popularity of online video courses produced by more than 20 elite universities (such as Yale University in the USA) since 2010, well-known websites such as Netease.com have opened up special course channels for online video courses (Yuan Sh., 2014).

The main document that identifies the development of educational system of the Republic of Kazakhstan became the state program for the development of education for 2005-2010 years. The primary

goal of this program is to provide access to quality education for all residents of Kazakhstan. The implementation of this program was carried out in three stages:

1. Improving regulatory framework for implementation of ICT in educational process.
2. Development and implementation of distance learning technology to all level of education.
3. Realization of information system for monitoring, analysis and management of educational establishments.

In the frame of this program were created 41 e-textbooks in various sphere of education by Kazakh scientists as Nugalieva, Tazhigulova and Artykbayeva. Besides books, Kazakhstan colleges equipped by electronic teaching systems, e-case studies system, administrative system and e-libraries. Almost all schools were supplied with multimedia technologies. Since 2005, thanks to state support in all schools has appeared the possibility of free access to the Internet. From this year, there were started work on the supply of language multimedia classrooms. More than 1000 schools were provided with modern technology, multimedia equipment, and special software to help students consolidate their language skills.

As part of the promotion of e-government initiatives, there was adopted *the Program to reduce information inequality for 2007–2009*, the main task of which was to conduct large-scale events to educate the population of computer literacy, and to train qualified teachers.

It can be seen in the table that during this period China had plans of informatization of education as “2006-2020 National ICT Development Strategy” and “Eleventh Five-Year Plan for National Education Development”. In May 2007, “the Plan of the Eleventh Five-Year Plan for the National Development of Education” published by the State Council of China, for the first time stated that “informatization Education stimulates the modernization of education”.

*The State Program for Development of Education in Kazakhstan for 2011-2020*

In December 2010, the government approved the fourth State Program for Development of Education in Kazakhstan for 2011-2020. The main objective of the program is to increase the competitiveness of education, human capital development by providing access to quality education for sustainable economic growth. One of the main directions of education program is e-Learning development in Kazakhstan. The purpose of this direction is to ensure equal access for all participants in the educational process to

the best educational resources and technologies. The introduction of e-Learning will require changes and additions to the series of regulatory documents. According to this Program all high schools will be provided 100% access to broadband Internet by 2020 (Ministry of Education & Science of Kazakhstan, 2010). In 2015, the State Program for the Development of Education and Science for 2016-2019 was adopted, and in 2020 – the State Program for the Development of Education and Science for 2020-2025.

Finally, in 2012 ‘China’s 10-year development plan for ICT in education (2011–2020)’ (MOE, 2012) identified broadband network access in all types of schools and in all educational levels in all regions.

To ensure steady progress of all the projects, the Ministry of Education and relevant departments have not only provided funding but have also conducted several evaluations. The evaluation criteria include quantitative indicators such as hardware and software coverage, and the impact of these projects. In essence, these projects have improved computer and network infrastructure coverage, particularly in China’s rural areas and remote mountain areas, but hardware maintenance, software updates and rising costs have impeded the full realization of information technology in teaching. The ‘10-year development plan of ICT in education (2011–2020)’, issued by the Ministry of Education of China in 2012, laid out the action plan of ‘China’s digital education 2020’, which included several key projects covering high quality resource sharing, ICT in schools, ICT in education administration, sustainable development capability and fundamental capacity of ICT in education.

On 5 September 2012, at the National Teleconference on ICT in Education, Vice Premier Yandong Liu (when she was a State Councilor) proposed the ‘Three links–two platforms’ programme. This targeted the development of broadband networks between schools, educational resources between classes, virtual learning spaces between individuals, public service platforms of e-learning resources, and an information system platform for educational administration. The programme has made considerable progress (Liu M., 2015).

According to Ren and Lu (2015), in relation to the development of ‘Broadband networks between schools’, by September 2015 Internet penetration reached 85% in both elementary and secondary schools nationwide (learning centers as informal schools are not included), and 81% in rural schools. With respect to ‘Quality resources between classes’, e-learning resources have been used in some 64,000

learning centers and 37% of the elementary and secondary schools nationwide in their daily instruction. With regard to ‘Virtual learning space between people’, 42.17 million e-learning spaces have been created for teacher–student communication; 4.2 million teachers are carrying out pedagogical teaching and research online; and 3.27 million teachers are integrating virtual learning space with classroom instruction (Ren Y., 2015).

The Ministry of Education also launched the ‘National high quality open course construction project’ in 2011 to promote the production of high quality open video courses and resource sharing courses. Between 2011 to 2013 more than 200 well-known universities in China participated in the construction of the high quality open video courses, and more than 120 courses have been offered free of charge to the public. With the global surge of interest in and availability of MOOCs in 2012, Chinese universities have, since 2013, started developing and implementing MOOCs.

### Results and discussion

Comparison of informatization policy of education in China and Kazakhstan

The Republic of China is a highly developed country in the world.

1. The Republic of China had began integrated ICT from 1990, when Kazakhstan approved its Law of Education and made the first educational state program on computerizing of secondary schools. However informatization of education in Kazakhstan had started during the Soviet period and subject as “Information Study” was implemented into educational process in 1985.

2. During these years in Kazakhstan were created major 5 state programs. While in China was constructed about eleven significant plans, in the frame of these plans were different pilot projects in informatization of education.

3. Looking through these programs in 2002-2004 Kazakhstan step by step gradually making connection to Internet schools. Kazakhstani universities have been involved in projects to connect to

broadband internet since 1997. For example, the Al-Farabi Nova project (<https://www.kaznu.kz/ru/532>). In 2002 there were constructed campus network of 152 universities of West China.

4. At the state educational program of Kazakhstan between 2005-2010, there were paid more attention creating e-textbooks and multimedia classes. In The Republic of China was integrated to use of satellite communication with optical fibre networks and was emphasized the enhancement of transmission capacity and the networking of CERNET.

5. According to the state Program of Kazakhstan in 2011-2020 first all schools will be provided 100% access to *broadband* Internet by 2020, secondly the main directions of this education program is the e-Learning development. This educational program of Kazakhstan is the same with the educational project of the Republic of China as development plan for ICT in education in China was identified like *broadband network* access in all types of schools and in all educational levels in all regions. As well as, many Chinese universities started to produce open video courses as MOOCs.

### Conclusion

Education is acknowledged as one of the significant priorities of Strategy “Kazakhstan – 2030”. The main goal of educational reforms in Kazakhstan is to adapt the educational system to a new socio-economic environment. These reforms can be relatively effective, if they are compared with reforms of other countries. By studying reforms, strategies and long-term plans of developed countries or neighbours as The People’s Republic of China we are able to do some changes in our educational system.

It can be noted that there were many pilot projects except the state programs in the Republic of China. Thereby, we can say that in order to implement information communicative technologies effectively to educational process, we also need some pilot projects of informatization of education. Looking through all educational informatization plans of the Republic of China, we can say that they were developed more digitally than us.

### Әдебиеттер

1 Керімбаев Н.Н. Физика пәні бойынша білім беруді ақпараттандыруды дамытудың ғылыми-теориялық негіздері: Диссертация. – 2010. 11-12 б.

2 Чэн Ци, Ван Бенчжун. Орта мектептегі компьютерлік білімге шолу мен жетістіктері // Пекин педагогикалық университеті журналы. Әлеуметтік ғылымдар басылымы. – 1990. – № 3.

3 Тәжіғұлова А.И. Орта білім беруді ақпараттандыру әдістемесі мен технологиясы: Докторлық диссертация. 2009. 69-б.



- 4 Мулдабекова К.Т. Ақпараттық технологиялар арқылы болашақ мамандардың коммуникативтік құзыреттілігін қалыптастыру: PhD диссертация. – 2014. – 37-38 б.
- 5 Bell, L., & Stevenson, H. (2013). Introduction: Organizing public education. In L.Bell & H. Stevenson (Eds.), *Organizing public education (Major Works Series) (Vol. 1)*. London: Sage.
- 6 Adams, P. (2014). *Policy and education*. London: Routledge.
- 7 Harman G. Conceptual and theoretical issues. In J.R.Hough (Ed.), *Educational policy: an international survey*. (pp. 13-27). London: Croom Helm.
- 8 Имангожина О.З. Методика профессионального ориентирования школьников в условиях информатизации образования: Диссертация. – 2002. – 3 с.
- 9 Қазақстан Республикасының 2002-2004 жылдарға арналған білім беру жүйесін ақпараттандыру тұжырымдамасы. Үкіметтің 06.08.2001 жылғы №1037 тұжырымдамасы.
- 10 Мұқышев С.Б. Орта мектептегі құқықтық білім беруді ақпараттандыру тұжырымдамасы // Томск мемлекеттік педагогикалық университетінің хабаршысы, 1, (2010a). 113-118 б.
- 11 Қазақстан Республикасының орта білім беру жүйесін ақпараттандырудың мемлекеттік бағдарламасы. Қазақстанның Білім және ғылым министрлігі (1997). [http://www.unesco.kz/rcie/data/progr\\_inf1997.htm](http://www.unesco.kz/rcie/data/progr_inf1997.htm).
- 12 Notification to the Ministry of Education of the Tenth Five-Year Plan for National Education [EB / OL]. <http://www.moe.gov.cn/2018-6-11> (China).
- 13 Қазақстан Республикасының 2002-2004 жылдарға арналған білім беру жүйесін ақпараттандыру тұжырымдамасы. [http://www.unesco.kz/rcie/data/konceptija\\_inf2002.htm](http://www.unesco.kz/rcie/data/konceptija_inf2002.htm).
- 14 The launch of ‘Networks Between Schools Project’ in elementary and secondary schools. MOE (Ministry of Education of the People’s Republic of China) (2001) [in Chinese].
- 15 Yuan, SH, Liu, X (2014) Status and common problems of MOOC practice in China’s universities: From the reports of the MOOC practice in China’s universities [in Chinese]. *Modern Distance Education Research* 2014(4): 3–12.
- 16 Қазақстанның Білім және ғылым министрлігі (2004). Қазақстан Республикасында білім беруді дамытудың 2005-2010 жылдарға арналған мемлекеттік бағдарламасы. <http://kazpravda.kz/pdf/161004program.pdf>.
- 17 «Ақпараттандыру туралы» Қазақстан Республикасының 11.01.2007 ж. № 217– III Заңы.
- 18 Қазақстан Республикасындағы 2007-2009 жылдарға арналған ақпараттық теңсіздікті төмендету бағдарламасы. Қазақстан Республикасы Үкіметінің 2006 жылғы 13 қазандағы № 995 қаулысымен бекітілген.
- 19 Қазақстанның Білім және ғылым министрлігі (2010). Қазақстан Республикасының білім беруді дамытудың 2011-2020 жылдарға арналған мемлекеттік бағдарламасы. [http://www.edu.gov.kz/ru/zakonodatelstvo/gosudarstvennaja\\_programma\\_razvitija\\_obrazovanija/](http://www.edu.gov.kz/ru/zakonodatelstvo/gosudarstvennaja_programma_razvitija_obrazovanija/)
- 20 10-year development plan of ICT in education (2011–2020) MOE (Ministry of Education of the People’s Republic of China) (2012) [in Chinese].
- 21 Liu, M (2015a) China’s education informatization should solve three problems: Vice Minister of Education Du Zhanyuan talking about China’s educational informatization pursuit [in Chinese].
- 22 Ren, YQ, Lu, BR (2015) The top design of educational information in the year of planning [in Chinese]. *E-education Research* 36(6): 5–8. Google Scholar
- 23 Consultation on national excellent courses. MOE (Ministry of Education of the People’s Republic of China) (2013) [in Chinese].
- 24 Notification on announcement of the 5th batch of high quality video open courses. MOE (Ministry of Education of the People’s Republic of China) (2014) [in Chinese].

## References

- “Ақпараттандыру туралы” (2007) Қазақстан Республикасының [About Informatization of Republic of Kazakhstan] No 217– III Заңы. (In Kazakh).
- 10-year development plan of ICT in education (2011–2020) MOE (Ministry of Education of the People’s Republic of China). (In Chinese).
- Adams, P. (2014). *Policy and education*. London: Routledge.
- Bell, L., & Stevenson, H. (2013). Introduction: Organizing public education. In L.Bell & H. Stevenson (Eds.),
- Chen Qi, Wang Benzong (1990) Орта мектептегі компьютерлік білімге шолы мен жетістіктері [Review and achievements of computer education in high school]. *Пекин педагогикалық университетінің журналы. Әлеуметтік ғылымдар басылымы [Journal of Peking Pedagogical University. Publication of social sciences]*. № 3 (In Kazakh).
- Consultation on national excellent courses. (2013) MOE (Ministry of Education of the People’s Republic of China).
- Harman G. Conceptual and theoretical issues. In J.R.Hough (Ed.), *Educational policy: an international survey*. (pp. 13-27). London: Croom Helm.
- [http://www.edu.gov.kz/ru/zakonodatelstvo/gosudarstvennaja\\_programma\\_razvitija\\_obrazovanija/](http://www.edu.gov.kz/ru/zakonodatelstvo/gosudarstvennaja_programma_razvitija_obrazovanija/)
- Имангожина О.З. (2002) Методика профессионального ориентирования школьников в условиях информатизации образования [Methodology for vocational guidance of schoolchildren in the context of informatization of education]. *Диссертация*, 3 с. (In Russian).
- Kerimbaev N.N. (2010) Физика пәні бойынша білім беруді ақпараттандыруды дамытудың ғылыми-теориялық негіздері [Scientific and theoretical bases of development of informatization of education in Physics]. *Диссертация*, 11-12 с. (In Kazakh).

Liu, M (2015a) China's education informatization should solve three problems: Vice Minister of Education Du Zhanyuan talking about China's educational informatization pursuit.

Muqyshev S.B. (2010a) Orta mekteptegi quqqytyq bilim berýdi aqparattandyry' tujyrymdamasy [The concept of informatization of legal education in high school]. Tomsk memlekettik pedagogikalyq y'niversitetini' habarshysy [Bulletin of Tomsk State Pedagogical University], №1, 113-118 p. (In Kazakh).

Mýldabekova K.T.(2014) Aqparattyq tehnologiýalar arqyly bolashaq mamandardy' kommýnikativtik quzyrettiligin qalyptastyry' [Formation of communicative competence of future specialists through information technologies]. PhD disertasiya, 37-38 p. (In Kazakh).

Notification on announcement of the 5th batch of high quality video open courses (2014). MOE (Ministry of Education of the People's Republic of China). (In Chinese).

Notification to the Ministry of Education of the Tenth Five-Year Plan for National Education [EB/OL]. <http://www.moe.gov.cn/2018-06-11> China. (In Chinese).

Organizing public education (Major Works Series) (Vol. 1). London: Sage.

Qazaqstan Respýblikasynda bilim berýdi damyty'dy' 2005-2010 jyldar'ga arnal'gan memlekettik ba'gdarlamasy (2004) [The state program of development of education in the Republic of Kazakhstan for 2005-2010]. Qazaqstanny' Bilim jáne gylym ministrli'gi. [http://kazpravda.kz/\\_pdf/161004program.pdf](http://kazpravda.kz/_pdf/161004program.pdf). (In Kazakh).

Qazaqstan Respýblikasynda'gy 2007-2009 jyldar'ga arnal'gan aqparattyq te'nsizdikti to'mendety' ba'gdarlamasy [Program to reduce information inequality in the Republic of Kazakhstan for 2007-2009]. Qazaqstan Respýblikasy Úkimetini' 2006 jyl'gy 13 qazanda'gy No 995 qa'ylysymen bekitilgen. (In Kazakh).

Qazaqstan Respýblikasyny' 2002-2004 jyldar'ga arnal'gan bilim berý júesin aqparattandyry' tujyrymdamasy [The concept of informatization of the education system of the Republic of Kazakhstan for 2002-2004]. Úkimetti' 06.08.2001 jyl'gy No1037 tujyrymdamasy. (In Kazakh).

Qazaqstan Respýblikasyny' 2002-2004 jyldar'ga arnal'gan bilim berý júesin aqparattandyry' tujyrymdamasy [The concept of informatization of the education system of the Republic of Kazakhstan for 2002-2004]. [http://www.unesco.kz/rcie/data/konceptija\\_inf2002.htm](http://www.unesco.kz/rcie/data/konceptija_inf2002.htm). (In Kazakh).

Qazaqstan Respýblikasyny' bilim berýdi damyty'dy' 2011-2020 jyldar'ga arnal'gan memlekettik ba'gdarlamasy (2010) [The state program of development of education of the Republic of Kazakhstan for 2011-2020]. Qazaqstanny' Bilim jáne gylym ministrli'gi. (In Kazakh).

Qazaqstan Respýblikasyny' orta bilim berý júesin aqparattandyry'dy' memlekettik ba'gdarlamasy (1997) [The state program of informatization of the secondary education system of the Republic of Kazakhstan]. Qazaqstanny' Bilim jáne gylym ministrli'gi. [http://www.unesco.kz/rcie/data/progr\\_inf1997.htm](http://www.unesco.kz/rcie/data/progr_inf1997.htm). (In Kazakh).

Ren, YQ, Lu, BR (2015) The top design of educational information in the year of planning. E-education Research 36(6): 5–8. Google Scholar. (In Chinese).

Tájigulova A.I. (2009) Orta bilim berýdi aqparattandyry' adistemesi men tehnologiasy [Methods and technologies of informatization of secondary education]. Doktorlyq disertasiya, 69 p. (In Kazakh).

The launch of 'Networks Between Schools Project' in elementary and secondary schools (2001) MOE(Ministry of Education of the People's Republic of China). (In Chinese).

Yuan, SH, Liu, X (2014) Status and common problems of MOOC practice in China's universities: From the reports of the MOOC practice in China's universities. Modern Distance Education Research (4): 3–12p. (In Chinese).