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SECTION I / СЕКЦИЯ I

ECONOMIC AND MANAGEMENT SCIENCES / ЭКОНОМИЧЕСКИЕ И УПРАВЛЕНЧЕСКИЕ НАУКИ

1.1. Impact of the Digital Transformation of the Economy on the Mechanism of Interaction between Labor Market and Higher Education: Modern Challenges

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The article discusses the main problems of the formation of a new mechanism of interaction between higher education and the sphere of labor in the Republic of Kazakhstan.

The new challenges facing modern higher education are determined by the digital transformation of economic sectors, changes in the structure of the labor market caused by the development of digital technologies.

It is shown how the introduction of modern digital technologies affects the transition to a new digital format of personnel training, radically changes the paradigm of university development, scientific and educational activities, and also requires the organization of work to attract and retain young talents. The conclusion is made about the peculiarities of the development of the digital educational environment in the field of higher education of the Republic of Kazakhstan.

A distinctive feature of the current stage of development of the higher education system of the Republic of Kazakhstan is the digitalization of educational activities. Kazakh society has entered the digital stage of its development, the capabilities of which are becoming extremely important for the effective solution of both economic and social problems.

In this regard, the task of qualitative changes in the content of higher education based on the inclusion of the digital component in it as the most important component of improving personnel training in the digital economy becomes urgent.

To date, the Kazakh economy has set the goal of transformation along the digital trajectory of development, mainly to ensure the country's competitiveness in the global economic space. The transformations are aimed at accelerating the pace of its development and improving the quality of life of the population, ensuring economic growth and productivity. To achieve these goals, the State Program for Digitalization of the economy “Digital Kazakhstan” has been developed and implemented in Kazakhstan since 2017 [1, p. 20].

It is noted that the peculiarity of Kazakhstan’s Digital Modernization Program is its focus on the formation of an environment and an innovative ecosystem of the digital economy both for flagship industries, transformations in which will lead to increased labor productivity and capitalization growth, and in the activity of government agencies by creating a digital infrastructure for providing public services to the population and business, as well as for the development of human capital in order to create a creative society that will ensure the transition to a knowledge economy.

The Program pays special attention to the development of the IT sector, which should turn into a sector of the real economy, have a share in GDP and create jobs on a scale comparable to other large sectors of the economy.

One of the main directions of the state program “Digital Kazakhstan” is the education system. In addition, the importance of digitalization in the field of education is emphasized in the Message of the first President of the Republic of Kazakhstan N.A. Nazarbayev to the people of Kazakhstan “New development opportunities in the context of the Fourth Industrial Revolution”, published on January 10, 2018 [2, p. 12].

The digitalization of the economy has led to the development of serious systemic changes in higher education, including in personnel training. As part of the improvement of teaching, new forms and methods of teaching have been developed based on the introduction of digital technologies into the educational process, which has radically changed not only the content of the disciplines taught, but also the form of their presentation.

Digital technologies are an important tool for improving the educational activities of the university [3, p. 32].

Digitalization of higher education involves the use of completely new digital technologies in the educational process, such as:

- big data;
- artificial intelligence;
- virtual and augmented reality;
- gamification;
- panoramic images; 3D modeling, etc. [4, p. 35].

In turn, the integrated use of modern digital technologies in the educational process is necessary:

- to improve the quality of education;
- successfully operate modern electronic resources;
- train competitive specialists who are ready to carry out their professional activity in the world of global technological changes and other modern challenges [5, p. 47].

Training for the digital economy is currently underway. 17 educational programs have been prepared and implemented at universities, including:

- “Smart Technologies”;
- “Countering criminal offenses in the field of informatization”;
- “Computer Mechatronics”;
- “Digital Humanities”;
- “Computer Science and Robotics”;
- “Digital History”;
- “Designer of virtual Worlds”;
- “IT Management”;
- “IT audit”;
- “Special tools and telecommunication Technologies”;
- “Digital Media Management”;
- “Computer Science and Technology”;
- “Digital Technologies in agro-industrial complexes”;
- “Big Data Analytics”;
- “Cybersecurity”;
- “IT and Journalism”;
- “Digital Media Technologies”;
- “Data Analysis”.

According to these educational programs, such universities of Kazakhstan have started training personnel as:

- EKSU named after S. Amanzholov;
- KazNPU named after him. Abaya;
- L. Gumilev ENU;
- KazNITU named after K. Satpayev;
- KazNAU, KBTU and the University of International Business.

Sites and centers are being created in universities designed to develop students’ IT competencies.

The IITU Innovation Center opened at the International University of Information Technology in February 2018. On its basis, a kind of ecosystem will be formed for the development of student entrepreneurship, training seminars, hackathons, and project competitions.

The student training laboratory on robotics RoboLab and the Renaissance business club have opened at Almaty Technological University. Here students will be able to develop digital skills and competencies.

The Kazakh-British Technical University has opened a competence center - an IT business incubator in the areas of Computer Vision Technologies, Information Security, and Mobile Startups.

The Kazakh National Research Technical University named after K. Satpayev has an Institute of Digital Technologies and Kaspersky Lab.

Since January 2018, Suleiman Demirel University has launched the Technopark Competence and Business Incubator Center.

The Al-Farabi Kazakh National University has a Smart Technology Center and a laboratory for computational linguistics and artificial intelligence.

To KazNPU named after Abai operates the international scientific laboratory “Problems of informatization of education and educational technologies”.

In 2018, KazNPU named after Abai has opened a pedagogical science park, the main directions of which are: mechatronics and measuring systems, computer modeling of objects and 3D printing, design of mechanical systems, programming of robotic systems, artificial intelligence.

The Al-Farabi Educational Center of Abai KazNPU, which was opened by order of the Rector of the University No. 446-w/k dated June 3, 2019.

It has been introduced into the educational program of bachelor's and master's degrees for all pedagogical specialties of the university courses for bachelors:

- “Digital learning technologies”;
- “Information and communication technologies”.

Massive open online courses (MOOC) are a modern trend in distance education. Thus, Kazakhstan has a National Open Education Platform established by the country's leading universities. It contributes to the accessibility and improvement of the quality of knowledge in the higher education system. The leader among domestic universities in implementing MOOC on an open platform is Al-Farabi Kazakh National University, which:

- carries out more than 40 MOOC covering more than 15 directions;
- has more than 16000 registered users.

The educational platform “Open University of Kazakhstan” is rapidly developing – OpenU.kz.

This project has been operating since 2018 and has more than 1,000 listeners.

The Open University of Kazakhstan provides access to online lectures by teachers of the best universities in the country for everyone who wants to gain knowledge in the scientific and technical field and other popular disciplines.

It is already difficult for the country's universities to do without the use of digital technologies, which help to organize the educational process at a new level.

The digital transformation of higher education usually involves two levels.

The first level is the transfer of existing educational information to digital media.

The second level includes the creation of a completely new educational product in digital form.

The digital transformation of the educational process allows an educational organization (limited by its territorial affiliation, the size and number of classrooms, the number of teaching staff, etc.) to expand the possibilities and boundaries of learning, to make it accessible to any student audience.

In the digital economy, the requirements for higher education institutions of the Republic of Kazakhstan in terms of personnel training are significantly changing, among which the following can be distinguished:

- focus on the labor market;
- taking into account the expectations and needs of all stakeholders (employers, the state (as a social customer), students and their parents);
- the interdisciplinary nature of the educational program;
- ensuring the possibility of individualization of training;
- ensuring the assessment of the quality of educational programs by employers and all participants in educational activities.

In general, the main objectives of digitalization of higher education are the following, presented in Figure 1.

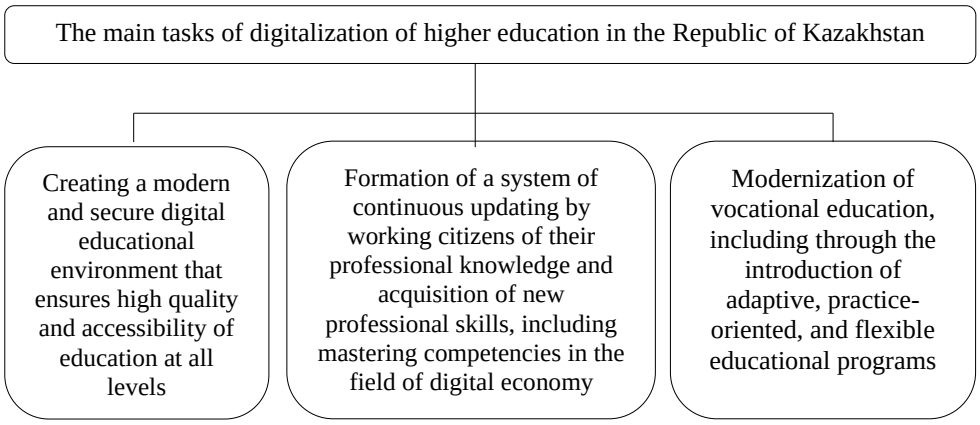

Figure 1 – The main tasks of digitalization of higher education in the Republic of Kazakhstan

The main attention is supposed to be paid to the following areas of digital development of the higher education system:

- digital content development;
- networking of universities;

- development of virtual academic mobility of students;
- providing free access on the principle of “one window” to the best educational content of the country's leading universities (regardless of the place of study and residence);
- formation of digital individual portfolios of students in order to record their educational achievements and professional competencies for future employers to familiarize themselves with them;
- modernization of the system for monitoring the employment of graduates of Kazakhstani universities, taking into account employers' satisfaction with the quality of graduate training, as well as compliance of training areas with regional labor markets and the sectoral structure of the digital economy.

The processes of digital transformation have a strong impact on changing the sphere of work. The development of digital technologies is significantly changing the structure of the labor market and forms of employment. A combination of different formats of work activity (offline and online) is widely used. The labor process itself is changing dramatically. There is a segmentation of the labor market into traditional and digital types of work. The models of labor organization have changed. The number of employees working remotely is increasing.

It should be emphasized that the digital development of higher education is aimed not only at meeting the current demand of the labor market, but also at training personnel for the future progress of society. The development of new flexible scientific and educational programs focused both on solving promising scientific and technical problems in various sectors of the economy and on professions of the future contributes to the further transformation of the modern sphere of work.

The production and reproduction of new knowledge are becoming the main drivers of economic growth and job creation. In these conditions, there is a gradual change in the mechanism of interaction between higher education and the sphere of work on the basis of strengthening and expanding cooperation between universities not only with future employers, but also with government representatives, entrepreneurs, Kazakhstani and foreign experts, public organizations, etc.

Currently, universities actively involve employers in evaluating educational programs as experts, participating in teaching activities, forming joint programs of educational and industrial practices, and internships for students. The university administration pays special attention to the creation of special career development and employment centers for students and graduates.

Higher education institutions are increasingly actively developing cooperation with enterprises in the real sector of the digital economy and private business in order to involve students and teachers in solving urgent problems in various sectors of the economy. In this case, universities act as expert platforms for discussing and solving problems in various sectors of

the economy with the involvement of representatives of employers, entrepreneurs, experts, professors and teachers of other universities in the discussion.

The researchers note that the rapid development of the digital economy poses a serious challenge to the education system and government policy on the labor market [6, p. 12].

Currently, the sphere of the closest attention and support from the state is work for young people, university graduates. In this regard, additional mechanisms for the employment of university graduates and their professional retraining have been developed and implemented at the state level.

An important innovation is also the creation of a single digital database that combines information about the employee's education and work. The formation of a new mechanism for interaction between higher education and the sphere of work involves the transition to accounting for all acquired skills (educational and professional), reflecting the entire process of learning and work.

Combining the received educational documents and workbooks into a single digital profile will make information about the employee more transparent to a potential employer and increase evaluation of the selection of future employees.

Thus, digital transformation is rapidly changing the whole world, and the need to constantly improve in the profession is becoming a reality. Kazakhstani universities are gradually adapting to new digital conditions based on the development of their own development strategy, which allows us to hope that most domestic universities will be able to successfully switch to new digital teaching methods and new forms of personnel training.

The social demand from the Kazakh society for higher education is very high. The digital revolution can help solve this problem by providing higher education opportunities through the development of online learning.

An important difference between the new digital training model is the personalization and individualization of training, ensuring that students receive the necessary professional competencies, and focus on practice in accordance with the requests of employers, the digital economy and society. This will make it possible to increase the efficiency of forecasting personnel needs, adjust the volume and structure of the admission control figures in the country's universities. In our opinion, the development of new areas of training demanded by the digital economy depends on the ability of Russian universities to respond to changes taking place in society, business, and the labor market, and their willingness to interact.

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1.2. Новая волна конкурентоспособных предпринимателей. Кто они?

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