

Current Trends in Education in the Context of Digitalization of the Economy

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ABSTRACT

The paper deals with topical issues of education development under the conditions of digitalization. The definitions to the "digital economy" concept of domestic and foreign authors are analyzed, the possible consequences of digitalization for the education sector are formulated, and the influence of modern trends on the industry is predicted with the help of SWOT analysis. The authors do not share the overly optimistic approach, which is currently typical for many scientific studies, in assessing the effects of digitalization on the economy in general and education in particular. In conclusion, it is concluded that it is necessary to develop preventive measures to reduce the negative consequences of digitalization, which can lead to serious social problems.

Keywords: *distance learning, institutional environment, education, educational technologies, labor market, education system, digital educational environment, digital economy, digitalization, electronic environment*

1. INTRODUCTION

The relevance of the **topic** is due to the existing dissonance between the decision of the government of the Russian Federation on the accelerated digitalization of the Russian economy and the low proportion of digital technologies (3 %) in the GDP of the Russian Federation compared to other countries (France-5.7%, Germany-6.3%, the UK-7.1%, USA-7.4%, Sweden-8.6%). Higher education should also be ready to adapt educational processes to digital reality. Despite the rapidly changing requirements of the updated Federal state educational standards, in fact, in many areas training is carried out on outdated educational technologies and under conditions of shortage of digital technology in the material and technical base of universities. This circumstance poses a strategic task for universities to modernize the educational process in accordance with modern trends in the development of education.

The study of the problem at the moment can be considered in two aspects. Firstly, from the point of view of approaches to the understanding of the "digital" economy itself as a relatively new direction of the economy, there is no unambiguous understanding in the scientific community, which is reflected in the difference in the author's approaches to the concept [1,2]. The second side is the prospects for developing all spheres of activity in the "digital" economy, which is also true for such a socially important industry as education (at all levels). There is excessive optimism in assessing the prospects for the development of the education industry in a "digital" environment.

The scientific novelty of the work lies in the author's approach to the definition of the concept of "digital economy" and systematization of the consequences of digitalization in education in the form of SWOT-analysis, systematization of strengths and weaknesses of the identified trends, assessment of opportunities and forecasting threats.

Domestic education is considered to be the object of this work; whereas the subject of the study is the processes of its change under the conditions of the "digital economy". The aim is to identify the factors that will cause changes in the education system and analyze the nature of these changes.

In accordance with the goal, the following tasks were set: to consider the consequences of the fourth industrial revolution and its product - the digital economy for the most important institution-education; to identify the negative effects of digitalization on the industry; with the help of SWOT-analysis to predict the impact of current trends on domestic education.

Decree of the Government of the Russian Federation No. 1632-R of 28.07.2017 approved the program "Digital economy of the Russian Federation" (hereinafter – the Program) [1], which is implemented simultaneously with the "strategy for the development of the information society in the Russian Federation for 2017-2030". "Digital economy" is defined here as economic activity in which the main factor of production is data in digital form. The scientific works of Russian and foreign authors, such as Nesterenko E. A., Kozlova E. A., Silin Y. P., Anilitsa E. G., Klaus Schwab, contain the author's approaches to the

content of the digital economy, there is no distinction between the concepts of economy as a national economy and economy as a fundamental science. This issue was considered in the works Sahuichenko Valentyna [11], Seeber Susan, Seifried Juergen [12], Dneprovskaya Natalya, Komleva Nina, Urintsov Arkadiy [13], Evreeva, O.A. [15]. The World Bank experts [1;2]

In the Complete Economics dictionary, the digital (network) economy is considered as: "1. Economy, the main activity of which is carried out with the help of electronic networks (digital communications)...2. An economic space in which any company or individual, regardless of geographical location, can contact any other company or individual with minimal costs in the process of production, distribution, exchange and consumption" [3, p. 1429].

In the article " Russia-2024: Strategy of social and economic development " D. A. Medvedev emphasizes the expected consequences of digitalization for education: "We should especially mention the digitalization of education, which allows to align the conditions of its receipt at all levels" [5]. This requires the development of accessible online resources and platforms, the norm should be distance learning.

Under the influence of the requirements of the time, the next edition of the State program "Development of education" was revised and approved (Government Resolution No. 1642 of December 26, 2017) [6]. In October 2016, the government approved the project "Modern digital educational environment" (SSE). It is expected to finish by November 2025 the complete dismantling of the traditional school, ensuring the transition of secondary education from classical teaching methods to the active use of digital technologies, transforming classical pedagogy into tutoring (Internet coaching).

Any changes and innovations assume the inverse balancing (balancing) connection of the existing system. Thus, in Finland, the educational system which is recognized as one of the most advanced in the world, the transition in 2015 to new methods of teaching on the principles of interdisciplinarity and project approach caused a mixed reaction from the professional community and required painstaking explanatory work with teachers. Changes in basic approaches to education in Russia will require mass professional development of the teaching staff of secondary and vocational schools, otherwise "children who are growing up in the digital age will speak with their mentors in different languages" [5, p. 16]. This means the restructuring of the consciousness of teachers and the birth of a different educational culture on the principle of "change or quit" [7, p. 23].

In order to certify teachers for compliance with the new requirements, a system of Unified Federal Assessment materials (UFA) - an analogue of the USE for teachers – has been developed, i.e. mandatory testing for school teachers since 2020. The results will be tested by members of the National System for Teacher Growth (NSTG). On the one hand, the UFA motivates teachers to continuous self-development, on the other hand, it can serve as a sign

of the planned reduction of the labor market in secondary education, the formation of a competitive environment, which can cause unemployment and the problem of creating artificial employment of certified teachers, require costs for retraining in order to avoid social explosions [14].

For generation z, the norm will be a different from the classical system of secondary education, which is already being implemented in state-accredited private schools that provide distance learning using digital technologies [8]. The popularization of distance learning in higher education indicates the inevitability of revolutionary solutions in the near future. Changes are also required in the remuneration system, the legal environment governing the rights and obligations of teachers, educational institutions themselves, students, etc.

The use of the digital environment in the educational process of higher education institutions can affect the educational process, which is reflected in Table 1. Many of the tools are already actively used, and only their replication in the educational processes of all educational institutions is required. Technological revolutions are often accompanied by social revolutions. In the case of active replication of distance learning methods in higher education, along with an emphasis on reducing contact work with students, the industry will not need a large number of personnel. In addition, the trend

towards mass abandonment of the requirements of mandatory availability of a higher education diploma, which is a new trend of the labor market, on the one hand, will return a sign of elitism to higher education itself, on the other hand, will lead to a sharp reduction in the labor market and in higher education. The Higher school of Economics' proposed division of universities into 3 categories by 2030 will contribute to this [10].

2. SUMMARY AND CONCLUSION

Table 2 presents a simplified SWOT analysis of the impact of digitalization on the country's educational system:

The philosophical meaning of any changes is that in a time perspective they are "devalued": the first electronic computer, which appeared in 1979, was an elite product and its cost was comparable to the cost of a cooperative apartment in Novosibirsk. But by 2009 the personal computer had appeared in every home, and in 2019 this equipment is available in any price segment. This rule of «cheapening» the innovativeness of any changes in time is characteristic of any phenomena, including social ones. By analogy, the process of educational digitalization in 2019 is the computer of 1979. Its results may also be devalued in 20 years but they will have time to become a turning point in the lives of participants.

In the digital economy, it is necessary to pay special attention not only to the additional opportunities that digital technologies offer to the education sector, but also to think over the tools to reduce the negative consequences that can lead to serious social problems.

Table 1 Applied use of the digital environment in the educational process of Universities

Field of application of IT-technology	Events
Development of software for the educational process	Revision of existing educational programs and principles of the educational process in terms of the use of mixed and e-learning. Development and introduction of new disciplines provided by software products. Active use in the educational process of business simulators.
The creation of a unified system of web sites for educational purposes	Creation of new Internet information resources for the subject coverage of the educational process, creation of a single information field, where each subject would have its own domain
Formation of methodical and didactic materials in electronic environment, including situational modeling	Development of packages of educational materials in the digital field for the organization of the educational process, including with the help of cognitive technologies. Virtual modeling will allow online application of theoretical knowledge in practice, modeling business processes, creating virtual objects, analyzing the possible consequences of technical and managerial decisions. There is an experience of implementing such tools in the leading higher education Institutions of the country (for example, in MSTU named after N.E. Bauman).

Table 2 Swot analysis of the digitalization impact on education

Factor	Influence factor
Weaknesses	<ul style="list-style-type: none"> – decrease in socialization of personality; – the predominance of technocratic development in education, the decline of the humanistic component ,the "robotization" of the individual and society; – the emergence of structural unemployment in the industry
Strengths	<ul style="list-style-type: none"> – high adaptability of new generations to rapid changes in technological environment; – using the latest technologies to improve the educational process; – elimination of unreasonable requirements to the level of education in the labor market; – reduction of unjustified state spending on education without the implementation of the acquired competencies and knowledge in the labor market.
Opportunities	<ul style="list-style-type: none"> – new level of educational process: changing methodologies and approaches, improving tools and processes; – training of future personnel possessing by the time of graduation competencies that meet the requirements of the labor market; – improving the competence of personnel in the field of education, their renewal; – formation of educational elitism as a public institution, increasing the social status of graduates.
Threats	<ul style="list-style-type: none"> – robotization of the society; – strengthening of social stratification; – unemployment, social explosions; – additional costs for retraining.

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