

Formation of An Education Digitalization Strategy in Present-Day Conditions

Formación de una estrategia de digitalización de la educación en las condiciones actuales

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Received 06-14-20 Revised 08-10-20 Accepted 09-01-20 On line 09-30-20

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Cite as:

Vasilyevich Lobanov, I., Vladimirovna Mudrova, S., Vital'evna Potekhina, E., Vladimirovich Shelygov, A., & Ivanovna Pominova, A. (2020). Formation of An Education Digitalization Strategy in Present-Day Conditions. *Propósitos y Representaciones*, 8 (SPE3), e777. Doi: <http://dx.doi.org/10.20511/pyr2020.v8nSPE3.777>

Summary

The article is devoted to the formation of a strategy for the digitalization of education in present-day conditions. It is established that the very structure of training and the organization of the educational process change fundamentally in the course of digitalization. These changes will require both the selection of material for creating courses and organizing them, as well as for the management of the educational institution. It is proved that the resulting educational environment can be implemented according to several algorithms, of which each has the priority of existence. Cost-free developments of specialized Internet resources, as well as paid platforms are among the most significant options to implement educational content. It is revealed that the use of new information and communication technologies is only an initial condition for the further development of digital learning, whose assessment criterion is its usefulness for students in the current context.

Keywords: strategy, education, training, educational environment, content, segment, digitalization.

Resumen

El artículo está dedicado a la formación de una estrategia para la digitalización de la educación en las condiciones actuales. Se establece que la estructura misma de la formación y la organización del proceso educativo cambian fundamentalmente en el transcurso de la digitalización. Estos cambios requerirán tanto la selección de material para la creación y organización de los cursos, como para la gestión de la institución educativa. Está comprobado que el entorno educativo resultante se puede implementar de acuerdo con varios algoritmos, de los cuales cada uno tiene la prioridad de existencia. Los desarrollos gratuitos de recursos de Internet especializados, así como las plataformas de pago, se encuentran entre las opciones más importantes para implementar contenido educativo. Se revela que el uso de las nuevas tecnologías de la información y la comunicación es solo una condición inicial para el desarrollo posterior del aprendizaje digital, cuyo criterio de evaluación es su utilidad para los estudiantes en el contexto actual.

Palabras clave: estrategia, educación, formación, entorno educativo, contenido, segmento, digitalización.

Introduction

The need for changes in the educational process is not in doubt, but using the capabilities of the private segment will allow the state to respond to the problem faster and start acting, since the commercial segment is much more flexible, more responsive in the transfer and implementation of innovative teaching methods, and already has first-class national projects in the field of digital education.

State support for educational service providers can be carried out in the following areas: simplification of the licensing system for new market operators; placing orders through the state educational system; a public-private partnership in the use of state-owned institutions for rapid deployment of appropriate training facilities; as well as tax and fiscal incentives.

These measures will ensure the creation of comfortable working conditions, and activate the educational services market, help regional scaling up, and the existence of the market. This will increase private investment in this segment, create new operators, and significantly increase the ability of providers to serve much larger number of citizens within a short period, as well as create new training programs and make them accessible both physically and financially. Therefore, under favorable conditions, the education system will be able to solve the problem of digital employment in the current context quickly and efficiently.

The study of the education digitalization strategy formation is reflected in the works of M.I. Aldoshina (2020), O.P. Zhigalova (2019), L.A. Konstantinova & I.V. Kramarenko (2020), S.Yu. Naumov et al. (2019), S.V. Frumina (2019), N.P. Shatalova (2020), and others. The conducted research shows that scientists have made a significant contribution to the formation and development of the education system. However, the implementation of the education digitalization strategy, in particular, in the development and implementation of academic programs, requires further meaningful study.

Methods

The theoretical and methodological basis of the research includes an abstract-logical method, methods of induction, deduction, analysis, synthesis, and systematization, used to justify the approach to the digitalization of education, as well as graphic method, employed to study the level and variation trends in the educational parameters in the course of digitalization.

The information base of the article includes statistical data of state bodies, legislative and regulatory documents governing the management of the education digitalization system, approaches to the regulation of the higher education system, as well as the results of scientific research (Agamirova et al., 2017; Lukiyanchuk et al., 2020; Reznikova et al., 2020).

In the course of the study, it is planned to consider education digitalization options, justify the education system development directions to confirm the parameters of their development in the current context.

Results

The practice has shown that the target audiences in the implementation of the state program on digital literacy are professional schools and higher educational institutions. It is quite clear that the strategy for this segment should be comprehensive, as well as be accompanied by a significant development cycle, approvals, financing, development of educational content, technology procurement, and motivation of teachers.

Such measures may take a long time, but in the last analysis, if successfully implemented, they will allow addressing the problem of digital literacy systematically and massively throughout the country. Certainly, this process should become part of the relevant projects for reforming Russian education in general. In this regard, the following measures are the main objectives of digital literacy and skills in the educational segment:

- Conducting a case study. Carrying out independent qualitative and quantitative research concerning the availability of digital skills in different groups of the population (civil servants, teachers, students, young professionals, the unemployed, people with disabilities, pensioners, small and medium-sized business actors), determining the criteria to assess the impact of factors on the development of digital skills, as well as defining main obstacles to the use of digital technologies and specific tools.

- Developing by relevant ministries of a list of digital skills and competencies for target audiences in certain industries.

- Developing high-quality educational content, revising and updating professional development programs for civil servants, teachers, and the unemployed.

- Developing and promoting publicly available online and offline courses on digital literacy, in particular, mixed learning to cover a significant number of representatives of different categories of the population based on the adopted digital competencies software platform.

- Conducting digital skills measurement and certification. Adapting the methodology to measure and implement independent certification of the level of digital skills according to the needs of the labor market.

- Harmonizing the regulatory framework governing the certification of digital skills in civil servants, academic staff, and other social strata with international requirements, as well as the regulatory framework for additional salary supplements, provided that contemporary digital competencies are confirmed.

- Implementing mandatory digital competencies for civil servants, educators, scientists, and the unemployed of certain categories.

- Promoting the importance of digital literacy among citizens.

In terms of developing professional digital skills, the main tasks in the educational segment are the following:

- Implementing a competency-based approach, as well as end-to-end digital competency, that is, ensuring that the study of subjects is carried out through the use of digital technologies, thus simultaneously developing digital skills.

- Increasing the proportion and improving the training quality of information specialists: increasing the state order for training information specialists, implementing programs for re-training the unemployed.

- Implementing a career guidance program to identify the most talented students to work in the information sector.

- Developing a means of social mobility in the digital sector, in particular, informing students about offers of internships and training in digital companies, as well as stimulating the development of youth digital entrepreneurship.

- Updating the state classification of occupations, that is, developing and approving a list of digital professions based on the requirements of the labor market, digital trends, as well as implementing them in specialized educational institutions.

Research shows that the education system needs to be radically transformed because so far this institution still exists based on almost the same traditions and approaches as before the digitization of education. In archaic systems, students lose interest in knowledge, desire to learn and explore, and attendance of the classes often becomes just a formality. In this case, the key goal of education reform in competitive countries is increasing, rather than reducing, the level and quality of knowledge, forming contemporary skills and competencies, teaching to learn, communicate in foreign languages, build individual learning paths, introduce new specialty disciplines, be prepared for the jobs of the future, and at the same time, to make the learning process interesting and exciting.

In this case, the strategy of education is to move from an authoritarian system to a partnerships-based system. At that, in addition to gaining knowledge, education should switch to acquiring competencies, to ensure the transition from just accumulation of knowledge to reproducing algorithms in problem-based search and active training. Therefore, it is possible to distinguish the following primary areas of the digitalization of education (Fig. 1).

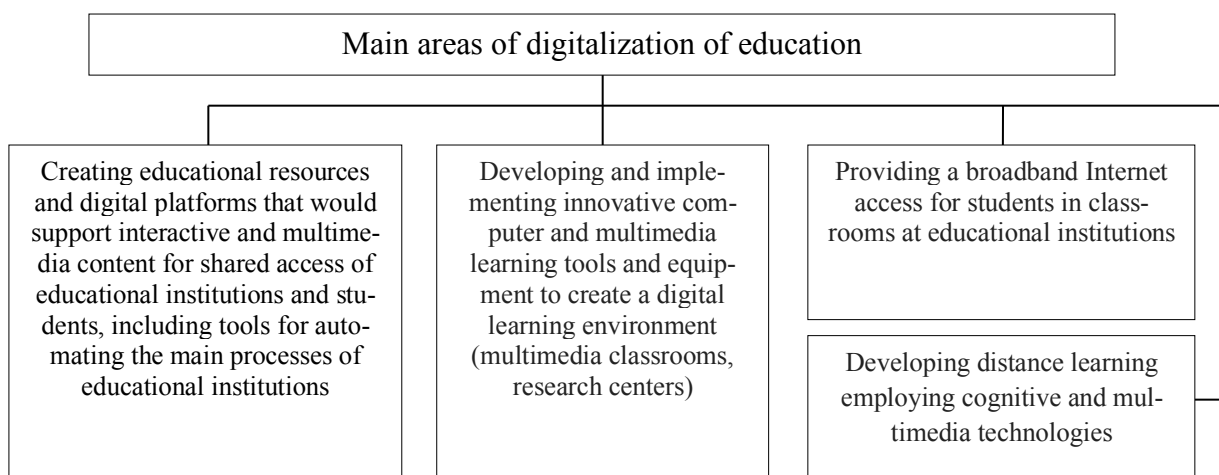


Figure 1. Primary areas of the digitalization of education

At the same time, contemporary technologies, globalization, new challenges and opportunities, new branches of science, professions, discoveries, forecasts, and trends indicate that the education system should prepare specialists who will live and create in a rapidly changing world. Learning on the "know everything" principle is changing to the principle of "know, how to learn throughout life and become competitive", while working with information based on the memorization principle is gradually losing meaning due to the development of the Internet as a global source of information, and therefore, not only knowledge but also skills, including media literacy and the ability to work with information, are becoming important.

Besides, the changes also concern the education forms and methods, because quality education becomes personalized and focused on the development of individual abilities and talents of everyone. Therefore, given the irreversibility of further digitalization as a global and national phenomenon, reforming the education should take place according to the needs of the digital economy development, digital citizenship, innovative and creative entrepreneurship, scientific opportunities, new needs, and challenges.

The employment of digital technologies should be cross-platform in nature, that is, it should be used not only in the classroom when studying a particular subject, but also when studying other subjects, students' interaction with each other and with teachers, with experts, when conducting research, and individual training. Implementation of digital technologies in education is one of the most important and sustainable trends in the development of the world's educational process.

Digital technologies allow intensifying the educational process, increasing the speed and quality of perception, understanding, and assimilating new knowledge. Applying media and interactive tools, it is easier for teachers to use an approach to teaching based on the implementation of innovative methods, including the use of case studies, research and search work, project methods, and educational and developmental games.

Digital technologies also allow making the learning process mobile, differentiated, and individual. At that, technologies do not replace the teachers rather complement them. Such classes are characterized by adaptability, manageability, interactivity, as well as reflect a combination of individual and group work, and time-unlimited training. Besides, digital technologies give the teacher new opportunities, allowing getting satisfaction together with students from the exciting process of communication and learning. Such technologies reduce a significant part of

the teacher's routine work, freeing up time resources for search, communication, individual work with students, and providing an opportunity to get instant feedback.

Currently, the implementation of digital technologies in the education system is characterized by the following problems:

- computer classes cannot make the entire educational process technological due to their stationary nature;
- using unlicensed software is still quite common;
- lack of high-quality contemporary multimedia content and interactive textbooks in all studied subjects.

Therefore, the digitalization strategy of the education system should be based on the following models:

- in terms of financing the digitalization of educational institutions and ensuring sufficient, uniform, and objective dissemination of digital technologies, digitalization strategy should be based on creating a universal services fund, providing a basic standard and digital services, including their financing models and mechanisms (jointly through the state, municipal, and private budgets, or separately);
- in terms of encouraging the public, digitalization strategy should be based on the implementation of a system for using their own digital telecommunications, which will significantly increase the level of providing digital means of digital communication;
- in terms of stimulating digital devices manufacturers, digitalization strategy should be based on the development of attractive and real digital formats to attract investment from international or local companies to create local production of specialized pads and laptops;
- in terms of creating multimedia digital content, the digitalization strategy should be based on the transfer and adaptation of international multimedia products that will allow quickly covering the basic needs, however, local production of such products is quite feasible, provided that an appropriate model of public-private partnership is developed.

In this case, digital skills and competencies are the foundation of the digital economy. The next step is to make this environment a place where students can become successful. In this regard, education should be the main economic strategy of the country in the context of the development of digitalization-based education (Fig. 2).

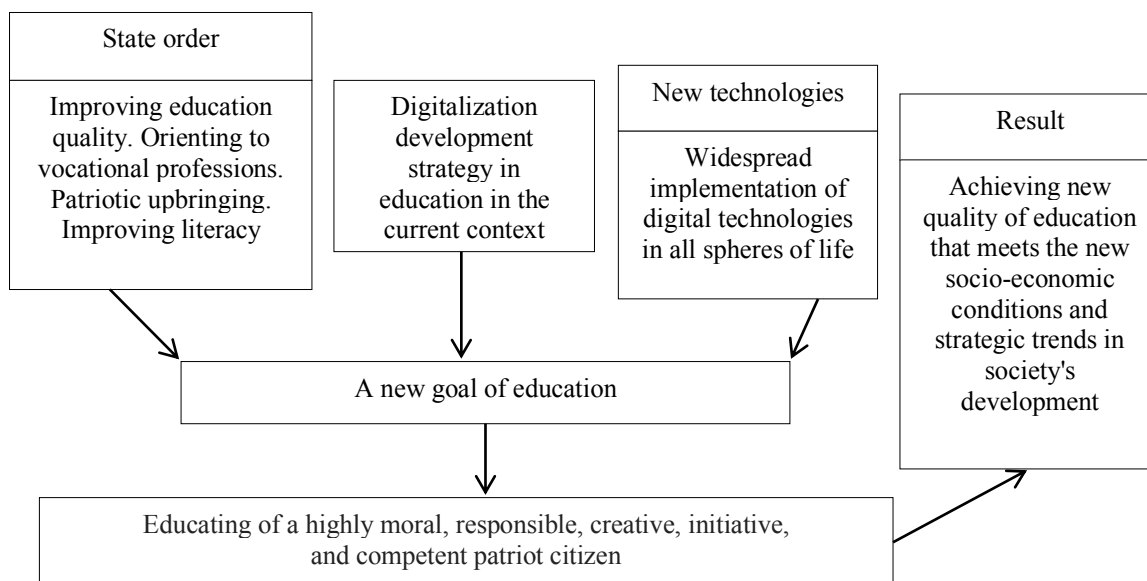


Figure 2. Digitalization development strategy in education in the current context

The conducted research shows that national digital projects and programs were sporadic. Nevertheless, they, together with talented teachers and an energetic society, can turn Russian education into one of the best in terms of both national and international standards. That is why, given the integrative nature of the education system, a significant number of educational institutions, as well as state institutions, consider the development of a comprehensive national policy of digitalization of education as a priority component of education reform, in general. This should result in the development of policies, and certain strategic documents that would define a vision, a clear understanding of the transformation of education through digital technology, the strategic master plan to achieve this vision with proper indicators of changes, as well as the resource plan of digitalization of education, and conducting research on the evaluation of the success of such transformation processes

Discussion

The reliability of the presented approaches is confirmed by the fact that utilizing advanced digital technologies, it is possible to uncover all the capabilities of the digital world. And it's not just modern services and online education. In this case, the significant development of digital technologies in education is stipulated by the urgency of problems addressed, namely, digital technologies in education are supported at the state level and by the general public; they serve as a tool for effective information and knowledge delivery to students, creating teaching materials, an effective way of teaching, and a means of building a new educational environment (Conradi et al., 2018; Ogloblina et al., 2020; Shelygov et al., 2019).

This means transferring a significant part of the educational programs of the main universities to an online format. Many Russian universities also work within the framework of Western educational platforms. There are also purely Russian platforms, of which the most important is the National Open Education Platform. Universities are already actively seeking to implement digital technologies into their educational process.

At the same time, there is not a single teacher who is not versed in digital technologies. Even now, teachers are beginning to use digital technologies that make their work easier and teach productively in the classroom without much effort. In this case, it is necessary to switch to fundamentally new learning technologies, including individual ones, to develop the willingness

to change, creative search, train teamwork, which is very important in the contemporary world, as well as to teach the skills of living in the digital age.

At the same time, the main changes in education are related to digitalization, which will lead to profound changes in the labor market, and, as a result, the emergence of new competencies, improved cooperation, increased responsibility of citizens, and their ability to make decisions independently. In turn, this is a reason for the further reorganization of the educational process, mainly using artificial intelligence technologies. Likely, soon systems of automatic translation of texts and oral communication in any language will be developed and implemented, which will allow freely understanding people speaking other languages. This means that the electronic library resources of all universities worldwide, as well as educational materials of the best teachers, will be available to all students, and not only for those who speak a foreign language.

Conclusion

Summing up, one can note that in the course of digitalization, the very structure of training and the organization of the educational process is changing fundamentally. These changes will require both selecting contents for creating courses and organizing them, as well as managing the educational institution. The resulting educational environment can be implemented according to several algorithms, of which each has the priority of existence. The most significant options include the use of cost-free developments of specialized Internet resources, as well as paid platforms for implementing educational content.

Therefore, for successful digitalization, it is not enough just to translate educational content into electronic form. In this case, the use of new information and communication technologies is only an initial condition for the further development of digital learning, whose assessment criterion will be its usefulness for students. At the same time, the implemented innovation that provides a qualitative increase in the effectiveness of the selection of content and development of training courses, as well as organizational and structural changes in universities will bring real benefits to students.

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