

## Digitalization of Education: Distant Learning Prospects and Realities\*

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**Abstract.** The article raises one of the contemporary topical issues – the problem of distant learning practice within the educational process. Today, the digitalization of education is not a disputable question any more, but it is our reality. It makes it possible to eliminate the omissions and make the distant learning not only inexpensive and convenient, but of high quality. Due to this, we conducted the research the purpose of which was to explore the prospects and realities of using distant learning and to introduce it in the educational process. The results obtained helped to identify the position of both the high school academic staff and the students, but they all agreed that digital learning might become an element of traditional education that would be optimum. The materials of the research can be useful to educational institution teachers, students and their parents.

**Keywords:** Digitalization of education, distant education, higher educational institution.

### 1 Introduction

#### 1.1 The relevance of the study

Global dynamic changes in all spheres of human activity at the present stage, associated with the fourth industrial revolution, make the education system respond to new system-making requirements introduction immediately [9]. In such conditions, the digitalization of the educational environment represents a certain standard, which allows, on the one hand, individualizing the educational trajectory, and, on the other hand, to develop continuous education, aimed at training new personnel for the new economy with new competencies [1].

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We carried out a psychological and pedagogical literature review, which demonstrated the fact that there were very few special studies on the problem of digital learning in conditions of its general introduction. The concept of “digital learning” is analyzed in the works of A. Verbitsky, by which he means the regularity, principles, and mechanisms of special knowledge acquiring skills, competencies, using information technology by the students [3].

The issues of teachers’ professional training in conditions of digital learning were discussed by G. Baklanova, M. Weindorf-Sysoeva, V. Larionova, E. Filimonova. The methodology of using digital technologies during the lessons was represented in the works of A. Zimina, M.A. Petrova. A. Krylov researched the possibility of integrating digital educational materials in the process of students’ training. I. Alexandrova investigated the hygienic component of the educational process in a school digital environment.

The issues of digital educational media resources application directed to the development of cerebral palsy students’ cognitive activity using music are discussed in the works of D. Semenova [2]. However, a comprehensive study of this issue has not been carried out yet.

Also, the relevance of educational environment digitalization is guided by several official documents, such as the National Program “Russian Federation Digital Economy” and Presidential Decree of May 9, 2017, No. 203 “On the Development of the Information Society Strategy in Russian Federation for 2017-2030”, as well as “The Education” National project. The implementation of these documents is focused on creating a modern, secure digital environment at creating a competitive, available, high-quality education [1].

Modern schoolchildren represent the so-called “Z” generation. Therefore, what was considered “future technologies” for the previous generations makes the “Z” generations present. These children have to obtain professions that do not exist yet, are acquainted with technologies that have not yet been invented, and solve the problems that are unfamiliar to us at present. At the same time, these children cannot imagine their life without gadgets and the Internet. However, as being proved by 2020, it is the ability to use gadgets and the ability to “surf the Internet” that is one of the key skills that should be possessed not only by children but by adults as well [8].

Thus, developing information technology increases their role in the sphere of education. The new teaching technologies introduction and mastering them perfectly require not only a certain children’s internal readiness but teachers’ and parents’ as well.

## **1.2 Purpose and objectives of the study**

The objective of the article is to research the education digitalization process at the present stage, to study the prospects and realities of using distant learning, as well as to determine further prospects of digital education introduction within the educational process.

The main tasks of the research are:

- a) Monitoring the state of the issue at the present stage.

- b) Surveying the students, teachers, and parents to determine the positive and negative aspects of education digitalization.
- c) Summing up, summarizing the results of the research.

## **2 Integration of educational resources**

### **2.1 Electronic educational resources**

In the field of education became obvious that distance education is not the affair of the distant future, but the present reality [7].

Online courses have become a very popular learning tool nowadays. Such a form of training promotes the interactive communication of both students and teachers and allows them to take exams online. This is one of the most active forms of distant learning, which is actively developing in the world of education [4].

The application of technologies related to the Internet in the educational sphere allows us to implement the continuous education principle – “lifelong learning”, to be transferred from dogmatic memorization to an active and competence approach training the specialists who can solve existing problems in non-trivial conditions in the modern production process. Information and communication technologies have great potential for one’s personal development, one’s potential disclosure, therefore at the present stage a significant role belongs to distant ways and technologies of upbringing and education.

Today the educational establishments cannot win the race in the market of educational services and provide training efficient specialists at the modern level without the widespread use of distant learning [5].

While conducting the study, the number of typical features in the process of distance learning was determined. Among them are:

- the flexibility of training, the opportunity to study at a convenient time, in a convenient place;
- the entire training course is divided into modules, which allows determining the students’ academic trajectory;
- distant learning, according to experts’ opinion, is 50% cheaper than the traditional way of education;
- the teacher’s function is to coordinate, adjust, tutor, draw up an individual training scheme-map;
- the opportunity to use both traditional ways of studying, and the innovative ones in the academic process [6].

Thus, the main objective of introducing distant learning into the educational environment is to create equal educational opportunities. The main principles of distance learning are the interactive communication opportunities between the student and the teacher without their direct meeting as well as the independent development of a certain amount of knowledge and skills within a selected academic course using certain information technologies.

## 2.2 Research Results

While conducting research, it was concluded that the attitude to distant learning is in most cases extremely opposite, from the general recognition as a way of organizing the academic process to its extreme denial.

The conducted survey discovered the distant learning advantages and disadvantages where the advantages are recognized as:

- access to the best world university and teaching programs;
- information itself, technology, theory;
- free or affordable training;
- the opportunity to study anywhere and anytime.

Anyway, the contemporary student lacks self-motivation as well as the limited amount of an increased level of difficulty specialized resources, most of the materials available are of the primary level to draw the largest possible audience. We consider that the illusion of competence becomes one more online learning disadvantage that makes the knowledge estimation process more complicated or sometimes even impossible.

Independent research was carried out is based on digital environment: social networks - VK, Facebook, Classmates; instant messengers - Viber, Skype, What's App, Discord. Totally 758 respondents were surveyed, among which there were 457 university professors and 301 students.

The following question was asked to both categories of respondents: "How much time do you spend at a computer while doing distant learning services?"

The survey results are represented in table 1.

**Table 1.** The amount of time spent at the computer being involved in distant educational services

Respondents	Duration, (hours)	
	min	max
Students	5	8,5
High school teachers	4	9,5

Thus, the data represented in Table 1 indicate excessive overload of both teachers and university students, due to which the following question was imposed: "How does distant learning affect human health?" The survey results are represented in table 2.

**Table 2.** The human health digital technology impact

Criteria	Teachers, %	Students, %
Influence positively	56	27
Influence negatively	23	16
No influence	18	53
Have no answer	3	4

The data represented in table 2, made it possible to discover a radically opposite attitude of teachers and students towards the use of distance learning and its impact on health,

so 56% of teachers consider the impact of distant learning on human health to be negative and only 27% of students agree with their opinion, while 53% of students consider that using digital technologies in teaching is safe, and only 18% of university professors share their point of view.

According to the results of the survey, the main problems associated with distant learning introduction into the high school academic process were identified. They are demonstrated in table 3.

**Table 3.** Distant learning high school introducing problems

Problem	Teachers, %	Students, %
The lack of personal communication	79	81
Computer and internet access availability	9	11
The problem of student's personalization	51	22
Consciousness and self-discipline	23	74
Lack of practical classes	78	79
Developing the distant learning courses complexity	92	44
Lack of distant learning legislative framework	77	52

Thus, the represented results of the present study indicate not only the existence of certain problems in the distant learning implementation process, but they are also were detected clear problem determination differences among teachers and students. Therefore, if the majority of teachers defined the main problem as the distant learning courses working out complexity - 92%, the main problem for students was the lack of "alive" communication with the teacher and fellow students.

The problem of students' identification bothers only 22% of students, while more than half of the teachers interviewed are extremely concerned on this point, especially during the exam period. The problem of self-discipline excited only 23% of respondents, while, 74% of students recognized this problem as the main one. Moreover, the lack of practical training worried both teachers and students equally.

### 3 Conclusion

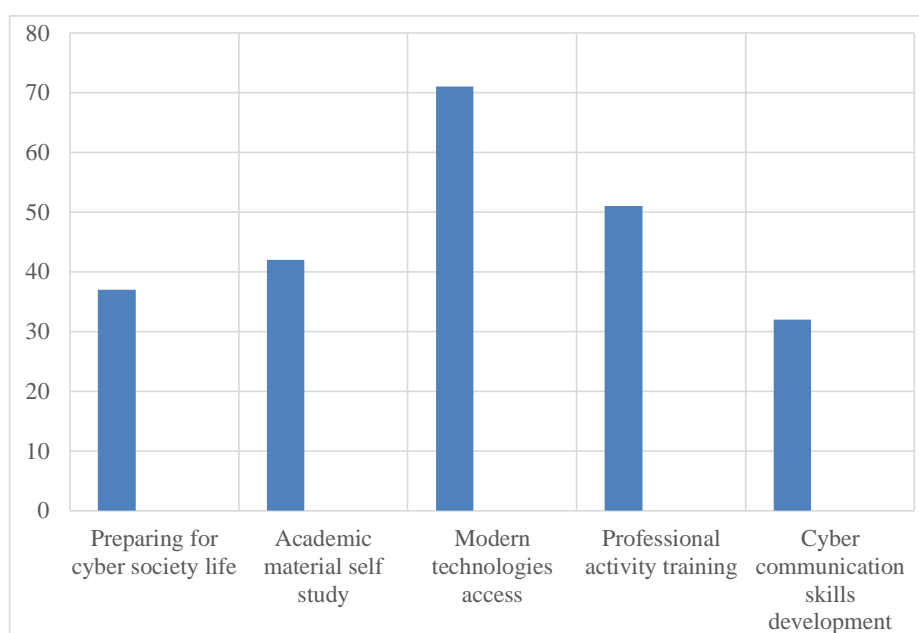
Thus, we can state that, like everything new, distant learning has both its supporters and its opponents. Like all new distant learning has both advantages and disadvantages. However, despite the different attitudes to this process, it is necessary to state the fact that digital learning is becoming an essential part of our life. The educational environment digitalization, in general, and digital learning, in particular, are the most important components of contemporary education.

The transition process to digital learning in the sphere of education is rather complex but necessary in modern conditions. However, this process should be conducted step

by step, not only from the point of view of education process participants' technical opportunities but also the professional training and retraining teaching staff, providing methodological support for digital learning.

It is also worth mentioning that, in general, both teachers and students agree that it is necessary to introduce digital learning in education. It should be noted that all respondents state the positive aspects of the digitalization of education as preparing for a new reality and life in a cyber-society. Among those, there are 37% of all respondents representing both and teachers and students. 42% appreciate flexible timing; 71% approve access to modern technology; 51% think that digital education trains for professional activity; 32% state that digital education develops the skills of "digital" communication.

The survey results are represented in Fig. 1.



**Fig. 1.** Teachers' and students' survey data on education digitalization necessity

The results of the survey conducted to allow us to conclude that at the present stage, the introduction of digital learning as an element of traditional education will be optimum.

The materials of the present article may be useful for teachers of various educational institutions of primary, secondary, general, higher education, as well as for parents and motivated individuals involved in studying the digital learning problem.

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