

Research article

Digitalization of Higher Education in the Context of Globalization

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Abstract. The researchers analyzed numerous publications on the digitalization of education in the context of globalization. The authors thereby identified the most relevant areas related to the introduction of digital technologies and digital tools into the educational process. These included the creation of a virtual (digital) educational environment, transition to online learning, and learning in a mixed format. In all observed aspects, the impact of globalization processes on the problem field of education, including the higher education system, was noticeable. This impact can be viewed both from the positive side and from the point of view of social risks of transforming higher education institutions under the influence of digitalization, and expressing situations of uncertainty in changing the configuration of relations between the subjects of the new educational reality. The purpose of this research was to study the processes of transformation of higher education institutions in expanding digitalization in the context of globalization. Data were collected through a quantitative questionnaire and observations. Under the influence of globalization, the role of the teacher and student is changing, and the field of digitalization in the management and technological spheres is expanding. Digitalization expands the possibilities of flexibility in education, promotes openness, increases student involvement in the learning process, improves the interaction of universities, and increases the speed of innovation. However, it is necessary to calculate the possible negative consequences of this transformation.

Keywords: digitalization, online education, virtual educational environment

1. Introduction

The research problem is due to the fact that the introduction and dissemination of telecommunication technologies in the system of lifelong education of the 21st century currently become more relevant. They suggest strengthening infocommunication as a key development factor in all spheres of the socio-economic, political, cultural life of society in order to increase the efficiency of using information and knowledge, including in the field of education. The main goal of digitalization of the educational process is to create a single global digital educational space, which makes it possible, on the basis of new information technologies, to improve the quality of lifelong education in the 21st

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century, provides equal opportunities for individuals to receive education at all levels and stages, and also integrates the digital space of a separate country into the global educational space.

In 2017, Russia adopted the program “Digital Economy of the Russian Federation” for the period of up to 2024. According to this program, the Russian education system should provide, over the next 5 years, all industries and areas with highly competent personnel of users of modern and promising information technologies with a high level of digital literacy skills and competencies corresponding to the social order and the requirements of the modern information society, capable of realizing their personal professional potential in the development of the state digital economy [1, p. 2; 10]. Modern studies on the topic of digitalization, such as Beshenkov [1], Gnatyshina [2; 3], Gushchin [4], Kafidulina [5], Malysheva [6], Omarova [7], Rozina [8], Choshanov [9] and others, are devoted directly to the problems of training professional personnel for the digital economy. In the article by Budantsev “Digitalization in the field of education: a review of Russian scientific publications” on the basis of a bibliometric analysis of publications of the Russian electronic database on the topic of digitalization of education, an analysis of the data obtained was carried out, and prospects for further research were highlighted [10]. Over the past five years, more than 2.9 thousand publications have been identified on the topic of digitalization of education by search query, and the sample data show that in Russia, there are almost the same number of conference materials on the topic of digitalization of education (47.2%) as there are articles in journals (48.4%). Books are only 4.4%. According to the analysis, synthesizing the results of the research, in the electronic database eLibrary.ru, one can single out articles devoted to the analysis of digitalization in education, among the most significant for research: Andryukhina et al. [11]; Ustyuzhanina and Evsyukov [12]; Grebennikova and Novikova [13]; Pettersson [14] and others. The review article “On the issues of digital competence in educational contexts — a review of literature” [14] is devoted to the issue of digital competence in international studies in the last 10 years. Summarizing the analyzed sources, it can be stated that all of the above works develop new approaches to increasing digital competence in educational contexts, attempt to comprehensively theorize and operationalize the pedagogical aspects of digital competence, develop a design for further research on the transformation of the institution of higher education under the influence of the globalization aspects of digitalization.

2. Methodology and Methods

The subject of research is the direction of development of education at the stage of digitalization in the aspect of globalization processes.

The goal is to study the directions of development of education at the stage of digitalization in the aspect of globalization processes.

The hypothesis is that studying the directions of education development at the stage of digitalization in the aspect of globalization processes makes it possible to predict social effects and risks for optimal development.

In general, the stages of empirical research include:

determination of the methodological apparatus of the research: goals, hypotheses of the research; selection of methods for collecting information that would adequately meet the specified goals and objectives; processing the obtained empirical data; development of research tools for a questionnaire survey; conducting a questionnaire survey; processing the obtained empirical material; a description of the results obtained in the study; analysis of the data obtained; determination of the real situation in the process of digitalization of education in the aspect of globalization, which make it possible to predict social effects for the development of Russian society; formulation of conclusions.

3. Results and Discussion

The results of a quantitative study identified and substantiated markers of a new stage in the development of digitalization and informatization in lifelong education of the 21st century in the aspect of globalization.

The research base is social networks, including the VKontakte network (vk.com). The research sample is represented by 100 respondents who participated in the online survey.

The sample was carried out according to spontaneous selection, that is, selection according to the principle of voluntariness and availability of the inclusion of units of the general population in the sample survey. In this study, 100 people took part, including 53 men and 47 women aged 18 to 36+ years, living mainly in Moscow (36% of respondents), in a slightly smaller number in the Moscow Region (32% of respondents) and in other regions of Russia (32% of respondents). The level of education was mainly higher: 45% graduated from a specialty or master's degree, 22% did not graduate from a higher education institution, 15% had a bachelor's degree, 12% had a secondary vocational education, and 6% were in the first stage of higher education. Thirty-one respondents

(31%) were at the stage of obtaining education, 52 respondents (52%) combined study and work, 17% had completed their education path and chose the option “work”. The study revealed that the respondents were mostly familiar with the phenomenon of digitalization of education and understood the meaning of this term.

The first group of questions made it possible to identify the changes that have recently occurred in the education system in connection with the digitalization of education in the aspect of globalization in Russia and in the world in general, and helped to determine that one of the main changes has become distance and online learning, which is an integral part of the educational process in the education system.

Based on the results of answers to the following questions, it can be noted that among the challenges to the education system in the context of increasing digitalization, there are both positive and negative ones. As for the directly positive challenges to the education system, among them 67 respondents (67%) identified an information and technological challenge associated with a change in technology, the development of a digital educational environment and artificial intelligence, which can bring it to a new higher level. For example, the respondents noted the following as the main advantages of the information technology challenge: free access (connection to an educational portal, video lectures from anywhere in the world using the Internet); improving digital skills and competencies; the opportunity to attend the lesson regardless of any circumstances.

Another positive challenge to the digital education system can be considered the proctoring system, which allows writing an exam from anywhere in the world where there is an Internet network and the use of which was considered convenient by 45 people (45%), as well as a system for submitting documents through online offices, the active use of which began during a pandemic.

Many respondents also note that online learning, a distance form within the digitalization of education in the context of globalization is promising, and believe that even if online/distance learning will not become an integral part of educational practice, then at least there will be elements of such learning further in the educational process. The respondents considered the following challenges as negatively affecting the education system:

1. lack of communication with the teacher and peers;
2. lack of a reliable Internet connection;
3. lack of equipment required for online learning.

Today, for the majority of respondents, the main and relevant source of information is Internet resources (78 people out of 100). This is obvious, since the digitalization of education presupposes development in the information technology sphere. The Internet is a mobile device that allows scooping up a variety of necessary information at any time. Also, the majority of the respondents taking part in this study (77 people) monitored Internet sites and educational platforms for training, which is also natural for this time.

Seventy-three percent of respondents believed that the concept of digitalization has expanded and is on the path of progressive growth, which is directly related to globalization processes. Sources of information are updated very quickly and regularly. Digitalization involves increasing the efficiency of the use of information in society with the help of promising information technologies that are continuously transforming every minute.

The overwhelming majority of respondents really believe that it is prestigious today to have a higher education in various fields. This is due to the fact that in the modern rapidly developing world, new professions and specialties are being formed that require fast-trained personnel. Also, 78% of 100 respondents claim that one of the most important tasks of digitalization of education is the formation of a digital and information culture of a specialist. The ability to use modern information technologies in professional (educational) activities is expanding.

To the research question “Highlight the most important trends in the development of informatization of education: (Choose no more than 3 answer options)”, the respondents’ answers were distributed as follows:

1. 75% believe that the most important trend in the development of digitalization of education is the formation of a system of lifelong education as a universal form of activity aimed at the constant development of a personality throughout life (75 people);
2. 46% of respondents consider the creation of a single information educational space in the aspect of expanding globalization to be the most important trend in the development of digitalization of education (46 people);
3. 63% of respondents believe that the most important trend in the development of digitalization of education is the active introduction of new means and methods of teaching focused on the use of information technologies (63 people);
4. 15% of respondents consider the synthesis of means and methods of traditional and computer education as the most important trend in the development of digitalization of education (15 people);

5. 6% of respondents believe that the most important trend in the development of digitalization of education is the creation of a system of advanced education (6 people);
6. 89% of respondents consider all of the above to be the most important trend in the development of digitalization of education (89 people).

Based on the results obtained, it can be argued that the overwhelming majority of respondents consider all of the above to be the most important trend in the development of digitalization of education.

At this time, the connection of educational organizations to a single digital network with subsequent access to the Internet is a common thing. It is not only convenient but also relevant and modern. It also gives more opportunities to get the flow of the information one wants.

Eighty-four percent of the respondents to the questionnaire survey believe that the reason for the decline in the popularity of book media is the convenience of Internet resources, the rapid development and constant change of information, the difficulty of perceiving information from book media, as well as a change in the consciousness of the younger generation. Books are often outdated quickly, and information in them is not as effective as in a single Internet space. However, despite this trend, books are constantly reprinted in a new format, and they are actively used by the older generation.

Based on the results obtained, it can be argued that the majority of respondents (65%) find LMS (learning management system) technology convenient. This technology makes education more accessible and mobile. LMS technology is a repository of educational materials — video lessons, lectures, presentations, books, and courses, which can be accessed from any device anywhere in the world. In the modern world, it is especially relevant, since many educational institutions use distance or blended learning, which involves more independent learning and obtaining information of a certain format on one's own.

Seventy-five percent of respondents believe that the most important trend in the development of digitalization of education is the formation of a system of lifelong education as a universal form of activity aimed at the continuous development of the personality throughout life. In the modern world, the individual is relevant to the individual, which is a specific competitive feature of the individual. Therefore, the continuous development of one's own abilities is the advantage of each person. Much attention is being paid to this aspect today.

As mentioned earlier, the distance learning format is especially relevant today. This trend is especially important in the aspect of expanding globalization. Therefore, 80% of respondents consider the development of information technologies for distance learning to be the most important task of digitalization of education in the modern world. This area is not so well developed in Russia, but due to certain circumstances in the form of force majeure, the online/distance learning format is rapidly developing and consolidating in the educational system, as well as in the life of modern students and schoolchildren.

To the research question “Is virtual reality technology used in your educational institution?”, the respondents’ answers were distributed as follows:

1. 4% of respondents believe that virtual reality technologies are actively used in their educational institution (4 people);
2. 24% of respondents believe that virtual reality technologies have appeared in their educational institution quite recently and are not used so actively (24 people);
3. 72% of respondents believe that virtual reality technologies are not used in their educational institution and they will not have it soon (72 people).

Based on the results obtained, it can be argued that the majority of respondents believe that virtual reality technologies are practically not used in their educational institution and it will not appear soon.

To the research question “In your opinion, is the digitalization of educational and scientific activities in Russia sufficiently developed?”, the respondents’ answers were distributed as follows:

1. 40% of respondents believe that the digitalization of education, including educational and scientific activities in Russia, is sufficiently developed. In their educational institution, each student is equipped with the necessary equipment and receives an endless stream of useful information (40 people);
2. 43% of respondents believe that the digitalization of education, educational and scientific activities in Russia is partially developed. There is no necessary equipment in large quantities and it takes a long time to search for the necessary information (43 people);
3. 17% of respondents believe that the digitalization of education, including educational and scientific activities, is underdeveloped in Russia. Equipment and the ability to obtain the necessary information is available only in large cities, and even then not always (17 people).

So, almost half of the respondents — 43% of the respondents believe that the digitalization of education, especially in educational and scientific activities in Russia, is partially developed. There is no necessary equipment in large quantities and it takes a long time to search for the necessary information. Perhaps this is due to the vastness of the territory of the Russian Federation and different funding of the regions in the educational sphere from the state. Basically, the most active educational and scientific activities are concentrated and concentrated in big cities.

The overwhelming majority of the surveyed respondents (88 people out of 100) feel the results of digitalization in lifelong education in the context of globalization. With digitalization, which is interconnected with informatization, infocommunication technologies, many opportunities have become more mobile, and obtaining information has become more accessible. The digitalization of education also presupposes state policy, public-private partnerships and processes aimed at building and developing a telecommunications infrastructure that unites geographically distributed information resources.

To the research question “Do you think the development of the digitalization process in lifelong education in the 21st century will continue?”, the respondents’ answers were distributed as follows.

1. 86% of respondents believe that the development of the digitalization of education will continue. There will be constant progress and transformation in this area (86 people);
2. 13% of respondents believe that the development of the process of digitalization of education in lifelong education of the 21st century will continue, but global changes will not be observed in the near future. Development will be insignificant (13 people);
3. 1% of respondents believe that the development of the digitalization of education will not continue. Digitalization in lifelong education in the 21st century has reached its peak of development and its further modification is meaningless (1 person).

So, the majority of respondents — 86% of respondents believe that the development of the digitalization process in lifelong education of the 21st century in the aspect of globalization will continue. In this area, constant progress and transformation processes will increase, which deepen the information technology opportunities of education. The modern stage of digitalization of education is characterized by the use of powerful personal computers, high-speed storage devices of large capacity, new information and

telecommunication technologies, multimedia technologies, and virtual reality, as well as a philosophical understanding of the ongoing process of digitalization of education and its social consequences.

Predicting changes that could occur in the education system in the final question, the majority of respondents, 68 people (68%) suggested that the costs of digitalization of education and teaching and in the educational management system would increase, 39 people (39%) noted that due to the crisis, European companies cooperating with educational institutions would reduce the cost of R&D, 38 people (38%) are sure that due to the inability to work in laboratories, the terms of execution of research projects will increase, 30 people (30%) believe that due to the lack of state funding, there may be a tendency to merge educational institutions, and 28 people (28%) are confident that there will be a decrease in the number of foreign students, and, accordingly, income from international activities of educational institutions. From the point of view of social risks, it means that the transition to online education, the creation of a virtual educational environment give rise to the need to change the management system of an educational organization. If these changes do not take place, then digitalization can lead to negative consequences. Therefore, there is an urgent need to systematize research on the social effects of digitalization of higher education and conduct relevant longitudinal studies that can identify, study, and develop recommendations on how to minimize the social risks of transforming an educational institution under the influence of digitalization in terms of globalization processes.

4. Conclusions

Summing up the results of the study, one can conclude that modern digitalization of education involves the process of system integration of computer tools, information and communication technologies in order to obtain new system-wide properties that allow for more efficient organization of productive activities of a person, group, society, and challenges and changes in the system. Education under the influence of digitalization in the context of globalization has not only negative sides but also positive sides that lead to systemic transformations. Digitalization in education in the aspect of globalization plays a big role in the life of a modern person. However, only if certain conditions are met, such as improving Internet communications, developing and expanding Internet resources available for free use, improving teaching methods and technologies, digitalization of education will be able to reach a higher level and if not replace the traditional

analog education system then become a good addition for it. This was fully confirmed by the results of the study.

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