

M.O. Bekebayeva^{1*}, G.P. Koptayeva², K.M. Kalykulov³, M. Nursoy⁴, N.B. Kuttybaeva⁵

¹*Khoja Akhmet Yassawi International Kazakh-Turkish University, Kazakhstan;*

²*University "Miras", Kazakhstan;*

³*Shymkent University, Kazakhstan;*

⁴*Mugla University, Turkey;*

⁵*Karagandy University of the name of academician E.A. Buketov, Kazakhstan*

¹bekebayevam90@mail.ru, ²asel_4747@mail.ru, ³kalykulov.65@mail.ru, ⁴mustafanursoy@mu.edu.tr,

⁵nurg_78@mail.ru

¹<https://orcid.org/0000-0002-4852-6859>, ²<https://orcid.org/0000-0002-0494-6632>, ³<https://orcid.org/0000-0001-9049-4144>, ⁴<https://orcid.org/0000-0001-7113-5373>, ⁵<https://orcid.org/0000-0001-8250-4111>

⁵Scopus Author ID: 57200878990

Business and higher education experience of interaction in Kazakhstan

Abstract:

Object: The purpose of this study is to develop a mechanism of interaction between higher education and business based on an economic and mathematical model on the example of the Republic of Kazakhstan.

The choice of the goal is determined by the need to overcome the disclosure of issues related to the performance of business structures as an employer for universities and their interaction, inherent in all industrialized countries of the world, possibly on the basis of giving new forms to the interaction of the main participants in this process: business, government, education and science.

Methods: During the writing of the article, methods of analysis, synthesis, methods of deduction and induction, statistical and economic methods, methods of grouping and comparison, methods of control and generalization were used.

Findings: The XXI century was declared by UNESCO as the "century of education", which defined knowledge, intelligence, culture, spirituality as the priority values of modern society. In these conditions, continuous modernization of the interaction between the education system and business is required, forecasting a new strategy for its development, taking into account the constantly changing situation in the world. The influence of the new ideology and methodology of pedagogical education on the goals and content of practical training, interaction with business is analyzed.

Conclusions: The mechanism of functioning of the proposed economic and mathematical model is aimed at stimulating all participants to generate innovations, provide high-quality educational services, conduct research and fulfill business orders.

The results and conclusions of the study can be used by territorial and state economic management bodies in the development of regional development programs.

Key words: business, government, higher education, interactions, innovative economy, development, educational program.

Introduction

The actions taken to limit the spread of coronavirus infection have contributed to a sharp acceleration of the digital transformation of both general and higher education. "The activity of universities to create new formats of interaction with partners has intensified; the virtual mobility of students and teachers has increased".

The relationship between business structures and higher education is directly related to the employment of graduates. In the context of the formation of the knowledge economy, the problem of matching the degree of orientation of educational programs to the needs of employers and graduates becomes a key indicator of the effectiveness of higher education and the quality of training of students. The education system must constantly respond to changing labor market conditions (Adeinat, I. M. & Abdulfatah, F. H., 2019). Therefore, the main vector of modernity is the creation of a system of effective interaction between the university and employers, that is, business structures aimed at establishing a long-term mutually beneficial partnership.

Attempts to create the best practices of interaction between Universities and employers were constantly made. For example, in Poland they began to be undertaken in the mid-90s. Since 1996/97, a service (structure) has been created in the leading universities of Poland as "Academic Career Bureau" or "Bureau of Pro-

* Corresponding author's e-mail: bekebayevam90@mail.ru

Professional Promotion of Students and Graduates”. And it performs a dual function – on the one hand, it helps students and graduates in determining the path of professional development, in finding an attractive job, accumulates and transmits information about employers (Agostini, L. *et al.*, 2017). On the other hand, it ensures the establishment and maintenance of contacts with employers, the dissemination of information about the university and its activities. Thus, the service provides services to the academic community and the community of employers.

Literature Review

The topics of interaction between business and higher education were studied by foreign and domestic scientific researchers, who reflected them in their works (Al-Kurdi, O. *et al.*, 2018). A significant contribution to the study of the problem of interaction of these structures was made by such scientists as:

- I. Ansoff, published in 1979 a book entitled “Strategic Management”, which covers historical and modern, applied and theoretical aspects of strategic management, but also reveals the very essence of the methodology and organization of this function at the present stage;

- Brayley R. and Myers S., having published in 1984 a book entitled “Principles of Corporate Finance”, which contains a complete conceptual framework of finance, including all key concepts with a statement of semantic and key concepts between them, methods for calculating relevant indicators, as well as valuation models;

- K. Christensen, published in 1997 a book entitled “The Innovator's Dilemma: when New technologies lead to the collapse of great firms”, in which he outlined how companies that are industry leaders go bankrupt when they occupy a new niche in the market or when the latest technologies begin to prevail in the market. As well as other scientists, such as: Petti U., Hammer M., Porter M., Thompson A., Raynor M., Ferris K., Finnerty D., Houston D., Erhardt M. etc.

Further study of the modernization of entrepreneurial activity in the conditions of innovative foresight, in which the developments in the process of scientific, theoretical and applied aspects were summarized, as well as presented in publications: Egorushkin P.A., Lyasnikov N.V., Dudin M.N., Severin V.D., Moguev B.D., Taluboev M.V., Safin F., Reshetov K.Yu., Litvinova E.M., Afanasyeva E.S., Vlasova M.A., Rudakova O.V., Valiulin A.S., Korneev D.V., Goncharov V.S., Shuklina Z.N. et al.

The education system is a complex process involving cooperation between the state, society and business entities, which requires large investments, attracting new technologies and innovations.

As the research by Asanova M. and Mukhamedzhanova A. shows, world practice focuses on the impact of the education system on the growth of the country's economic indicators, since 70-90 % of the GDP share of developed countries is determined by the level of scientific and technological progress and innovative economy. The pace of economic development depends on the high level of education of specialists who are involved in it through the degree of contribution to social production. Expert estimates indicate that 60 % of the increase in national income depends on the level of knowledge and the degree of education of the country's population. The results of the study conducted by economist A. Maddison show a direct relationship between the level of education of society and the pace of economic growth, that is, with an increase in budget spending on education by 1 %, GDP growth increases by an average of 0.35 %. The results of a study by economist Lukichev G. showed that the influence of education on economic growth leads to an increase in macroeconomic productivity, that is, an increase in human capital with higher education by 1 % can lead to an increase in GDP growth by 5.9 %.

Thus, education is a system-forming factor of the socio-economic development of the country, which creates the basis for providing highly qualified specialists to the country's economy, without which, unfortunately, it is impossible to achieve high indicators (Ardichvili, A. *et al.*, 2017).

It should be noted that a number of theoretical, methodological and practical issues related to the formation and implementation of improving the competitiveness of an entrepreneurial structure in the context of innovation continues to remain at an insufficiently researched level and requires further development of provisions, models of its design and functioning.

Methods

Within the framework of the study, it is planned to use such research methods as systematic literary analysis, comparative analysis, synthetic control method, analysis of the functioning environment (DEA), expert interview. Using a combination of qualitative and quantitative methods makes it possible to improve the quality of the study and obtain the most reliable results (Bercovitz, J., & Feldmann, M., 2006).

A systematic literature review (SLR) is conducted at the initial stage of scientific research and consists of the following stages: analysis of the development of the chosen topic as a separate direction, assessment of the completeness of existing literature, identification of gaps in the literature for subsequent research, development of a theoretical model, answers to research questions (Chin, W. W., 1998). International databases Scopus, Web of Science, Google Scholar (Cho, T., & Korte, R., 2014) will be used to search and select scientific publications.

Comparative analysis is an empirical general scientific research method that will be used to compare strategic programs to support the circular economy in different countries. It will allow to generalize theoretical positions and develop a classification (Cohen, J., 1988).

The synthetic control method is aimed at assessing the effects of the studied impact (in this case, the implementation of a program for the transition to a circular economy) on the example of a small number of cases by modeling their quantitative indicators in a hypothetical situation, based on a limited range of similar control observations by assigning certain weights to these variables (De Matos, P. E. *et al.*, 2020). The main idea here is that synthetic control simulates the counterfactual of the processed country, which would be observed when implementing the concept of transition to a circular economy using the weighted average of all control countries in which similar concepts are implemented. A number of placebo tests will be conducted to check the results for validity.

Operating Environment Analysis (DEA) is a method based on linear programming and measuring relative efficiency in a set of peer-to-peer objects. It will be used to assess the effectiveness of the development of the principles of circular economy in the regions. The results will allow for a comparative analysis among the regions of the country and identify problem points (Faul, F. *et al.*, 2009). The ability to account for multiple inputs and outputs, as well as the use of different units of measurement, is a significant advantage compared to parametric methods.

Expert interviews. The expert survey is planned to be conducted in a semi-structured format (Ferasso, M. & Grenier, C., 2021). It can be conducted both online and offline. The most relevant quotes will be used to support the decoded values.

Results and discussion

The priority task in the higher education system of Kazakhstan is its recognition at the international level, which directly depends on the level of scientific potential of the country, the productivity of innovations, as well as on the degree of qualification of teaching staff. According to experts, unresolved issues for international integration in the field of education remain:

- to form common approaches to assessing the quality of education, including adult education, as well as the implementation of joint projects and initiatives to ensure the quality of education based on the best experience of international studies of learning outcomes;
- to form a unified space in the field of vocational education and training in order to ensure continuous education together with ensuring transparency of qualifications. As tools, you can consider a Eurasian resume, an appendix to a diploma or an appendix to a certificate of professional qualification, as well as a certificate of study or work abroad, etc.;
- introduce general principles for the recognition of informal and spontaneous learning;
- introduce a system of Eurasian grants to support talented students;
- expand the range of additional professional education programs in the direction of Eurasian integration, which are aimed at representatives of government, business structures, academia and the public.

According to paragraph 20 of the Roadmap for the implementation of “Strategic directions for the development of the Eurasian Economic Integration until 2025”, within the framework of the activities of the Eurasian Economic Commission, it is planned to create a common scientific space on the territory of the EAEU. But it is only planned to start developing this direction systematically (Fernández-López, S. *et al.*, 2018). The main activities include the development of a program for scientific cooperation, the creation of scientific clusters and campuses together with universities and large enterprises, as well as the creation of scientific and educational consortia (Hayaean, S. *et al.*, 2022).

According to the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, over the past five years, the science intensity averaged 0.16 %, that is, more than six times lower than the critical level (1 %).

In this regard, indicators and criteria for assessing the formation of relevant competencies should be presented in the developed work programs, which allow detailed monitoring of the formation of target learn-

ing outcomes in each discipline (Iqbal, A., 2021). Further research requires a measuring procedure for assessing the formation of competencies based on the results of training in all disciplines, the development of an effective methodology for evaluating learning outcomes.

Particular importance should be given to the development of evaluation criteria that should be communicated to students for each type of activity to be evaluated, so that the student understands how he will be evaluated and what he needs to do to ensure that the control is successful (Lin, H. F., 2007). To do this, it is advisable to create a so-called assessment guide for students, which contains assessment criteria.

Innovative solutions bring both non-economic and economic benefits to business structures, which are the essence of competitiveness. Thus, it can be concluded that the basis for raising the level of entrepreneurial structures is formed by innovations, which are the realization of accumulated intellectual capital and key competencies.

Kazakhstan's economy grew by 4 % in 2021. In 2020, the country's GDP decreased by 2.6 %. In 2019, GDP growth was 4.5 %. By the end of 2021, there is growth in the services sector, steady growth in the real sector, strengthening of the trade balance due to high export growth rates and high investment activity in non-mining industries. As for investments, their growth in fixed assets, excluding the mining industry, amounted to 11.7 %. High rates in construction by 2.1 times, manufacturing industry – 50.5 %, agriculture – 40.5 %, trade – 34.2 %, real estate transactions – 18.6 % and financial activities – 14.2 %. The manufacturing industry maintains a steady growth trend. The volume of production increased by 5.2 %.

The main catalyst for growth was the expansion of production in the trade sectors, support for small and medium-sized businesses and increased investment activity, and the gradual recovery of domestic demand in the country. Thanks to the measures taken to diversify the economy on the basis of the SPFIID program, there have been qualitative and positive changes in the structure of GDP. If in 2018 the share of the mining industry was about 16.2 %, then in 2021 it fell to 11.7 %.

In 2018, the third modernization was launched, which included three important stages of reorganization: modernization of the country's economy through a technological process; legislative modernization to increase transparency and competitiveness of the population, as well as modernization of public consciousness. The state program for Innovative Development “Digital Kazakhstan” was launched, aimed at the transition of the entire economy and the public sector to a digital basis.

Undoubtedly, it is worth noting that the program initially had the potential to further create added value by reducing costs in the modern economy of the country, which would allow us to achieve a GDP growth rate of 5.2 % by 2025, but due to the force major situation that arose due to the pandemic, this growth is expected to be half as much.

The Nurlı Zhol program is being implemented in the country, which contributes to the formation of an effective transport and logistics infrastructure aimed at the progress of the country's export and transit capabilities.

At the same time, in order to diversify the economy and increase the export potential of the country, in order to increase the volume of exports, the National Export Strategy is being implemented, which defines new export products, new niches in foreign markets. Based on the research, a comprehensive export support system was created from production to delivery to the final buyer (Martin-Sardesai, A., & Guthrie, J., 2018). To attract the world's leading technologies and investments, a national investment strategy is being implemented until the end of 2022, focused on attracting foreign investment in export-oriented non-resource sectors.

The sustainable development of the business structure is one of the important factors affecting the well-being of the country's economy (Metha, A. M., & Tariq, M., 2020). The state administration is constantly working to reduce administrative barriers and improve the business climate in the country's economy. Thanks to the above measures, small and medium-sized businesses of the country are developing dynamically in Kazakhstan.

Improving the conditions for entrepreneurial structures (business structures), as well as reducing state and organizational pressure on small and medium-sized businesses are among the systemic measures to achieve the goals of the strategy “Kazakhstan – 2050”.

In the context of achieving the goals of the modern economic agenda, the experience of interaction between business and higher education in Kazakhstan is a complex problem, which is one of the highest priorities on a regional scale. Regional peculiarities and the lack of effective international instruments often hinder the solution of this problem, complicating the development and application of common mechanisms. For Kazakhstan, which is the largest country in Central Asia and a state with a sufficient number of small and

medium-sized businesses, there is a need for highly qualified specialists, which has its relevance to fill this gap (Obeidat, B. *et al.*, 2016). This study was conducted by studying the statistical data of Kazakhstan and foreign legal instruments and practices. In addition, the study examines the prospects for improving the interaction of the two structures in the country. Based on the study of foreign experience of interaction between higher education and business, we have identified the shortcomings of the existing legislative regulation in this area in the Republic of Kazakhstan. The analysis showed that the legislation of the Republic of Kazakhstan in the relevant field is at the stage of formation (Quarchioni, S. *et al.*, 2022). At the same time, the existing problems require a comprehensive solution related to the development of an integrated approach, which implies effective interaction of political and legal instruments. In particular, the use of national strategies and programs, integrated programs of interaction between business and higher education and the development of an appropriate regulatory framework for them.

Conclusions

The key problem of the issue under study is the interaction of business and higher education from their impact on economic growth in the region and the quality of life. To solve it, in our opinion, we apply the method of mathematical and economic model, which can be modified taking into account the specifics of mono-industrial regions.

Absolutely the leading role can belong neither to the government, nor to business, nor to the university (Paoloni, P. *et al.*, 2019). We need a balanced model, when the participants taking the role of organizer change depending on changing conditions.

In order to raise this problem of interaction between universities, business and government to the level of state regional economic development policy, we propose to update the issue of interaction between two structures, in the role of an employer and a university sending graduates for employment, meeting the requirements of flexibility and the ability to respond to the inertia of the local business community, the sluggishness of local state regulatory bodies and their inability to accept at a certain moment functions of a higher educational institution (Sultanova, G. *et al.*, 2018).

The mechanism of work of the university and business at the regional level should be aimed at stimulating all participants to provide educational services, conduct research and fulfill business orders.

Regional industry and business should be included in the management structure at universities (Thani, F. N., & Mirkamali, S. M., 2018). This will allow for the transfer of knowledge and technology in practice, as it operates in the countries of Western Europe, the USA and Canada. At the same time, it is necessary to regulate the relationship of partners, and built on a balanced account of their interests and characteristics.

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М.О. Бекебаева, Г.П. Коптаева, К.М. Калыкулов, М. Нурсой, Н.Б. Куттыбаева

Қазақстандағы бизнес пен жоғары білімнің өзара әрекеттесу тәжірибесі

Аңдатпа:

Мақсаты: Зерттеудің мақсаты Қазақстан Республикасының мысалында экономикалық-математикалық модель негізінде жоғары білім мен бизнестің өзара іс-қимыл тетігін әзірлеу.

Мақсатты таңдау жоғары оқу орындары үшін жұмыс беруші ретінде бизнес құрылымдарының пайда болуымен байланысты мәселелерді және олардың әлемнің барлық индустриалды дамыған елдеріне тән өзара іс-қимылын, мүмкін, осы процестің негізгі қатысушыларының: яғни бизнестің, мемлекеттің, білім мен ғылымның өзара іс-қимылына жаңа формалар беру негізінде еңсеру қажеттілігімен анықталады.

Әдісі: Мақаланы жазу барысында талдау, синтез, дедукция және индукция; статистикалық және экономикалық; топтастыру және салыстыру; бақылау және жалпылау әдістері қолданылды.

Қорытынды: ХХІ ғасырды ЮНЕСКО «білім ғасыры» деп жариялап, білім, интеллект, мәдениет, руханиятты қазіргі қоғамның басым құндылықтары ретінде анықтады. Бұл жағдайда білім беру жүйесі мен бизнестің өзара іс-қимылын үздіксіз жаңғырту, әлемдегі үнемі өзгеріп отыратын жағдайды ескере отырып, оны дамытудың жаңа стратегиясын болжау талап етіледі. Педагогикалық білім берудің жаңа идеологиясы мен әдіснамасының өндірістік практикадан өту мақсаттары мен мазмұнына, бизнеспен өзара іс-қимылға әсері талданған.

Тұжырымдама: Ұсынылған экономикалық-математикалық модельдің жұмыс істеу тетігі барлық қатысушыларды инновацияларды генерациялауға, білім беру қызметтерін сапалы ұсынуға, зерттеулер жүргізуге және бизнес тапсырыстарын орындауға ынталандыруға бағытталған.

Зерттеудің нәтижелері мен қорытындыларын аумақтық және мемлекеттік шаруашылық басқару органдары өңірлерді дамыту бағдарламаларын әзірлеу кезінде пайдалана алады.

Кілт сөздер: бизнес, мемлекет, жоғары білім, өзара іс-қимыл, инновациялық экономика, даму, білім беру бағдарламасы.

М.О. Бекебаева, Г.П. Коптаева, К.М. Калыкулов, М. Нурсой, Н.Б. Құттыбаева

Бизнес и высшее образование опыт взаимодействия Казахстана

Аннотация

Цель: Целью данного исследования является разработка механизма взаимодействия высшего образования и бизнеса на основе экономико-математической модели на примере Республики Казахстан. Выбор цели обу-

словливается необходимостью преодоления раскрытия проблематики, связанной с выступлением структур бизнеса, как работодателя для вузов, и их взаимодействие, присущей всем промышленно развитым странам мира, возможно, на основе придания новых форм взаимодействию основных участников этого процесса: бизнеса, государства, образования и науки.

Методы: При написании статьи использовались методы анализа, синтеза, дедукции и индукции, статистические и экономические методы, методы группировки и сравнения, контроля и обобщения.

Результаты: XXI век был объявлен ЮНЕСКО «веком образования», который определил знания, интеллект, культуру, духовность как приоритетные ценности современного общества. В этих условиях требуется непрерывная модернизация взаимодействия системы образования и бизнеса, прогнозирование новой стратегии ее развития с учетом постоянно меняющейся ситуации в мире. Проанализировано влияние новой идеологии и методологии педагогического образования на цели и содержание прохождения производственной практики, взаимодействия с бизнесом.

Выводы: Механизм функционирования предложенной экономико-математической модели направлен на стимулирование всех участников к генерации инноваций, качественному предоставлению образовательных услуг, проведению исследований и выполнению заказов бизнеса. Результаты и выводы исследования могут быть использованы территориальными и государственными органами управления экономикой при разработке программ развития регионов.

Ключевые слова: бизнес, государство, высшее образование, взаимодействия, инновационная экономика, развитие, образовательная программа.