

# "Corona-Trigger": Optimization Possibilities of the Teaching Algorithm in Higher Education Institutions

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## ABSTRACT

The epidemiological situation in the world in the spring of 2020 made the educational environment change overnight. Due to the lack of an adaptation period and time for the development of methodological recommendations, the abrupt transition to online education once again indicated the need to optimize the teaching algorithm in higher school, integrating traditional and distance forms of education. The purpose of this study is to describe the optimization possibilities of the teaching algorithm in higher education institutions in a changing education ecosystem, as well as to analyze some of the problems lurking in online education. The conducted survey of the control group made it possible to identify several problems that the participants of the educational process have faced when switching to online education: physical and psychological discomfort, lack of socialization, technical problems. The Corona-Trigger accelerated the understanding of the need for a fast revision of the teaching algorithm in higher education institutions, taking into account the technologies of distance education.

**Keywords:** distance education, digital education, the traditional form of education, teaching algorithm

## 1. INTRODUCTION

In our rapidly changing world of technologies, where every day new discoveries appear in almost all areas of life, where various means of communication completely blur the boundaries for interpersonal and intercultural interaction, it is impossible to talk about the success of the educational system exclusively in terms of the traditional understanding of education, without taking into account the realities of today, which make changes to everything that is established and familiar. The language learning ecosystem is also undergoing some changes.

Despite the unambiguous tendency of the last decade to introduce new teaching technologies into established approaches and taking into account the clear deadlines for creating a digital educational environment in the Russian system of secondary and higher education, as prescribed in the passport of the National Education Project, we need to admit that it was the epidemiological situation of 2020 that pushed us to the rapid realization that it is impossible to ignore the presence of various online and remote technologies. The virus has pulled the trigger and we all have found ourselves, to some extent, as hostages to the corona-trigger.

The purpose of this study is to describe the optimization possibilities of the teaching algorithm in higher education institutions in a changing education ecosystem, as well as to analyze some of the problems lurking in online education.

## 2. METHODOLOGY OF THE STUDY

Before talking about the possible algorithm optimization of language teaching, we need to define the terminological apparatus of this study.

Let's refer to the definition of the "digital education" term. According to M. Weindorf-Sysoeva and M. Subocheva, for example, digital education means the process of organizing interaction between educators and learners while moving from goal to result in a digital educational environment, the main means of which are digital technologies, digital tools, and digital traces as results of educational and professional activities in digital format (Weindorf-Sysoeva 2018).

According to V. Platonov, the "digital education" category means education which consists of two aspects: the process of organizing mentoring and teaching, a set of knowledge, skills, and experience, and competencies. There must be a digital format (digital process, digital learning, digital transmitted content, etc.) and digital resources, digital management, digital communications, different levels of education, interaction with IT engineering, business, science, society (Weindorf-Sysoeva 2018).

Other scholars believe that digital education is a space for the development of an individual educational path, where, on the one hand, there are no barriers to choosing a direction of development and there is no risk of not moving to the next educational level, and on the other hand, there is a tangible additional control of the quality of

education from different angles at the same time (Zinkovskaya 2020).

However, there are other points of view regarding the legitimacy of the use of the term "digital education" in the context in which most of the participants in the educational environment and the correlated areas associated with this process use it. Verbitsky A.A. notes that the digital education term, which can be often found in the pedagogical literature, regulatory documents, and in pedagogical use, is wrong. The thing is that the word "education" have three different meanings depending on the context. The first meaning is the educational qualification of a specific person, who, in response to the question of what education he has, answers: general secondary, vocational or higher. The second meaning is the education system as a set of educational programs, their educational organizations and their management system. The third meaning is the process of education, which consists of teaching and mentoring as a whole, like two sides of the same coin (Verbitsky 2019).

Taking into account the second meaning of the word "education", let us not fully agree with the opinion of Andrey Aleksandrovich Verbitsky, since the ecosystem of digital education is precisely the set of educational programs, which, taking into account the realities of 2020, underwent urgent optimization, changing the algorithm of an established education system. Having access to digital educational technologies and programs is no longer the privilege of certain universities, but the reality of modern high-quality education, where a qualified teacher successfully combines the traditional with the innovative. Now digital education is not plans for the future, but a reality with new and multifaceted problems that need to be addressed here and now in order to prevent irreparable mistakes in the competence of the generation receiving education in the context of the corona-trigger.

The main element of the new digital university model according to Valery Falkov, Minister of Science and Higher Education of the Russian Federation, should be big data, with the help of which universities can manage the educational trajectories of students. New electronic systems in the education area will provide not only the direct transfer of information, for example, online lectures, but also control of the level of its development. By analyzing various data - from grades to what subjects the student was interested in, an individual learning path will be formed (Falkov, 2020).

For our research it is also important to refer to the term "distance learning" and consider its features. For example, A.V. Zubov defines distance learning as a new form of organization of the educational process, combining traditional and new information technologies of education, based on the principle of independent acquisition of knowledge, mainly presupposing the telecommunication principle of delivering the basic educational material to the student and interactive communication between students and teachers both directly in the learning process and by grading the knowledge and skills they have acquired in the learning process (Zubov, 2004). You can find another capacious definition from A.A. Andreev, who says that

"distance learning is a purposeful process of interactive communication between students and teachers with each other and with teaching tools, invariant (indifferent) to their location in space and time, which is implemented in a specific didactic system" (Andreev 1999). When we talk about the definition of "distance learning", of course, we must also remember about control, therefore we believe that distance learning is a special form of interaction between a teacher and a student using various means of modern information technologies when the student has the opportunity to receive the required amount of knowledge as a part of the curriculum and perform the teacher's tasks not only in real-time but also asynchronously while monitoring the implementation of educational assignments and feedback occur on a regular basis using various technical means asynchronously.

Analyzing the definitions of distance education given by different scientists, we come to the conclusion that this type of education provides active interaction between all participants in the educational process: teacher - student - group of students; tasks can be performed both directly and asynchronously, but this type of knowledge acquisition cannot be attributed exclusively to the extramural form of study for many reasons. One of the distinctive features of extramural education is that students of this form of study attend intramural classes at the setting sessions first, where teachers read the necessary material, which students study in between sessions on their own, with the help of additional materials, including those posted in various information sources.

The "corona spring" of 2020 attracted special attention of the educational process participants to such a term as online education, which became a reality overnight. Online (synchronous electronic) learning takes place exclusively in real-time, but in a virtual, not real classroom, sometimes not excluding great technical difficulties for both the teacher and the students.

All of the above indicates that the teaching algorithm optimization in higher education institutions is inevitable, but it is also impossible to abandon the classical understanding of education at the moment since it is necessary to solve many new problems.

### **3. RESEARCH RESULTS**

Let us refer to the vision of teachers and students of the required changes in the ecosystem of the educational process in the 20s of the XXI century.

The answer to the question "What problems did you face when you were forced to switch to online learning?", which was asked to a control group of teachers and students (100 people), made it possible to single out several problems that participants of the educational process have faced when switching to online education.

Table 1 presented below shows the answer results to the abovementioned question, reflecting the subject of the problem and the degree of inconvenience caused by the transition to online education in percentage terms.

**Table 1** The answer results reflecting the subject of the problem and the degree of inconvenience caused by the transition to online education in percentage terms

	<b>Teacher</b>	<b>Student</b>
Physical and psychological discomfort	28%	9%
Lack of direct ("live") communication with students / teacher	40%	36%
Distribution of working and non-working time	14%	28%
Maintaining concentration	12%	11%
Technical problems	6%	16%

According to the data obtained in the survey of representatives of small and medium businesses from different regions of Russia, which was conducted by the Agency for Strategic Initiatives in the framework of the Smarteka project, the consequences of COVID-19 had an impact on more than 80% of respondents. More than a third of the respondents claim that revenue in March 2020 fell by more than 80% compared to the same period in 2020. More than half

Having processed the data obtained in answering the question posed, we also asked some clarifying questions, but the results of this survey (Table 2) are of a general nature, without dividing the roles of the participants in the educational process.

**Table 2:** Survey statistics on whether you like the transition to distance learning

	<b>YES</b>	<b>NO</b>
I want to return to the classroom	75%	25%
I accept exclusively traditional form of education	51%	49%
I am in favor of the optimal combination of traditional and distance learning	80%	20%
Teaching/learning online feels like a lack of socialization	70%	30%

#### **4. DISCUSSION OF RESULTS**

The results obtained during the survey show that the optimization of the teaching algorithm in higher education institutions is inevitable.

A fairly large group of teachers and a smaller number of students note that the full transition to online learning caused some physical discomfort due to passive long-term sitting in front of a computer screen since technical means

restrict the movement of participants in the educational process.

It was noted by the respondents that the study load have increased significantly, and due to the increase in the volume of study material, since not all teachers have immediately responded to the need to adjust the curriculum in accordance with the specifics of online learning, and not all those involved in the educational process were able to correctly distribute work time. Many students have noticed that they are not fully prepared for self-control and are prone to procrastination syndrome. It was also noted in the comments that many recipients of information within the educational process have difficulty in fully comprehending the material since although it is believed that the new generation and gadgets are one unit, the brain of young people has not yet fully adapted to processing and memorizing a large body of information in electronic format. The human brain gets tired faster in these circumstances rather when working with paper sources and face-to-face communication.

The lack of direct communication in real time, rather than virtual one, leads to socialization problems. At the moment, there is no clear understanding of the features of virtual socialization. Keeping up with the times, we must not forget about the main component of the educational process - pedagogic. A machine (computer) still cannot provide a full-fledged spiritual education, therefore, it is impossible to exclude face-to-face communication with a teacher, mentor, curator, and student community from the education process. One should not forget about life experience, which is so necessary to ensure the full functioning of a member of society. It is during personal communication with each other in real and not virtual situations that people learn to coexist, resolve conflicts, interact in a team, and so on.

The survey has shown that most of the educational process participants want to return to intramural education, but this does not mean denying distance education.

To effectively combine traditional and distance education forms, both teachers and students must be confident users of various digital technologies. However, there is no clear definition of the term "digital competence", which does not allow assessing the level of mastering of new technologies by teachers. Thus, in the near future, for the successful implementation of the 3:0 Education concept, considering the availability of the necessary technologies, it is necessary to establish a stable transfer of new educational technologies into the learning process, introduce digital environments and tools into the general educational process, develop criteria for digital competence and establish a permanent professional development program for teachers to keep the educational process on a par with the development of technology (Kalimullina 2018). All of the above is also true for students whose digital competence when entering a higher education institution does not always meet the expectations of the faculty. Often, you have to spend a lot of time teaching students to use various distance technologies as part of the electronic information and learning environment (ELE) of a higher educational

institution (cloud, smart, and computer), thanks to which the educational process participants gain access to multifunctional information technologies. At the same time, the realities of today, or rather the requirements for university graduates in the digital age, force traditional education to be optimized and integrated with asynchronous digital technologies in order for students to acquire the necessary knowledge and skills for complete assimilation with modern society (Digtyar, 2019; Kudryashova, 2015; Makarova, 2019; Mirzieva, 2019; Strekalova, 2019; Dillenbourg, 2016; Kaur, 2019; Strekalova, 19; Zhestkova, 2017). To ensure an effective change in the higher education system and the teaching algorithm optimization, taking into account all the requirements of today's realities, both the retraining of the faculty, the technical modernization of educational institutions, and the development of methodological materials for the implementation of the mixed type educational process: intramural with elements of distance learning technologies are required.

## 5. CONCLUSION

As part of our research, we came to the conclusion that the most important direction in the process of reforming the education system is the optimal combination of traditional and distance learning. Abuse of online education in higher education institutions can lead to a level of education decrease in general, desocialization of participants in the educational process, which leads to psychological stress and conflict increase, as well as to complete or partial loss of cognitive skills and abilities. The lack of a clear understanding of the content of the program for increasing digital competence among teachers still remains an unresolved problem since the teacher must not only follow the rules of digital didactics but also have knowledge of various computer technologies, tools and applications to achieve professional goals. It is the ability to design open educational resources, as well as create course programs on digital devices, that will help to successfully carry out educational activities in the realities of today.

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