

# THE IMPLEMENTATION OF INFORMATION TECHNOLOGIES IN HIGHER EDUCATION: A CASE OF KAZAKHSTAN AND TURKEY

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## ABSTRACT

The purpose of this research is to analyze the issues related to implementing information technologies into an educational system by the example of Turkey and Kazakhstan. Information technologies have been increasingly used in educational institutions for refining the quality of service and achieving the efficient organizational outcomes in the context of a competitive international environment. The integration of computer technologies into an educational system depends on its successful elaboration and application, which is an expensive and challenging process. This study also reveals the cooperation between Kazakhstan and Turkey in the sphere of information technologies and science. The results and recommendations can be applied in the educational, scientific and economic system development strategies and are of significant interest to Kazakh and Turkish scientific and educational thought.

**Keywords:** *Educational Technology, Information And Communication Technologies, Integration, Higher Education.*

## 1. INTRODUCTION

At present, in many countries, policy makers and educational practitioners are trying to integrate information and communication technologies into their educational systems. This study considers the problem of introduction of information technologies into the system of higher education in Turkey and the Republic of Kazakhstan. These countries were chosen for the analysis as they have a close and effective cooperation in this field and may establish a consistent framework for further investigation in this field. The research questions are as follows:

- What is the role of information and communication technologies in the system of higher education?
- How do the Republic of Kazakhstan and the Republic of Turkey cooperate in the sphere of information technologies and science?

Cooperation between the Republic of Kazakhstan and the Republic of Turkey in the field of education and science is particularly based on the following agreements:

- Agreement on cooperation in education between the Ministry of National Education of the Republic of Turkey and the Ministry of Education of the Republic of Kazakhstan (Ankara, 4 March 1997);
- Protocol on cooperation in education between the Ministry of Education and Science of the Republic of Kazakhstan and the Ministry of National Education of the Republic of Turkey of March 4, 1997;
- Agreement on trade and economic and technical cooperation between the Government of the Republic of Kazakhstan and the Government of the Republic of Turkey of September 10, 1997;
- Memorandum of Cooperation between the Ministry of Education and Science of the Republic of Kazakhstan and the Ministry of National



Education of the Republic of Turkey in the field of technical and vocational education of May 2007;

- Agreement between the Government of the Republic of Kazakhstan and the Government of the Republic of Turkey on cooperation in the field of science and technology of October 22, 2009;

- Agreement between the Government of the Republic of Kazakhstan and the Government of the Republic of Turkey on conditions of the activity of Ahmet Yesevi University of October 22, 2009;

- Protocol on amendment of the Agreement between the Government of the Republic of Kazakhstan and the Government of the Republic of Turkey on conditions of the activity of Ahmet Yesevi University of December 23, 2010;

- Agreement on the establishment of the Turkic Academy in Bishkek on August 23, 2012.

This study gives a comprehensive analysis of the processes of international cooperation in the implementation of information innovation in the higher education system of the Republic of Kazakhstan and Turkey. This problem is particularly relevant as the modern development of human civilization is characterized by the next stage of the technological revolution - the introduction of information and communication technologies that are changing people's lives and are the foundation and the material basis for the transition to an information society, a society with a high socio-economic, political and cultural development.

Turkey's educational system started using computers began more than twenty years ago. In 1984, the Ministry of National Education of Turkey first implemented computers in secondary schools. Then in 1991, a computer-assisted instruction was included into the national policy. In 1998, the World Bank gave a loan to the Ministry of National Education, equivalent to 600 million US dollars, to finance a two-phase National Basic Education Program, which is still being realized. Phase I was finalized in 2003 and Phase II is being arranged for application. The objectives of this development project are to enlarge 8-year compulsory education, to improve the educational quality, and to make basic education schools a learning public center. To improve the educational quality in Turkey, one of the goals of this educational program is to ensure that both student and teacher becomes computer literate.

The President of Kazakhstan Nursultan Nazarbayev initiated the beginning of information education in Kazakhstan on September 22, 1997 by the approval of the State Program on informatization of the system of secondary

education, which was called the "President's program". It provided a solution to many problems, including the training and retraining of teaching staff, the development of material and technical basis, the creation of specialized scientific and methodical centers, the publication of specialized literature and textbooks for secondary schools, and so on.

In Kazakhstan, there are 7,954 secondary schools; 5,309 of them are secondary, 1,374 – basic, and 1,271 – under-subscribed. To date, schools of the Republic of Kazakhstan have 55,406 computers. Of the total number of urban and rural schools, 2,785 are connected to the Internet. On average, one computer in the middle of the 2003-2004 school year accounted for 54 students. A typical feature is that this figure is constantly decreasing, even with a sharp increase in the number of students. The President of Kazakhstan in his message dated 19 March 2004 commissioned the akims (governors and mayors) of regions and cities of Astana and Almaty to provide an Internet connection for at least 75% of schools and start the regional program on strengthening the material and technical base of schools.

The reform of the educational system of the Republic of Kazakhstan denoted a fundamentally new policy aimed at improving the quality level of education. An important problem at this stage is to provide free and accessible primary, secondary and higher education for orphans and children from low-income segments of the population. However, there is a serious contradiction between the need for providing information assistance for teachers in rural schools and the lack of access to quality communications to provide information for the actors of the educational process. It determined the need to establish a satellite link with the organization of distance learning as one of the elements of the Program on informatization of the system of secondary education of the Republic of Kazakhstan.

In the above-mentioned message to the nation, the President stressed that the Republic needed a new forward-looking state program of education development. In this regard, much work is being carried out to study the international experience, where special attention is paid to the improvement of the educational process with the introduction of elements of information technologies. In particular, the 3rd International Forum "Education Informatization in Kazakhstan and CIS countries" was conducted, attended by representatives of the ministries of education and educational institutions, scientists of the CIS countries, as well as



representatives of the well-known manufacturers and suppliers of key technologies (Hewlett-Packard, Samsung Electronics, Newtech Distribution, etc.). The JSC "Kazakhstan Telecommunications" and the Republican Center for Informatization of Education with the support of the Ministry of Education and Science are working on the implementation of the "Satellite Distance Learning Channel" project.

Therefore, the key to the reform of extramural education consists in a broad introduction of information and communication technologies into the educational process, including distance-learning technologies. It should also be noted that distance learning is organically fit into the educational system. In the 2003/2004 school year, for the first time there was an enrollment of students in the specialty "Electronic Computers, Systems and Networks", who after graduation received the qualification of "Organizer of distance education network". The first experiments showed that the practical experience of implementing the network remote technologies has been successful. As noted at the International forum "Informatization in Kazakhstan and CIS Education", the results meet the highest demands and needs of our society and the Concept of education system development of Kazakhstan until 2015.

The official visit of the head of the Kazakh State Culture Committee paid to Turkey on the January 31, 1991, and the cooperation agreement signed by the Minister of Health on February 14 of that year strengthened cultural relations between the two countries. Before gaining the independence of Kazakhstan the official visit of the Turkish President Turgut Ozal to Kazakhstan on March 15, and signing the agreement "on the relationship of Kazakh Soviet Socialist Republic and the Republic of Turkey" led to the strengthening friendship Kazakh-Turkish relations and further development in this direction. This agreement opened the way for the opening of embassies and the expansion of cultural ties between the two countries. The visit of Turgut Ozal showed new faces of Kazakhstan to the Turkish society. Turkish periodicals covered the future relationship between Kazakhstan and Turkey and the official invitation of the President of Kazakhstan Nursultan Nazarbayev to Turkey. At the meeting Turgut Ozal and Nursultan Nazarbayev spoke about the issues of transition to a market economy, shared recommendations for strengthening a stable currency, ensuring the conditions for a decent investment for Turkish entrepreneurs. In his interview Turgut Ozal said on

the further strengthening of relations between Turkey and Kazakhstan.

On the basis of resolution of the Supreme Council of the Republic of Kazakhstan of January 15, 1992, was adopted the law on "Science and scientific-technical policy of the Republic of Kazakhstan". Within the framework of the law Kazakhstani students had the opportunity to study in about 30 universities in Turkey, including a high-level educational institutions in Istanbul "Bosphorus", in Ankara "Middle East Technical University" (METU), "Bilkent" [1].

## 2. LITERATURE REVIEW

Information technologies act as a technical aid in the elaboration of new models and instruments of learning and teaching in educational establishments. Zandvliet & Straker [2] emphasized that the application of information technologies is increasing in almost all fields and in many schools around the world. However, according to some scholars, schools have been slowly adopting these technological changes [3, 4]. This contradiction demonstrates that whatever information and communication technologies promise for society, their successful and effective integration into the school systems cannot be guaranteed.

The successful implementation of technologies is complex as far as it depends on many interweaving variables. Brummelhuis & Plomp [5] describe the integration of computer technologies in the educational process as a complex and multifaceted innovation having a lot of issues which need to be addressed successfully before it is possible to talk about effective innovation. They may result in slow adaptation, being an expensive and time consuming tool for users and learners which can frustrate and confuse them [6]. Furthermore, educational practitioners have extra needs because they are commended to instantly and competently carry out the new learning to educational applications in their classrooms. Therefore, a successful integration of information and communication technologies depends on overcoming problems with personnel development [7, 8], investment in software and hardware [9], leadership [10], curriculum [11], teachers' attitudes [12], and teacher commitment [13].

According to MacNeil and Delafield (1998), the main deterrent to integrating technologies into the learning process is the lack of time for professional development and preparation and of money for software, hardware, and infrastructure. In defense of these results, Pelgrum [14] asked educators from



26 countries to name the main material and nonmaterial difficulties for the integration of information and communication technologies. The most common were the following issues: an insufficient amount of computers, teachers' lack of knowledge and necessary skills, difficulty in adaptation to instruction, an insufficient number of peripherals, scheduling computer time, software insufficiency, teacher time limitation, simultaneous access insufficiency, lack of supervision staff and technical assistance.

The IT infrastructure is financed a lot to ensure that there is a sufficient number of hardware and software means in organizations. However, the only availability of this infrastructure cannot guarantee definite use in daily activities. Key motivational variables in the use of information and communication technologies are also very important. According to recent researches, teachers and students are still unwilling to involve in activities in an active or persistent manner using information and communication technologies [15]. The formal use of information and communication technologies in undergraduate and graduate education is still unpredictable and differs significantly from courses to institutions [16].

Currently, many studies suggest that further research should spread beyond the framework of technology-based instruments and comprise a greater amount of social factors [17, 18]. Therefore, a distinct framework is needed in order to forecast and apprehend the use and acceptance of technologies by educational practitioners.

### 3. METHODOLOGY

The research used both qualitative and quantitative methods. The case study focuses on higher education institutions. The data sources included classroom observations and an examination of relevant documents. This study applied a qualitative framework in analyzing the information to collect more feedback on the actual success of the information programs through the participants' voices. The numbers were collected from computer managers, school principals, and educational practitioners. The case study also used official statistical data on information technologies application, educational acts and decrees of the President of the Republic of Kazakhstan which carry out the policy in the sphere of international scientific and technical development of Kazakhstan.

### 4. RESULTS AND DISCUSSION

The findings show that teachers of both countries are mainly using information and communication technologies for the following purposes: instruction in the application of technology, managerial purposes, instructional purposes and non-educational tasks.

The education system in Turkey is western-style. Learning system in the form of western Turkey. In this country, first four years are devoted to studying only the subjects of main specialty, general subjects are not even taught as in our system. Of course there is advantage that students can get full, comprehensive education. For example, from orientation to the profession he may be able to master his skills, but the lack of progress in general background and poor logical thinking skills can complicate the process of solving problems. In our system, for example, students studying to be a fully trained engineer study all of the general subjects. (For example, history of Kazakhstan, philosophy, economics, mathematics, physical education, etc.). In Turkey undergraduate students are to pass 8-10 subject-exams each semester. End-of term tests, examinations are held mainly in written form. However, the test form is also used. I am going to say that the students who are eager to study are provided with all conditions. For example, all students are provided with full accommodations and all modern equipment.

For example, the graduates of the famous Fatih University work in countries such as the United States and Western Europe. Since 1992, in accordance with the international agreements Kazakh students studying in the Turkish institutions of higher education will be on the Turkish government grant. According to the data of 2009, 737 students are enrolled at the 27 Universities of Turkey. 544 Turkish citizens are studying in institutions of higher education of Kazakhstan. Turkey grants each year 70 Mongolian students, including 10 Kazakh youngsters living in that country. Each year, 25 percent of the state budget is allocated to science and education. Annually students enroll Colleges and universities by the one-step exam organized by the Selection and Placement Center. The mentioned center is functioning under Supreme Council Education organization. Foreigners wishing to study in Turkey take examinations once a year held by Selection and Placement Center and are selected according to results. Exam questions are only available in English and Turkish. The youngsters who have got a right to be educated in Turkey are taught the Turkish language within one year in the Center of



the Turkish language under Rectorate of the University of Ankara. More than 3 million people per year get the education according to National Education Ministry. Co-education courses encompass more than 9 million participants. The work of so-called "TIKA" which is being conducted under the Turkish Cooperation and Development Administration is surprising. According to the Secretary General of the platform "Eurasia Dialogue " Ismail Tas they are trying to promote cultural and economic ties between Kazakhstan and Turkey. There is Rectors Association "Universities Unit" in Istanbul. Thanks to this organization there are institutions, schools built under the support of Turkish entrepreneurs. In the coming years, they are going to carry out such projects. Furthermore, the Turkish side has funded the university buildings and dormitories, and other resources necessary for the construction [19].

Nowadays more than 200 Kazakh girls and boys are studying economics, construction, journalism, medicine and law in higher education institutions of Turkey. However most of Kazakh students in Turkey carry out their own ethnical business such as production, sewing and selling of leather goods. Since 1991 the connection between Kazakhs of Turkish origin and the Republic of Kazakhstan is progressing. One of the most important events for Kazakhs living in Turkey was the meeting held on the 28-29<sup>th</sup> of March, 1997. There is no separatism towards Kazakh community from Turkish people. The level of relationships between local people, government and administration is high.

In 2005 based on the decree of the President of the Republic of Kazakhstan «On the improvement of actions of state management authorities in terms of economic» has been formed the organization of Science and Technology of the Republic of Kazakhstan. The Ministry tasks were as follows:

- To carry out the policy in the sphere of international scientific and technical development of our country;
- To coordinate the training of scientific and pedagogic personnel of our country;
- To organize international cooperation in the scientific and technological sphere of our country.

Turkey is closer on cultural, religious, linguistic situation. The relations of expat living in Europe and Turkey are still strong. Indeed, the European expat consists of those who moved from the territory of Turkey. In this context interpersonal relations are seen since representatives of the Kazakh expat give their children Turkish names, traditions and customs, holidays resemble Turkish. It's natural, because Turkic peoples were always

close since ancient times and living in Turkey extremely contributed to the culture of the Kazakhs. The ties of European Kazakhs with Turkey are stronger rather than Kazakhstan's. Many of them live in Turkey, China, Altai.

The Fund of Turkish Kazakhs is actively functioning in Istanbul. The Istanbul Municipality allocated premises for the Fund. Fund managers pave the way to learn Kazakh, and organize meetings with the representatives of Kazakhstani culture and art. In the home of the offices of the Fund there are Kazakh yurt, the welfare of the Kazakh things, assembled literature which are shown on various celebrations, meetings, concerts. Fund organized the Children's Dance Ensemble which take part at various concerts and presentation. There is "Arman" magazine published by the Fund. There are some difficulties in material take-off for magazine since there are few authors who can cover the full life of the country. Turkish Kazakhs face challenges in assembling information in Kazakh. The relationship between Kazakh expat and municipality is very good. The head of the local government distinguishes Kazakhs living in obedience to the law, and their appreciation for the hard work.

The youth speaks Turkish and the language of instruction is also Turkish. The Fund itself organized teaching Kazakh. In 2005 the teacher of Kazakh came to Istanbul University and the teaching language of youth was organized. There are some difficulties related to different Alphabet graphics. Books delivered from Kazakhstan were written in Cyrillic alphabet. There is lack of specialists who can teach language in this graphics. This statement made the delivery of Cyrillic written books from Kazakhstan senseless [20].

Perhaps aforesaid statements, established spiritual values, widely spread political and economic interests, cooperation relations are fastening the progress in relationships of the two countries. Kazakhstani scholar M.B.Mukhamedov who is aware of Kazakhstan-Turkey relationships said that there was a need in political support of Turkey. Of course, common mental, lingual, cultural and historic aspects play a great role between relations of Kazakh and Turkish nations. Taking into consideration these points Turkey was represented as the guarantor for Kazakhstan to obtain credits from western resources as Turkey is very respectful country on the worldwide arena. At the same time one of the factors which accelerated the Turkey-Kazakhstan relationships is mutually beneficial establishment of cooperation in the sphere of trade and economy.



In 2009, November, 19, on the meeting of the Ambassador of Kazakhstan in Turkey Beibit Isabayev and ex-president of Turkey Suleiman Demirel were shared opinions on relationships between two countries and the internal and foreign policy of Turkey. Ex-president S. Demirel expressed his positive attitude towards investments from Kazakhstan to Turkish economy and emphasized Turkish government's readiness to support it. The representatives of two countries discussed future strategies in improving bilateral relations.

At the same time there were approved cooperation agreements in terms of recommencement of TURKSOY which is considered as mini UNESCO of Turkish world.

On May 1-3, 2007, the Minister of Education and Science of the Republic of Kazakhstan Zhansait Tuimebayev paid an official visit to the Republic of Turkey. Kazakhstani Minister held bilateral talks with his counterparts during the official visit, discussed the issue of expanding the horizons of cooperation in the field of education. The Kazakhstani delegation visited Turkish Scientific and Technological Research Structure and Higher Education Council and considered the ways of development of cooperation with them.

Negotiations between the two countries' Ministers of Education encompassed the current assessment of relations in the field of higher education and some solutions to a number of issues. In particular, as a result of negotiations it was signed a Memorandum of Cooperation in the field of professional-technical education. According to the memorandum, the part of the Republic of Turkey agreed to share knowledge and experience in the field of science with the Kazakh side. Especially the experience of Turkey is interesting on the part of the goods, textiles, tourism, and a number of technical vocational and technical training areas.

On the meeting with the members of the structure led by the Chairman Professor Nuket Yetiş of TUBITAK of the Minister of Education and Science of the Republic of Kazakhstan was said that they were interested in working together with the Turkish side, including invitation to participate in common programs within the framework of the EU.

On the meeting with Chairman of Board of Higher Education of the Republic of Turkey Erdogan Teziçpen were discussed ways to increase cooperation between the two countries' institutions of higher education. The sides highlighted the point of organizing scientific symposiums and other events between the two countries' universities.

Kazakhstani Minister expressed the willingness to cooperate with a number of prestigious universities of Turkey in accordance with the standards of the European countries.

Currently, about 700 Kazakh students are studying in Turkey. In turn, more than 500 Turkish students are studying in Kazakhstan. So far, about 900 Kazakhstani youth graduated from Turkish universities.

In the chapter 10 of "Education Act" №319 of the Republic of Kazakhstan of July 27, 2007, the services of international cooperation in the field of education and economic activity were considered. They are as follows:

1. International cooperation in the field of education of the Republic of Kazakhstan is carried out on the basis of legislation of the Republic of Kazakhstan and international treaties of the Republic of Kazakhstan.

2. The organization of education in accordance with the competent authority in the field of education in coordination with own peculiarities has the right to access foreign education, to establish direct links with scientific and cultural organizations and foundations, to make bilateral and multilateral terms on cooperation, to participate in the exchange international programs of students, undergraduates, doctoral students, the teacher and workers, to enter international non-governmental organizations (associations).

Military educational institutions in accordance with the international treaties and agreements with foreign citizens have the right to carry out training of specialists in a row.

Educational organizations shall have the right to engage in foreign economic activity in the manner specified by the charter specified in educational institutions and laws of the Republic of Kazakhstan.

3. The order of the implementation of international cooperation in the educational institutions of the Republic of Kazakhstan established by the authorized body in the field of education.

4. The establishment of International and foreign educational institutions and (or) branches in the Republic of Kazakhstan is carried out on the basis of international agreements or in accordance with the decision of the Government of the Republic of Kazakhstan.

5. Licensing, accreditation and certification of international institutions and other states or their legal and educational institutions, their affiliates in the territory of the Republic of Kazakhstan unless stipulated by international treaties ratified by the



Republic of Kazakhstan will be carried out in accordance with the laws of the Republic of Kazakhstan [21].

The head of state addressed the people of Kazakhstan on March 6, 2009, in his message "Through Crisis to Renovation and Prosperity" specific tasks for the implementation of the further modernization of the economy and to ensure the development of the country in the post-crisis employment strategy. During this difficult period the system of education and science is developed due to the constant attention and support of the head of state. The education budget in 2009 comprised 702,0 billion tenge, compared to 2008 increased by 9.5% (in 2008 - 641,1 bln.tenge). As a result of the funds allocated for education 20 thousand students are studying abroad.

Taking into consideration these aspects the education system of our country and its pedagogic personnel's quality must be defined in accordance with the strategy of innovative and industrial development [21].

In 2009, October, 22, within the frameworks of the official visit of the President of the Republic of Kazakhstan N. Nazarbayev it was signed cooperation agreement in the sphere of science and technology between the Minister of Education and Science of the Republic of Kazakhstan and Turkey. In terms of agreement there is cooperation in conducting of common scientific and research projects, exchange of scholars and experts, carrying out scientific conference and symposiums, and interchange of scientific and technical information and documents. In that order after defining the field of cooperation of two parties there is commission which prepares proceedings and programs in carrying out the agreement terms and implements common projects within frameworks of program "International cooperation in the field of science on 2010-2012" [22].

## 5. CONCLUSION

Analysis of the above strategies shows that the leading role in the formation of a national strategy for information development and the consolidation of all sectors of society to achieve the goals of information and innovative development in the field of education is given to the government.

As Zh.Tuimebayev pointed out since 1992 there are more than 4 thousand Kazakhstanis who graduated from Turkish universities. As a sample of friendship between two states under support of heads of states there was opened Yassau International Kazakh-Turkish University which

became one of the prestigious universities. There are also S.Demirel Private University and Foreign Languages and Business University as well as 30 Kazakh-Turkish lyceums and 9 secondary schools [20].

In order to strengthen scientific, education and cultural relations between Turkey and Kazakhstan the two countries share the same high school in the city of Turkestan the Yassau International Kazakh-Turkish University. In order to make University of Turkic states Turkish government during the years 1993-2001 86 million dollars. For the past 10 years about 25 thousand people from Kazakhstan went through internship in the Republic of Turkey [22].

Turkey's economic potential is higher than Kazakhstan's and it has own way to reach international market. As well as it has high reputation in the European Community. Therefore, a model of economic reform, and to adjust the laws of market relations will play a huge role for Kazakhstan. Consequently, economic, political and cultural spheres of further development of relations contribute to the strengthening of the economic and social sectors of the two countries. Turkish culture, education, ecology, medicine, joint peace, military, political programs contribute to promotion of mutual desire to strengthen regional economic alliances on a global arena.

The integration of information and communication technologies into education is a reform in the Turkish and Kazakh educational system aimed at leading toward a knowledge society. However, this process will continue to be problematic if there are no well-planned and advanced training programs for teachers, school administrators, computer coordinators, and educational practitioners. Although there is enough information on cross-cultural experiences about the integration of information and communication technologies [14, 23], further researches focused on finding solutions to these issues would definitely contribute to our understanding of best practices in technology integration. Furthermore, each problem should be studied from cross-cultural perspectives to further suggest a schematic framework for educational practitioners and policy makers.

Summing up, it should be noted that today the government is taking all measures to ensure that the younger generation gets a competitive education in the world market. Every year the financing volume of education increases. New exciting ideas on information and communication technologies are being developed and introduced. All this, ultimately, creates new conditions for the formation of the person, able to work in an open information



society, where there is a significant share of the intellectual sphere, modern technologies and international cooperation.

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