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INTRODUCTION OF DIGITAL TECHNOLOGIES INTO EDUCATIONAL PROCESSES: THEORY AND PRACTICE

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Abstract
The article discusses the need to modernize education in the digital economy on the example of the Republic of Uzbekistan, as well as the role of science as an objective link, where one of the priority directions of the development of the digital economy, including Uzbekistan, is the introduction of digital technologies in the educational process. Arguments are given about the dependence of competitive organizations, firms, industries and regions not only on the effective use of personnel, but also on the availability of human resources. The difference between the innovative economy and the traditional one is shown. The proposals on the role of the state in solving these issues are presented.

Keywords: education, digitalization, digital economy, digital technologies, artificial intelligence, pandemic, human resources, state.

Introduction

In the digital world, it is necessary to have digital literacy, to be able to customize digital ecosystems for yourself. Research shows that a person has something to add to artificial intelligence in order to be stronger - this is creativity and creativity. As for education, it is difficult to dispute the fact that live communication is extremely important. You can talk about online learning, but a young person needs feedback from a teacher. When even a venerable academic gives a lecture over the Internet, perhaps he is able to establish control in an audience in which 100 people listen to him. But if at least every second person wants to ask him about something personally, how is this possible with virtual communication? This cannot be done in real time. Live communication - is something that needs to be preserved in education. Undoubtedly, online education is necessary, because it allows you to connect an audience, maintain a quality level and accessibility for millions, and gives a person the right to choose. But the scientific school ensures continuity.

Digitalization will lead to the death of some elements of education that are familiar today. In a few years, dissertations in such sciences as economics, linguistics, and law will disappear: artificial intelligence systems will cope with analysis better than

scientists. At the same time, in some little-studied areas, dissertations will be equated with a discovery. As for big data processing systems, there is an elusive goal - to create a computer identical to the human brain. But humanity simply will not find enough energy to ensure the operation of such a device. This is the advantage of a person. The topic of balance is extremely important. It is impossible to separate humanities from natural sciences, online education from traditional. All this is important in order to maintain humanity's control over the surrounding world.

Currently, the education system is on the verge of serious changes. It is obvious that it is no longer possible to carry out the educational process as it has been happening in recent decades. The amount of data that we have to work with at the moment, the rate of their obsolescence, is enormous. Perhaps you need to learn something else in the modern world, because the computer will always overtake a person in terms of knowledge, and everything he learns will become obsolete. However, no one and nothing can replace the teacher. Mass online courses are good, but when it comes to values, ethics, they are transmitted only from person to person. It is no coincidence that in a post-industrial society, a sought-after skill is the ability to negotiate with people, to feel a partner. It is important to understand what you can do and transfer these competencies to other areas. If a person can only perform routine operations that do not require thinking, then he will soon be replaced by a robot vacuum cleaner, an accounting program, etc.

In the light of all these trends, the concepts of "digital economy" and "knowledge economy" are becoming inseparable. Science and the new knowledge it produces are the central core on which almost all aspects of the modern economy are "strung", based on the scientific and technological paradigm - general principles and standards of development based on innovative sources of growth associated primarily with the use of breakthrough results of fundamental and applied research. This paradigm includes the widespread use of the most modern methods and technologies for research and development, including on a digital basis.

In these conditions, the role of science as an objective link is increasing, where one of the priority directions of the development of the digital economy, including in Uzbekistan, is the introduction of digital technologies into the educational process. Although the attitude of society to the digitalization of education, today, cannot be considered the same. Supporters of paper and methods of work in the old-fashioned way consider this process premature and actively discuss this topic in social networks. Someone just turned a blind eye to innovations and does not use the opportunities provided, but for someone they really became the solution to many problems. For example, the application for children Edu Market. This program was created by

Game Zale developers and implemented by the Center for Innovation, Technology and Strategy under the Ministry of Public Education of the Republic of Uzbekistan. The platform is designed to provide equal opportunities for the development of children in the world of modern technology in the form of educational exercises (with a selection of classes by age), to promote the development of skills in the IT field, attention, memory and logical thinking. In other words, the application is designed to turn the gadget into a learning tool, to make the learning process more convenient, interesting and accessible. However, there were also those who believe that gadgets "blunt" the consciousness of children and do not help to develop in any way.

But today the picture of the world has changed dramatically - a global pandemic, complete social isolation, closed schools. Therefore, accelerated modernization of educational technologies is even more relevant for the Republic of Uzbekistan than for countries with developed market economies, since the potential of the education system is the main social resource that provides a real opportunity for an innovative breakthrough to a higher level of economic development [6]. It is no coincidence that 2020 was named the year of the development of science, education and the digital economy. "We need innovative development like air. We have set a goal to enter a number of developed countries, and we will be able to enter this list only through accelerated reforms and the development of science. The formation of the digital economy will require huge funds and resources. But we have to start this today, because tomorrow it will be too late"[1].

On the scale of the entire industry, one of the main policy documents defining the vector of development of the ICT sphere in the near future is the decree of the President of the Republic of Uzbekistan "On measures for the widespread introduction of the digital economy and e-government". According to it, it is planned to increase the share of the digital economy in the country's GDP by 2 times by 2023 and the volume of services in this area by 3 times, bringing their exports to $ 100 million. Accordingly, in the period 2020-2022, 268 projects are planned to be implemented in various areas of economic and economic activity [5].

The central place in solving scientific and technological problems belongs to the state, whose role cannot be limited only to individual instruments of macro-regulation, tax policy, budget financing or co-financing of innovative projects. We need modern institutions and mechanisms for the transfer of capital to high-tech sectors of the economy, including small and medium-sized businesses. Currently, scientific and technological development - the transformation of science and technology into a key factor in the development of the country and ensuring its ability to effectively respond to major challenges - is considered as a strategic path for socio-economic

transformations in the Republic of Uzbekistan. That is why one of the priorities of the development of the digital economy in Uzbekistan is the introduction of digital technologies in the educational process.

The first mention of the use of technological solutions in schools in Uzbekistan can be found on the web back in 2006. Then the school-online project appeared. Its meaning was to provide parents with a copy of the paper magazine in electronic format, as well as sending grades via SMS messages. Later, several more similar solutions appeared, but they were applied locally, in a very small number of schools, and practically did not develop. As a result, the information systems market in the Republic's education has been stagnating for more than 10 years.

After a long lull, this issue began to be discussed vividly in 2018, which was given an impetus by the President of the country Sh.Mirziyoyev. In the summer of the same year, the Ministry of Public Education announced the selection of companies for cooperation aimed at digitalizing school education. According to the results of the competition, the experts of the Center for the Introduction of Information and Communication Technologies in the Field of Public Education of Uzbekistan selected Kundalik from 20 applications for cooperation. This platform is designed for teachers to compile lesson schedules, keep records of attendance and academic performance, and automate reporting. Students and parents can view grades and homework in Kundalik at any time, and communicate within the system on school issues. The platform, which was not taken seriously by many, together with the efforts of the Ministry of Public Education, helped to continue teaching children online during the prolonged quarantine due to COVID-19. During the quarantine period, digital platforms for education have indeed become one of the most popular resources among Uzbeks. In the top sites of teachers and parents: Zoom, Kundalik, Khan-Academy, Edu Market, Kitob.uz, Online-Maktab, Uzedu.uz , Utube.uz .

A big impetus in the development of digitalization of school education in the Republic of Uzbekistan was the mass quarantine imposed in the country on March 16, 2020. The issues of Internet speed, low digital literacy have become acute, many have expressed distrust of new forms of education. With the arrival of the pandemic, many business projects, medical institutions, and the education system were on standby. Despite the unforeseen situation, for which no one was ready, the study continued, but in a completely unusual format for everyone. The Ministry of Public Education, together with the National Television and Radio Company of Uzbekistan, organized the broadcast of video lessons on TV channels in accordance with the curriculum. In addition, an online maktab portal was created for this purpose. Video lessons were

also posted on the website of the digital educational platform Kundalik, on the TAS-IX network and in the official publications of the MNO.

Today, regular videoconferences have become commonplace, which a few years ago were a dream, or a performance. The launch of the unified corporate computer network "E-education" changed everything for universities. The formation of a common resource base has also started due to the creation of digital libraries, systematically replenished with textbooks, methodological manuals, multimedia courses and other materials.

Despite the understanding of the importance of ICT, unfortunately, there is still an insufficient level of use of information technologies throughout the country. Until recently, Uzbekistan ranked 181-st among 207 countries in the ranking of states by Internet speed from WebsiteToolTester [6]. This is the main stumbling block on the way of technology implementation. But, despite this, there is a noticeable progress in this issue. From January 2019 to January 2021, the speed of fixed Internet in Uzbekistan increased more than 3 times from 10.89 Mbit/s to 34.26 Mbit/s. According to the service data Speedtest.net Uzbekistan is currently ranked 94th in the overall rating for Fixed Broadband Internet speed. In January 2021, the country managed to climb two positions. According to the indicator, the data download speed in the republic was 34.62 Mbit/s. Mobile Internet speed reached 12.94 Mbit/s. Uzbekistan also improved its performance on this index and rose by two points, taking 128th place.

Quarantine has had a dramatic impact on the Internet situation, which the government and many private companies are currently trying to change for the better. During the pandemic, many mobile operators provided free access to all educational resources and some media, and on April 28, 2020, a decree of the President of Uzbekistan was signed [4], according to which all healthcare institutions, schools, preschool education organizations should be connected to high-speed Internet in 2020-2021. By 2022, digital knowledge training centers will be opened in all regions of the country, and the share of electronic public services is planned to increase to 60%. "If we do not complete this work in the next two or three years, every year of delay will cost our country ten years of progress," the President of the country stressed [2]. To solve problems with the technical equipment of schools, a pilot project of the Ministry of Public Education of Uzbekistan was also launched in February 2020 to provide tablets and laptops to teachers in installments on preferential terms. A little later, the Ministry of Public Education signed another agreement, under which a project for the production of computer equipment for smart classrooms was to be implemented by the end of 2020. The state and private EdTech companies are doing

more than ever before to ensure that the process of digitalization of education does not drag on for decades.

The main resources of such development are the intellectual potential of the nation, fundamental science, technology and innovation, which are based on the latest knowledge about nature, man and society. The results obtained in the course of scientific research, including negative ones, contribute to the development and dissemination of knowledge through the education system and increase the overall intellectual potential of society. The leading role of science requires appropriate approaches to forecasting and knowledge management, including from the point of view of the necessary resource provision. At the same time, it should be borne in mind that investments in knowledge do not give a quick return, but work for the future, sometimes quite distant. And if a new powerful intellectual potential is not created in a timely manner, communities of specialists with new competencies are not organized, the country will not be able to realize itself in the global digital space. The human factor will become the most important obstacle to economic growth and innovation, including in Uzbekistan, the development of its competitiveness up to global. In this regard, within the framework of an active scientific and technological policy, a large-scale maneuver is required with all available resources - both material and financial - and the skillful use of digital technologies will be of great importance within this maneuver.

The digital economy assumes unprecedented digitalization, robotization, when robots will perform many functions of human life, up to the functions of lawyers, judges, investigators, doctors, teachers. As for Uzbekistan, this fact cannot but affect the labor market: the day is not far off when only the best employees will keep their jobs in companies, otherwise the principle of "leave or develop" will be applied, because in the competition between technology and education, those who stimulate the improvement of skills, who are able to take advantage of digital opportunities, win.

Now the competitiveness of organizations, firms, industries, regions, countries as a whole depends not only on the efficiency of using available personnel, but also on the availability of human resources.

Personnel and education, as well as the formation of research competencies and technical reserves, are among the basic directions of the development of the digital economy. This issue has been repeatedly noted by the President of the country Sh.Mirziyoyev in his speeches.

In this regard, it should be noted that the pace of economic growth is directly dependent on the amount of human capital concentrated in the field of obtaining new knowledge. Unfortunately, in the practice of State management of the economic and

social development of the country, such guidelines and proportions are not established and are not justified. As a result, negative trends are forming in the economy and in the social sphere, causing inefficient use of intellectual resources and the gradual loss of relevant competitive advantages.

To correct the situation in the system of public administration of innovation, education and scientific research, it is necessary to include a mechanism for accounting for costs and results that characterize the effectiveness of the use of professional personnel employed in these areas of activity, to assess their impact on economic growth, production structure, social development, labor productivity and competitiveness of the country.

It can be concluded that the application of any method of evaluating the effectiveness of research and development should be based on the personnel component, which is subject to accounting and forecasting not only at the national, but also at the sectoral, regional, corporate management levels.

As a rule, the more developed a country is, the higher the share of the service sector in the structure of GDP and in the number of employees. The innovative economy within the framework of the scientific and technological paradigm also differs from the traditional one in that in the process of its functioning, the share of intellectual property in the creation of new property is growing at a higher rate. Intangible assets, such as theoretical knowledge, scientific and technical developments, and, above all, innovations, become a determining factor in the development of production. Scientists, engineers, designers, designers and other specialists, as well as entrepreneurs, become the main actors of the economic system based on digitalization, ensuring the introduction of scientific developments that are the locomotive of the development of other industries. In the model of such an economy, the main added value is created with the help of the "knowledge" factor, the consumption of the "land" production factor is reduced. In the new conditions, the key to economic superiority is leadership in the production of high-tech products and control over the flow of information.

The number of people employed in the research and development sector is one of the significant factors influencing the pace of technological progress in endogenous growth models. With an appropriate combination of parameters, an increase in the share of people employed in this sector leads to an acceleration of scientific and technological progress, which causes an increase in GDP per capita. Unfortunately, Uzbekistan cannot yet state the fact that it occupies a leading position in terms of the absolute scale of the personnel potential of the research sphere in the ranking of states. Scientists, including young people, continue to leave Uzbekistan.

The effects of overflow and accumulation of knowledge (including learning in the process of work) have an impact on the possibilities of applying the results of scientific research in the digital economy. The dissemination of knowledge takes place during the purchase of equipment, technologies, hiring of specialists, whose training should take place continuously in the process of introducing new technologies and mastering innovative methods. Knowledge in the conditions of digitalization can be accumulated and transmitted almost continuously. This fact causes the rapid development of technologies that constantly require new scientific discoveries. As a result, the results of science can be translated into real economic growth faster.

The state performing managerial functions bears the burden of developing institutions and mechanisms that support the development of science and at the same time create conditions for increasing its economic impact in order to dynamically develop high-tech sectors of the national economy, which will allow it to take its rightful place in the world, including in the field of digital economy. In the meantime, this place is quite modest.

For example, China, which has significantly strengthened its position in recent years in almost all areas, has moved closer to the main leader: it holds one second, four third, three fourth and one fifth place. Thus, in terms of the number of global technological reserves, China is comparable to or ahead of Japan, Germany, and the United Kingdom [3].

One of the main problems of the domestic scientific and technological sphere is the lack of a clear state science management system that would allow for long-term forecasting and planning of the development of this sphere, including monitoring the achievement of goals and the effective spending of allocated funds. The difficulty lies in the fact that, on the one hand, different aspects of the national innovation system are distributed among various departments, organizations and development institutions, on the other hand, the practice of different countries shows that it is impossible to create one effective "super-agency" dealing with science and innovation. At the same time, management in the scientific and technological sphere requires effective interdepartmental coordination and control.

In our opinion, it is academic science that should play an integrating role here, ensuring the unity of the scientific space. With this approach, the functions of public administration in the scientific and technological sphere will also be facilitated.

Today, many branches of knowledge that previously developed on their own have become a single field. Modern science and education are multidisciplinary. There has never been anything like this in the history of mankind, this is the point of transition to another civilization, so the responsibility of scientists to society is growing. The

more powerful science is, the more dangers there are, therefore, the task arises of training people who are able to realize this danger, and the role of the state in solving this issue is even more strengthened.

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