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Research Article

DIGITALIZATION RUSSIAN EDUCATION

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Abstract:
Innovations are being introduced into various fields of human activity, which orients people towards new
development, improvement of their knowledge, skills, competencies, mastering new types of activity in related
sectors of the economy. The education system should provide society with a confident transition to a digital era
focused on productivity growth, new types of work, human needs. Informatization of education has created a base
for the transition to a new level, digitalization is aimed at training specialists who are guaranteed to be in demand
in the labor market, easily and fluently own mobile and Internet technologies, and also focused on continuous
learning (advanced training) through e-learning. Digital technology in the modern world is not only a tool, but also
an environment of existence, which opens up new opportunities: learning at any convenient time, continuing
education, the ability to design individual educational routes, from consumers of electronic resources to become
creators. However, the digital environment requires teachers of a different mentality, perception of the picture of the
world, completely different approaches and forms of work with students. The teacher becomes not only a carrier of
knowledge that he shares with the students, but also a guide through the digital world. He must have digital literacy,
the ability to create and apply content through digital technologies, including computer programming skills, search,
information sharing, and communication. As part of the implementation of the state program Development of Education, for 2012 2020, the Communication of the Division Education environment of the Division
Education for 2013–2020, the Government of the conditions for metamic quality immension and emperating the
Educational Environment, almed al creating the conditions for systemic quality improvement and expanding the
the availability of online learning and is gived at the possibility of organizing blanded learning, building individual
aducational learning routes, self education, family and non formal education
Key words: digitalization, education, informatization, information, MEP.

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INTRODUCTION:

The modern world is constantly changing. Innovations are being introduced into various fields of human activity, which, on the one hand, orients towards continuous people development. improvement of their knowledge. skills. competencies, mastering new activities in related industries. On the other hand, routine work is more and more transferred to machines, and a person needs creativity, willingness to cooperate with colleagues in finding new solutions, and - most importantly - the ability to critically evaluate the information offered, both for reliability and in terms of its logical embedding in the current task [1]. E. A. Kashina notes: "The requirements for students' skills have changed, since it is necessary not only to read, write and count, but to be able to organize data resources, fruitfully cooperate, collect, evaluate and use information" [7]. Thus, we can talk about the need for a modern person to have an information culture as an element of universal culture and as an indispensable condition for comfortable existence in society, and its formation is one of the most important tasks of the education system.

To solve it, it was necessary to adapt to changing conditions and requirements. Until recently, we talked about informatization of education. This term was understood as a set of measures to transform pedagogical processes based on the introduction of information products, tools, technologies into training and education [7]. The Russian Pedagogical Encyclopedia considers the informatization of education in a broad sense as a complex of social and pedagogical transformations related to the saturation of educational systems with information products. means and technologies; in a narrow way, the introduction of informational facilities based on microprocessor technology, as well as information products and pedagogical technologies based on these means, into institutions of the education system [5]. Based on these ideas, we can talk about the end of the informatization stage. Educational institutions at all levels are equipped with computer equipment, teachers have been trained and retrained on the use of information technology (IT) in the educational process. The main areas of IT application in education are:

• development of pedagogical software for various purposes;

- development of educational websites;
- development of methodological and didactic materials;
- management of real objects;
- organization and conduct of computer experiments with virtual models;

• implementation of targeted information search [2].

In 2016, the federal project "Modern Digital Educational Environment in the Russian Federation" started, approved by the Government of the Russian Federation as part of the state program "Development of Education" for 2013-2020. Within the framework of this project, it is planned to "modernize the education and training system, bring educational programs into line with the needs of the digital economy, widely introduce digital tools for learning activities and integrate them integrally into the information environment, ensure that people can learn about the individual curriculum throughout their lives at any time and in any place" [7]. The education system should provide society with a confident transition to a digital era focused on productivity growth, new types of work, human needs, which is possible by including all segments of the population in the educational process, building individual learning paths, managing their own learning outcomes, virtual and augmented reality [11]. The digital resources used today in everyday human activities allow us to overcome the barriers of traditional learning: the pace of mastering a program, the choice of a teacher, the forms and methods of teaching.

The modern world has moved to the next level of development of new technologies. The first was the creation of a steam engine; the second is electrification; the third is informatization; the fourth is digitalization, that is, the era of big data and the technologies based on them. Digital technologies, on the one hand, contribute to a further increase in the volume and efficiency of production, on the other hand, they allow implementing an individual approach in various fields. Thus, using 3D printing, it is possible to manufacture complex devices in single copies, which was impossible with traditional production. In education, digitalization is aimed at ensuring the continuity of the learning process, the so-called life-long-learning - learning throughout life, as well as its individualization based on advancedlearningtechnologies advanced learning technologies. There is no well-established definition of this term, but it includes the use in teaching of large data on the process of mastering individual disciplines to individual students and in many respects the automatic adaptation of the educational process based on them; use of virtualization, augmented reality and cloud computing, and many other technologies. The term "digitalization" itself appeared in connection with the intensive development of information and communication technologies. Davos Klaus Schwab, calling the first

digital revolution of 1960-1980 "industrial", believes that its development was driven by the development of semiconductor computers, in the 60-70s of personal computers, in the 90s the Internet [8]. The author has predetermined the approach of the fourth industrial revolution, which will also be digital in connection with the "omnipresent" and mobile Internet, miniature devices, the development of artificial intelligence.

With the advent of the Internet in 1982, a virtual world is being formed, filled with new connections, such as online games, social networks, connecting it with the real world. The real and virtual worlds are interdependent, and according to one of them, according to A. V. Keshelava [3], you can identify the person. Their merger forms a hybrid world, through which the vital actions of the real world are accomplished with the help of the virtual one. A prerequisite for this process is the efficiency of information and communication technologies and the availability of digital infrastructure. The digital revolution that has gripped the global economy is impressive with its pace and scope. The transition from electronic computing machines to personal computers lasted for decades, and now similar global technology changes occur in months. Initially, digitalization was limited to the automation of technologies, the spread of the Internet, mobile communications, social networks, the emergence of smartphones, and the growth of consumers using new technologies. However, very quickly digital technologies become part of a person's economic, political, and cultural life. Currently, digitalization has penetrated into education. Wiktionary reveals the content of the concept of "digitalization" as "a digital method of communication, recording, data transmission using digital devices" [14]. A. Marey considers digitalization as a change in the paradigm of communication and interaction with each other and society [9]. E. L. Vartanova, M. I. Makseenko, S. S. Smirnov clarify the content of this concept - this is not only a translation of information into digital form, but a complex solution of an infrastructural, managerial, behavioral, cultural character [3]. That is, it can be concluded that the development of the Internet and mobile communications are basic digitalization technologies.

MATERIALS AND METHODS:

The concepts "digital ecosystem", "digital environment", "digital community", "digital economy", and "digitalization of education" are being introduced in various areas of the economy. Digitalization of education leads to changes in the labor market, in educational standards, identification

of needs in the formation of new competencies of the population and is focused on the reorganization of the educational process, rethinking the role of the teacher. On the one hand, digitalization undermines the methodological basis of the school inherited from the past, on the other hand, it generates the availability of information in its various forms, not only in text, but also in sound and visual. Availability of information will require constant search and selection of relevant and interesting content, high processing speeds. Consequently, the digitalization of education leads to its radical, qualitative restructuring. The teacher must learn to use new technological tools and virtually unlimited information resources. Virtual reality technologies make it possible to use digital simulators that are not tied to a single workplace, which expands the range of technologies under study. Mobile learning technologies allow you to study anytime, anywhere. Today, information and knowledge are the basis of economic progress, to which traditional concepts and models are not applicable. L. V. Shmelkova emphasizes that the most important feature of a person adequate to the digital economy is that this person owns digital technologies and applies them in his professional activity [6]. Children of different ages quickly adapt to the digital environment, forming their initial skills, skills for their subsequent development. The formation of specific competencies occurs at different levels of education, however, digital competencies are formed throughout life. Consequently, the digitalization of education directly

depends on the level of knowledge of the teacher's digital technologies in order to use them productively in educational activities. NN Bityutskaya notes the need to develop the ability to navigate the flow of digital information from teachers, work with it, process and embed it in a new technology [6].

RESULTS AND DISCUSSION:

The information format is based on a digital representation of information. In contrast to the electronic format, the digital format more accurately represents information, ensuring its free circulation, placement, processing, and use in computer networks. The digital education system includes information resources. telecommunications. a management system. Information resources: hypercollections (media, video, audio, biblio, photos, graphics. animations). information datasets. educational portals, Internet sites. Telecommunications: network and mobile media. television. telephony, environments. teleconference, hosting, postal services. Management system: user authorization, testing, content, ratings, personal and collective information space (website,

blog, chat, forum, mail, database). The Government of the Russian Federation approved the passport of the project "Modern Digital Educational Environment", aimed at creating conditions for systemic quality improvement, expanding the possibilities of continuous education. The project will be implemented through the digital educational space, the availability of online learning and is aimed at the possibility of organizing blended learning, building individual educational learning routes, selfeducation, family and non-formal education. Digitalization transforms the social paradigm of people's livelihoods, opens up opportunities for obtaining and improving knowledge, expanding the horizons. Digital technology in the modern world is not only a tool, but an environment of existence that opens up new opportunities: learning at any convenient time, continuous education, the ability to design individual educational routes, from consumers of electronic resources become creators.

Recently, the process of creating and applying open online resources has been actively implemented, ranging from individual tasks, tests to full-scale courses (modules) for building the necessary competencies. The development of online learning is demonstrated by the increasing availability of online courses. According to the volume of the online education market in Russia, by 2021 it will grow to 53.3 billion rubles, which shows a more than double growth compared to 2016 [15]. Additional areas of digitalization in education are the development of digital libraries and university campuses. The development and filling of the online course is carried out with the use of software solutions that allow to build the course from the available information resources and in specialized software environments, authoring systems, computer-aided design. The educational system with the use of new technological tools and unlimited information resources must learn to effectively implement them in the educational process. The practice of online courses and blended learning creates a field of unlimited educational opportunities, which focuses on the quality of education for each person, regardless of their place of residence, skills, but in accordance with their interests and capabilities. Such changes will require the teacher to be fluent in the digital educational environment. V. Astapkovich proposed to define uniform requirements for existing and emerging online course platforms, which will be combined into a system similar to the "single window" [6]. Students will be able to choose courses according to priority criteria: relevance, teacher's authority, popularity. There will be no need to think how to transfer the course to another university,

everything is automated into a single database. The author has identified the primary task - the formation of the regulatory framework for embedding online courses in the programs of all universities.

A promising task for all universities is to improve the skills of teachers of digital literacy, focused not only on the development of courses, but also on the use of the digital environment in the educational process (A. Sobolev). The digital environment requires teachers of a different mentality, picture of the world, a completely different way and form of work with students. A. Sobolev defines the role of the teacher as a teacher, a guide to the digital world [10]. Digital literacy is the ability to create and apply content through digital technologies, including computer programming skills, search, information sharing, and communication. Henry Jenkis, however, reveals the content of the concept of digital literacy as the ability to work with a computer as with iron, understanding the characteristics of the device and the dissemination of digital information, the device of the network community and the features of social media [4]. Duth Belshow identified the elements of digital literacy, such as understanding the cultural context of the Internet environment, the ability to communicate in online communities, create and distribute content, and develop themselves [4]. The content of digital literacy comes down to the understanding that if there is clarity in the structure and content of digital reality, then there will be clarity in control and interaction with digital technologies. Digitalization management is possible with uniform databases, learning effectiveness criteria, in other words, an integrated approach that would define the goals, structures and content of the educational process. The Association "National Society of Technology in Education" has developed various procedures for the evaluation of education by consumers, experts, and professional communities [12]. For example, an online course is counted as a student part of the university curriculum.

Digitalization management in the educational environment is carried out with the help of digital marketing, aimed at organizing interaction with educational staff, research and teaching staff, graduates, students, applicants using the spectrum of digital communication channels; monitoring of changes in the formation of a positive image of the university; stimulating the creation of new digital communities and innovations; development of personalized marketing materials for target audiences. We see that the process of digitalization of the economy, education and any other areas of human life implies the formation of a digital (informational) culture in it, which makes it possible to competently use the opening opportunities and organically integrate into the information society environment. At the same time, as early as 1991, A. I. Rakitov formulates the following features:

• any individual, group of persons, enterprise or organization anywhere in the country and at any time can receive for a fee or free of charge based on automated access and communication systems any information and knowledge necessary for their livelihoods and solving personal and socially significant tasks;

• a modern information technology is produced, operated and available in any individual, group or organization in a society that ensures the fulfillment of the preceding paragraph;

• there are developed infrastructures ensuring the creation of national information resources to the extent necessary to support constantly accelerating scientific, technical and social progress.

The society is able to produce all the necessary information for life and, above all, scientific information;

• the process of accelerated automation and robotization of all spheres and industries of production and management is going on in society;

• there are radical changes in social structures, the consequence of which is the expansion of the sphere of information activities and services [13].

Signs formulated more than twenty years ago are still relevant.

CONCLUSIONS:

- 1. The digitalization of education involves the use of mobile and Internet technologies by students, expanding the horizons of their knowledge, making them limitless. The productive use of digital technologies, the inclusion of students in an independent search, the selection of information, participation in project activities form the competences of the XXI century in them.
- 2. Thus, it is possible to speak not about different approaches in informatization and digitalization, but about a single end-to-end process of social transformation. At the heart of this transformation are developing technologies, and the change of their generations determines the stages of the long-term development of mankind, the first of which was informatization, replaced by digitalization today.

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