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MODERNIZATION OF HIGHER PROFESSIONAL EDUCATION IN MODERN CONDITIONS

Abstract. The goal of the work is to study the direction of development and modernization of the higher education system in Kazakhstan. In the course of work, analysis and synthesis, a comparison method and a factor method were used, with the help of which the world experience in creating an education system is shown. In modern conditions, quality education enhances the competitiveness of not only specialists, but also the country's economy as a whole. The competitiveness of vocational education provides an opportunity for the further development of science and technology, increasing employment and improving the welfare of society. The results of the work are recommendations for the development of an effective education system. The scope of the research results is in the legislative activity of the state and the functioning of higher education institutions. The results of the analysis of the world and Kazakhstani experience in the development of the education system make it possible to evaluate the effectiveness of the current model of education. Modernization of higher education and science should become a priority in the development of state programs. However, during the reorganization, emphasis should be placed on improving the quality indicators of universities, rather than quantitative parameters.

Keywords: modernization, science, professional higher education.

Introduction

The relevance of the research topic is the necessity to improve the educational system for the training of high-quality specialists. The country's education system should help to increase the competitiveness of specialists, increase the employment rate, and further develop society, science, and technology.

The purpose of the research work is to consider the issues of modernization of higher vocational education and determine the criteria for assessing the quality of graduates. To achieve this goal, the task was determined - to identify the most optimal education system according to the international experience and its use in the Republic of Kazakhstan.

The study used the methods of analysis, comparison, and summarization since the presented international experience provides opportunities for the use of various methods.

The normative-regulatory framework of the educational system in Kazakhstan is defined by the Law "On Education" in 2007, State Programs for the Development of Education of the Republic of Kazakhstan and other documents [1-3].

In modern conditions, education is one of the factors of increasing national competitiveness, which is achieved through the advancement of science and technology. For these purposes, the state determines the priorities for the development of high-quality national education following the example of developed countries of the world.

High-quality education represents the basis for the growth of the economy and all sectors of activity since it involves the development and implementation of innovative technologies, techniques, and management methods.

The modernization of higher education is designed to ensure the development and implementation of new ideas, the use of which will allow the development of industry without compromising the country's available resources.

Since gaining independence, Kazakhstan has been endeavoring efforts to reorganize and modernize the education system, including the transition to the Bologna Process. Leading foreign educational institutions implemented training programs, and competitive universities were opened in the country to obtain a high-quality education.

Therefore, the vision of the modernized development of higher vocational education, training, and retraining of leading specialists should become the primary national ideas [4, p. 21].

Methods

Data used in the research work were from official sources, including scientifically practical literature and publications in highly rated journals.

The methods of research are based on logical, systemic, and comparative analysis of the education system within the country and with leading foreign universities.

The basis of the study represents the analysis of legitimate information from various sources, including regulatory acts, scientific publications, overviews, and data from state and international research institutes.

The analytical and synthetic methods used to analyze the data of research work and results reflected in findings and recommendations set out in conclusion.

Results

The first higher educational institution in Kazakhstan founded in 1928 in Alma-Ata and "Kazakh State University," which now bears the name after KazNPU named after Abay. Kazakh State University named after S.M. Kirova opened in 1934, and now KazNU bears the name after al-Farabi [5].

During the years of the Soviet government, the basis for education in the republic and, in particular by, higher vocational education created since many educational institutes opened. Universities, academies, and institutes created in almost all regional centers of the republic, and the largest number of them opened in the former capital Alma-Ata.

With the acquisition of independence, the educational system of Kazakhstan went through several stages of formation, including the following [6]:

- 1991-1994: the formation of the regulatory-legislative and legal framework for higher education in the country.
- 1995-1998: the reformation of higher education in the country.
- 1999-2000: the denationalization of educational organizations.
- 2001-2007: the growth of universities' autonomy.
- 2005-2010: the commercialization of the higher education system.
- 2010-2016: the digitalization and informatization of education.
- 2016-2019: transfer of education to trilingual education.

The state of the educational system of Kazakhstan is given great attention not only within the country, but also by leading foreign institutions. Thus, the European Tempus Commission investigated the state of higher education in Kazakhstan as of 2010, the results of which were presented to a wide audience [7]. This document has been prepared by the Executive Agency for Education, Audiovisual and Culture (EACEA). To date, the conclusions of the commission are somewhat outdated, since following state programs for the development of education, significant changes have occurred in the educational sphere.

So, the country's higher and postgraduate education switched to a three-level education system: undergraduate, graduate, and Ph.D. The Commission noted that in the context of education, there is a tendency to lower state regulation and standardization in favor of free choice and mobility. As a positive factor, it should be noted that the growth of universities' autonomy of the leadership and management in operational, managerial, and financial matters. The National Accreditation Center and the National Center for Educational Quality Assessment created to analyze the current education system [7].

The reorganization of the higher education system continues in connection with the transition to the implementation of 12-year school education and the planned transition to training in three languages. The further modernization process is aimed at transferring from narrow to broad specialization, expanding distance learning, and social partnership between employers and universities.

It should be recognized that Kazakhstan universities have not yet reached a high rating in the world and have not even entered the top 100 universities and colleges, although it should be noted the short term of operation of the country's universities.

The top ten universities in the world, presented in table 1, show the leading position of universities in the USA (5 out of 10), England (4 out of 10), Switzerland, and is compiled by the QS World University Rankings rating agency (table 1).

Similar assessments are carried out by the Shanghai Rating Agency, Times Higher Education and others, and the results of which are approximately similar.

Table 1 - QS World University Rankings

World Ranking	Institution	The country	Score	Academic reputation	Citation index for 1 teacher	Reputation among employers	Student / Teacher Ratio		% of foreign teachers.	% of foreign students
1	MIT	USA	100	100	99,9	100	100		100	96,1
2	Stanford University	USA	98,7	100	99,4	100	100		99,6	72,7
3	Harvard University	USA	98,4	100	99,9	100	98,3		96,5	75,2
4	California Institute of Technology	USA	97,7	99,5	100	85,4	100		93,4	89,2
5	Cambridge University	England	95,6	100	78,3	100	100		97,4	97,7
6	Oxford University	England	95,3	100	76,3	100	100		98,6	98,5
7	UCL University College London, University of London	England	94,6	99,7	74,7	99,5	99,1		96,6	100
8	Imperial College London	England	93,7	99,4	68,7	100	100		100	100
9	University of Chicago	USA	93,5	99,9	85,9	92,9	96,5		71,9	79,8
10	ETH Zurich	Switzerland	93,3	99,6	98,7	99,4	68,2		100	98,8

Note: compiled by source [8]

In general, it should be noted the leading position of US universities in the top 100 universities in the world, including MIT, Stanford, Harvard, Oxford, Cambridge, Chicago, Princeton, Yale, Columbia, 3 Californian universities, and so on [8.]

The United Kingdom is in second place by the number of high-ranking universities in which is represented by universities such as Cambridge, Oxford, London's four universities, and others [8.]

Third place is taken by Chinese universities, among which three operates in Hong Kong (Table 2.)

A very illustrative example is Singapore with a population of 5.6 million people, where two universities included in the hundred best universities in the world. And there is practically no corruption.

Data on leading universities are presented to demonstrate competition among educational centers of the world and determine indicators that universities in Kazakhstan should strive for.

In 2018, 127 higher education institutions were functioning in the Republic of Kazakhstan, taking into account branches. In terms of ownership, 47 universities are public, 75 private and five with foreign ownership [9].

The total number of students was about 0.5 million people, which is 4% more than in the previous period. At the expense of state educational grants, 143440 people are trained, which is 28.9% of the total number of students, and on a paid basis - 352769 people or 71.1%. Of the total number of students, 76.2% study in full-time, 17% in correspondence and 6.8% in the evening, however, the trend is continuing to decrease in the number of students in correspondence and distance learning is increasing.

Table 2 – Countries with universities in the 100 best universities in the world

№	The country	Number of Universities	Note
1	USA	31	Including 5 in the top 10 and 11 in the top 20
2	England	17	Including 4 in the top 10 and 9 in the top 50
3	China	11	Including 3 universities in Hong Kong
4	Australia	7	Universities in Sydney, Melbourne and so on
5	Japan	5	Tokyo, Kyoto and others
6	Canada	4	University of Toronto; McGill University; University of British Columbia; University of Alberta
7	Switzerland	4	ETH Zurich; EPFL; University of Zurich; University of Geneva
8	Korea	3	Seoul National University; KAIST; POSTECH
9	Germany	3	Ludwig-Maximilians-Universitat and Technical University of Munich; Ruprecht-Karls-Universitaet Heidelberg
10	Netherlands	2	Delft University of Technology; University of Amsterdam
11	France	2	Ecole normale superieure (Paris); Ecole Polytechnique
12	Singapore	2	National University of Singapore (NUS); Nanyang Technological University (NTU)
13	Sweden	2	Lund University; KTH Royal Institute of Technology
14	Argentina	1	Universidad de Buenos Aires (UBA)
15	Taiwan	1	National Taiwan University (NTU)
16	Denmark	1	The University of Copenhagen
17	Belgium	1	KU Leuven
18	New Zealand	1	The University of Auckland
19	Russia	1	Moscow State University named after M.V. Lomonosov
	Total	100	

Note: compiled by source [8]

One of the priorities in the modernization of education is the transition to training in three languages, including Kazakh, Russian, and English. For these purposes, university students are offered separate disciplines in different languages, mostly in English, for a more in-depth study of subjects in the original language. At the same time, students are separated by the language of instruction, the main of which are Kazakh, Russian, and English.

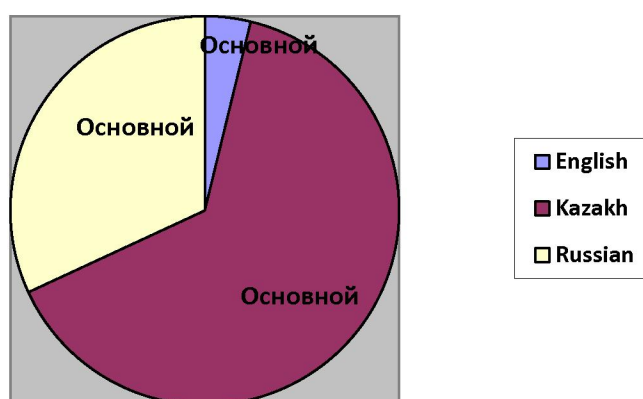


Figure 1 - Distribution of students by the language of instruction

Note: compiled by source [9]

As can be seen from Figure 1, the largest share made up of students studying in the state language - 64.3%, in Russian - 31.9%, and in English - 3.8%.

Table 3 – General rating of the top 10 universities of the Republic of Kazakhstan for 2018

Position	University	Score
1	Al-Farabi Kazakh National University	281259
2	L.N.Gumilyov Eurasian National University	148406
3	M.Auezov South Kazakhstan State University	69770
4	Seifullin Kazakh Agrotechnical University E. A. Buketov Karaganda State University	45799-43642
5	Karaganda State Technical University University of the First President of the Republic of Kazakhstan	38458
6	Kazakh National Agrarian University Turan University	32 238-31403
7	K.Zhubanov Aktobe Regional State University Abay Kazakh National Pedagogical University Kazakh National Women's Teacher Training University Almaty Technological University	27 775-26583
8	Sarsen Amanzholov East Kazakhstan State University Asfendiyarov Kazakh National Medical University West Kazakhstan Marat Ospanov State Medical University	26431-22809
9	D. Serikbayev East Kazakhstan state technical university Kazakh Ablai Khan University of International Relations and World Languages T.K. Zhurgenov Kazakh National Academy Of Arts	20663-19902
10	"West Kazakhstan Agrarian-Technical University named after Zhangir Khan" "Almaty University of Power Engineering and Telecommunication" Kyzylorda State University named after Korqyt Ata	16923-15757
Note: compiled by source [10]		

Table 3 presents the rating of Kazakhstani universities, which is also carried out according to many indicators among 127 universities of the country. Nazarbayev University, which began functioning in 2010 and was supposed to become a brand of the country's educational system, is not represented in the rating data. In 2019, Nazarbayev University graduated from 963 students, including 565 undergraduate students, 378 undergraduate students, 14 Doctors of Medicine (MD), and 6 Ph.D. doctoral students [11].

A distinctive feature of Nazarbayev University is that the faculty and leadership are carried out by foreign teachers, and training is in English. Nazarbayev University was created on the model of leading foreign universities and has more than 70 research centers, laboratories, and an industrial park for the preparation of startups. Also, as part of the university, seven schools, and one center of pre-university training were opened which operate in tandem with international partners - leading foreign universities.

In the whole republic, the number of faculty is 38212 people, including 4892 teachers working part-time. The qualitative composition of universities is represented by Doctor of Science by 8.5%, candidates of science - 34.7%, including those with the academic title of the professor - 6.1% and associate professor - 15.7% [9].

Recently, the number of teachers with an academic master's degree has increased, the total number of which is 12098 people, or 31.7%, Doctor of Philosophy (Ph.D.), and doctors in the profile of 2062 people or 5.4%.

In the field of education, as well as in the whole country, the process of digitalization and informatization is continuing following regulatory legal acts [12; 13]. The development of educational programs in the field of economics is especially relevant, which is associated with the economic security and competitiveness of the country [14].

At the same time, there are many unresolved problems in the field of modernization of education: the lack of freedom of universities, their autonomy, response to the needs of the economy, and the interaction of universities and employers.

It is necessary to focus more on research and innovation and innovation, including in terms of the commercialization of scientific and technical projects. For this, opportunities are offered for learning foreign languages for publishing articles in rating journals with a high impact factor.

Difficulties remain in the system of assessing the quality of education, in which self-assessment and improvement of universities are not carried out sufficiently, and more attention should be paid to external expert assessment and the achievement of a high rating of Kazakhstan's universities.

Therefore, it should be recognized that the implementation of work on the modernization of the education system in the republic mainly being successfully implemented. Shortcomings in improving university management, corruption, the lack of transparency in assessing knowledge, and other issues remain a significant problem.

Conclusion

By the results of the work carried out, it can be concluded that in Kazakhstan, the work on the modernization of higher vocational education carried out systematically and stably. The level of education improvement state programs is being effectively implemented, on which the successful development of the country's intellectual potential depends [15].

The educational system of Kazakhstan has long historical roots, as a result of which the country's intellectual and highly educated elite was formed [16].

Many issues remain relevant as academic freedom of institutions, raising the rating, and commercialization of science in Kazakhstan's universities. This largely depends on the self-improvement of universities and faculty, especially in the context of globalization. So, graduates must be competitive in the labor market.

To enhance the competitiveness of educational centers following actions should be implemented the latest achievements of science and technology should be used, research work should be intensified, and constant work to eradicate corruption should be carried out [17].

Students, master students, and doctoral students should be involved in research and innovation activities as young scientists in conducting research projects. Various innovations in organizational, social, and other areas also relate to innovations and require careful consideration, since their influence may appear in the future and affect the further development of society and the state [1].

Modernization of the education system can be successfully implemented only by the joint efforts of the state, business, universities and all members of society. For this, an appropriate infrastructure, culture, and mentality aimed at creating a future society and country should be created and maintained.

When carrying out the reorganization of the education system, the state should consider the interests of the whole society, since people are intellectual capital. The role of the state in the education system should be limited to supervisory and advisory functions, as well as encouraging students to implement grant financing.

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ҚАЗІРГІ ЖАҒДАЙЛАРДА ЖОҒАРЫ КӘСІБИ БІЛІМ БЕРУДІ ЖАҢАРТУ

Аннотация. Жұмыстың мақсаты Қазақстандағы жоғары білім беру жүйесін дамыту мен жаңғырту бағытын зерттеуден тұрады. Жұмыс барысында талдау және синтез, салыстыру әдісі және факторлық әдіс қолданылды, олардың көмегімен білім беру жүйесін құрудың әлемдік тәжірибесі көрсетілді.

Заманауи жағдайда сапалы білім тек мамандардың ғана емес, сонымен қатар жалпы ел экономикасының да бәсекеге қабілеттілігін арттыруға ықпал етеді. Кәсіптік білім берудің бәсекеге қабілеттілігі ғылым мен техниканы одан ары дамытуға, жұмыспен қамтуды арттыруға және қоғамның әл-ауқатын арттыруға мүмкіндік береді.

Жұмыс нәтижелері білім берудің тиімді жүйесін дамыту бойынша ұсынымдармен байланысты. Зерттеу нәтижелерін қолдану саласы – мемлекеттің заң шығару қызметінде және жоғары оқу орындарының қызметінде. Білім беру жүйесін дамытудың әлемдік және қазақстандық тәжірибесін талдау нәтижелері қолданыстағы білім беру моделінің тиімділігін бағалауға мүмкіндік береді. Жоғары білім мен ғылымды жаңғырту мемлекеттік бағдарламаларды әзірлеуде басым болуға тиіс. Алайда қайта ұйымдастыруды жүргізу кезінде, сандық параметрлерге емес, жоғары оқу орындары қызметінің сапалық көрсеткіштерін арттыруға баса назар аудару керек.

Мақаламен жұмыс кезінде ресми дереккөздерден алынған деректер, соның ішінде ғылыми-практикалық әдебиет және жоғары рейтингті журналдардағы жарияланымдар қолданылды.

Зерттеу әдістері ел ішінде және жетекші шетелдік жоғары оқу орындарымен білім беру жүйесінің логикалық, жүйелі және салыстырмалы талдауына негізделген.

Қазақстанның білім беру жүйесінің жағдайына ел ішінде ғана емес, жетекші шетелдік институттармен де көп көңіл бөлінеді. Мысалы, Темпус Еуропалық комиссиясы 2010 жылғы жағдай бойынша Қазақстандағы жоғары білімнің жағдайын зерттеді, оның нәтижелері кең аудиторияға ұсынылды [7]. Бұл құжатты білім, аудиовизуалды құралдар және мәдениет жөніндегі Атқарушы агенттік (EACEA) дайындады. Бүгінгі таңда комиссияның қорытындылары ескірген, өйткені білім беруді дамытудың мемлекеттік бағдарламаларына сәйкес, білім беру саласында айтарлықтай өзгерістер болды.

Зерттеудің негізі түрлі көздерден алынған заңды ақпаратты талдаумен байланысты, оның ішінде нормативтік-заңнамалық актілер, ғылыми жарияланымдар, мемлекеттік және халықаралық зерттеу институттарының шолулары мен деректері бар.

Деректерді талдау кезінде аналитикалық және синтетикалық әдістер қолданылды, олардың нәтижелері қорытындыда баяндалған қорытындылар мен ұсынымдарда көрініс тапты.

Түйін сөздер: модернизация, ғылым, кәсіби жоғары білім.

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МОДЕРНИЗАЦИЯ ВЫСШЕГО ПРОФЕССИОНАЛЬНОГО ОБРАЗОВАНИЯ В СОВРЕМЕННЫХ УСЛОВИЯХ

Аннотация. Цель работы состоит в исследовании направления развития и модернизации системы высшего образования в Казахстане. В ходе работы использовались анализ и синтез, метод сравнения и факторный, при помощи которых показан мировой опыт создания системы образования.

В современных условиях качественное образование способствует повышению конкурентоспособности не только специалистов, но и экономики страны в целом. Конкурентоспособность профессионального образования дает возможность для дальнейшего развития науки и техники, увеличения занятости и повышения благосостояния общества.

Результаты работы представляют собой рекомендации по развитию эффективной системы образования. Область применения результатов исследования находится в законодательной деятельности государства и функционировании высших учебных заведений. Результаты анализа мирового и казахстанского опыта развития системы образования дают возможность оценить эффективность действующей модели образования.

Модернизация высшего образования и науки должны стать приоритетными в разработке государственных программ. Однако при проведении реорганизации следует делать упор на повышении качественных показателей деятельности вузов, а не количественных параметров.

При работе над статьей использовались данные из официальных источников, в том числе научно-практическая литература и публикации в высокорейтинговых журналах.

Методы исследования основаны на логическом, системном и сравнительном анализе системы образования внутри страны и с ведущими зарубежными вузами.

Состоянию образовательной системы Казахстана уделяется большое внимание не только внутри страны, но и ведущими зарубежными институтами. Так, Европейская комиссия Темпус исследовала состояние высшего образования в Казахстане по состоянию на 2010 год, результаты которого были представлены для широкой аудитории [7]. Данный документ был подготовлен Исполнительным агентством по образованию, аудиовизуальным средствам и культуре (EACEA). На сегодняшний момент выводы комиссии несколько устарели, так как в соответствии с государственными программами развития образования произошли существенные преобразования в образовательной сфере.

Основой исследования явился анализ легитимной информации из различных источников, в числе которых нормативно-законодательные акты, научные публикации, обзоры и данные государственных и международных исследовательских институтов.

При анализе данных использовались аналитические и синтетические методы, результаты которых нашли отражение в выводах и рекомендациях, изложенных в заключении.

Ключевые слова: модернизация, образование, профессиональное высшее образование.

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