

# Russian Education Facing the Digital Challenge

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## ABSTRACT

The article deals with the consequences of overall transfer to the implementation of educational programs with the application of e-learning and remote educational technologies in the conditions of the world coronavirus pandemic. The first advantages and disadvantages of such learning, that the school and the higher educational pedagogical society had to face, are analyzed. It is noted that there are objective difficulties, rather difficult to be overcome by the pedagogues in the existing situation, e.g., absence of technical means both in pedagogues and students, lack of skill to use digital tools, etc., which requires the search for new educational formats, means, and methods from the pedagogical society. In addition, the authors of this paper represented the position of the federal authorities and their recommendations on transfer to e-learning. The authors come to the conclusion that remote education technologies cannot be the only prerequisite of its quality formation.

**Keywords:** *remote educational technologies, e-learning, online learning, issues of remote education, digital challenge*

## 1. INTRODUCTION

The second decade of the 21st century was marked by the heated discussion of the future of humankind. Famous scientists, politicians, economists expressed various opinions, agreeing about one thing: already in the nearest future, the society has to face fundamental changes in economic and social life, the source of which will be the rapid development of technologies in the whole, and digital technologies, in particular. For example, Klaus Martin Schwab, the founder and executive chairman of the World Economic Forum, noted in his speech in Davos dated January 20, 2016, "in the nearest future, we will face changes of such extent and complexity that the mankind has never experienced before" [cit. ex: 3]. Already in 2017, Russia responded to requests of the scientific and economic society by adopting the program "Digital Economy of the Russian Federation", in the framework of which, a task was set to create the digital economy ecosystem in Ukraine, and it was noted that the creation and the successful functioning of such an ecosystem is impossible without people who have the high level of digital literacy [9].

Future forecasts could stay forecasts and projects if there were no objective circumstances connected with the worldwide spread of the "new plague" of the 21st century – COVID-19. In

short terms, the school and the higher education was forced to change the habitual modes of work and to shift to digital platforms on a massive scale, not in dreams but in real life. The world education has found itself in a completely new point - the point of perplexity [4].

Director of NAFI Analytical Center for human capital stock research L. S. Spiridonova in her comments to the study "Digital Literacy of Russian Pedagogues", conducted in March 2020, noted that everybody had to face the unexpected difficulties in connection with the self-isolation regime introduction. The education system found itself "in the first row" with a large number of people: around 1.5 mln of schoolteachers and professors of higher educational institutions, and 16 mln of school students and 7 mln of students. It appeared to be hard to operatively build the education system and the curriculum performance in the remote format, that was felt by all the educational process participants, including parents of school students [9].

## 2. METHODOLOGY OF THE STUDY

The study methodology is represented by the analysis of methodical recommendations for the work in the remote learning regime, given on the Website of Ministry of Education of the Russian Federation, the analysis of recommendations of Research Institute of Hygiene and Health of Children "National Medical Research Center of Health of Children" and Russian National Committee on Protection from Non-Ionizing Radiations, results of studies of NAFI Analytical Center (2018-2020) on the condition of digital literacy of the Russians, reports by Global Education Futures (GEF) and WorldSkills Russia (WS), representing, based on the scientific analysis of the future formation development picture, modern person's skills, the analysis of social platforms for opinion exchange within the pedagogic society (Facebook, VKontakte, etc.)

### 3. RESEARCH RESULTS

The lack of time and possibility to find the ways of exit of the situation demonstrated the extent to which the pedagogic community was ready to act in the state of uncertainty. For example, the project of mass online education Coursera announced the most of its courses free. In Russia, the platform "Otkrytoye Obrazovanie" provided access to its resources to the university community. Professors of higher educational institutions, familiar with the electronic educational media, transferred to various platforms in the virtual educational environment, such as Moodle, BlackBoard, etc. [11; 12].

As it was noted above, in late March 2020, NAFI Analytical Center carried out studies among pedagogues working in Russian general school and higher educational institutions concerning the urgent educational process transfer to remote education in the midst of the pandemic [9]. 1100 Russian pedagogues (including 800 schoolteachers and 300 professors of higher educational institutions) from 8 federal districts took part in the survey. Data were collected through the line of telephone interviews and the online survey. Statistical error is 3.5% for data about schoolteachers and 5.6% for data about professors of higher educational institutions [Ibid].

In opinion of two thirds of Russian schoolteachers (68%), the school education system is not ready to transfer to remote education, and 24% consider that schools are ready for the transfer. Among professors of higher educational institutions, the share of more optimistic assessments is higher: one third (35%) considers that the higher education system is ready for the classes transfer to the remote format, and 53% think the opposite [Ibid].

It should be emphasized that Ministry of Education of Russia was rather operative in developing recommendations for the selection of digital platforms and tools for the teacher's work [6]. In its turn, Ministry of Science and Higher Education gave complete control over the solution of this issue to educational organizations and making independent decisions

The main criteria of educational platforms include: safety, accessibility, absence of the student's additional registration, stable operation allowing to communicate in online mode. In addition, the possibility is provided to learn more about the federal public free resources for various categories of students: preschoolers, school students, students of intermediate vocational education institutions. For example, Ministry of Education of Russia recommends school students to use the following free resources: "Rossiyskaya Elektronnyaya Shkola", "Portal: Bilet v Budushee", "Obrazovatelnyi Tzentr Sirius", etc. The Center of Assistance to Schoolteachers During Coronavirus, "Teaching from Home" [8], and other software products were created on the Website of the Ministry.

Today, the pedagogic society discusses achievements, problems, advantages and disadvantages of virtual education and digital technologies in the public online mode on various social platforms.

Without any doubts, the scientific analysis of the existing situation will require the longer time period; meanwhile, there is a possibility for reviewing those aspects that are already now indicated by pedagogues who implement the educational programs of all levels of preparation.

The advantages include:

First, freedom of choice of the platform itself, educational forms and methods by the pedagogic society. Google Class, Skype, Zoom, Microsoft Teams, OBS studio – these are only the part of resources each of which has the certain possibilities for educational space organization and building. Pedagogues establish the digital format that would enable organizing the efficient interaction, depending on students' age, the discipline, and the lesson form, at their own discretion.

Second, freedom of choosing the digital platform provides possibilities to pedagogues to express creativity, and to students, to show their creative gifts as well. Such freedom stimulates for the search of the possibility of variation in the learning material presentation, creation in organization of educational process, and communication.

Third, the studies coverage with the use of remote technologies, requiring feedback with students, provides the educational process customization conditions, paying attention to every student (for example, customizing tasks and receiving a response on their fulfillment or non-fulfillment at the deadline set). This relates not only to the education organization process itself, but to the education social side as well. It is important for a pedagogue to understand the background of every student, his/her life situation, and only based on the results of complete monitoring, to build the educational process, its customization and personification.

Beside the advantages of transfer to education with remote technologies applied, it also has its disadvantages.

The famous American physicist M. Kaku wrote that in the nearest future, education should stop being limited by time and spatial limits, and a human being will be educated by himself/herself [2]. And indeed, on the one part, such type of education brings the educational process outside the time limits, a student has to work independently; and on the other part, this leads to the excessive overloading of both a student and a pedagogue. A pedagogue has to be governed by the recommendations of Research Institute of Hygiene and Health of Children "National Medical Research Center of Health of Children" and Russian National Committee on Protection from Non-Ionizing Radiations, and to use the recommendations of the World Health Organization and the best world practices in the field of digital educational medium hygiene for children that establish the procedure of staying at a computer for different student categories [6].

According to the above recommendations, Children at the age from 6 to 12 years need the use of computer equipment in for educational purposes in home conditions to be minimized. The following computer equipment use regime is recommended to children at the age from 12 to 18 years: "one to two", for ages older than 12 years and to 15 years (per each 30 minutes of work – 60 minutes of rest) and "one to one" for children older than 15 years and to 18 years (per

each 45 minutes of work – 45 minutes of rest). Total duration of all types of screen activity for children of this age group, including viewing the television, should not exceed 3.5 – 4 hours a day [1].

Therefore, pedagogues face a vital problem: how to create such an educational situation in which a student will not be overloaded. Consequently, what we mean here is the reconsideration of the classic education format itself, that cannot remain the same because now, conduct of a lesson, a lecture, or a practical lesson in the volume of 45 or 90 minutes cannot remain the same. It is rejection from linear schedule, especially at school, creation of modular lessons, variety of work formats - from individual to group, and then, to frontal, etc.

The complexity in the integral scope of a large amount of students (in relation to student flows) in a video format is a problem for the community of professors of higher educational institutions. For example, Zoom, a rather convenient virtual platform for creating video conferences is popular among schoolteachers, but for professors of higher educational institutions, going beyond 40 minutes is rather inconvenient because the increase in time is not free. The use of, for example, such an advanced digital application as OBS studio, requires the certain characteristics of a personal computer, and skills of a pedagogue, too, mastering which can be sometimes problematic due to the lack of time.

A vital problem for modern Russian education, both higher and school, remains the search of the simplest forms of interaction with students who have no Internet connection/and/or have insufficient Internet connection power in home conditions. For the pedagogue's work in such conditions, it is recommended to use the simplest communication formats: e-mail, WhatsApp, direct phone conversations, etc.

According to the analysis of the study carried out by NAFI Analytical Center, some schoolteachers note that considerable shares of students cannot study remotely either due to absence of technical means or to lack of skill to use digital tools. For example, almost every fifth schoolteacher (19%) noted that up to one half of school students in their cohort will not be able to study remotely. Every tenth schoolteacher (10%) told that the amount of such students in a cohort can exceed one half. Pedagogues gave low points to the quality of electronic educational materials offered to students for remote learning. Only 40% of them characterized the quality as "excellent" or "good", 43% – only as "satisfactory", 9% – as "bad". Professors of higher educational institutions were giving low points to material quality more often [9].

Another problematic area in the work with remote technologies is the age of teaching staff of schools and higher educational institutions. According to the data of Ministry of Education of 2019, the average age of pedagogues in Russia is over 50 years. This has been recently reported by the Minister of Education of the Russian Federation Olga Vasilieva during her speech on the plenary discussion "Children's Welfare in the Digital Era" as the part of the XX April International Scientific Conference on Issues of Economy and Society

Development [7]. It is age that became the main complexity in fast mastering of new digital technologies for the most pedagogues. In the first turn, schoolteachers and professors of higher educational institutions need to deepen knowledge in the field of hardware and software operation principles, to develop skills of using modern gadgets and applications in the educational process [9].

With the purpose to overcome this difficulty, many higher educational institutions of the country create the volunteering system, in which students, as advanced users of computer technologies, assist pedagogues in a higher educational institution and pedagogues in a school. In schools, young pedagogues try to educate their older colleagues and assist them in overcoming the raising difficulties.

Provision of digital safety is no less important, or maybe, one of the most important issues here. Pedagogues who use video formats (especially Zoom) faced the problem of third parties registering in chats and video conferences, and these people's intentions are no way friendly.

Beside global problems caused by the transfer to the new education format, school students and students of higher educational institutions complain at the excessive overload; lecturers and schoolteachers also repine at the increase of working time they have to spend on examining remote platforms, instead of quality preparation to the studies; limited possibilities of children, students and teachers themselves in the presence of powerful computer processors at home (for video applications possibility), stable Internet connection, etc.

Students distinguish the following disadvantages of e-learning: minutes of humor, vivid disputes and discussions, that accompanied direct communications earlier, disappeared from lessons. It is still rather unclear how it would be possible to have not less interesting online discussions. In private conversations, some pedagogues note that, even if the dialogue is built, it appears to be not very natural. The interest to it disappears quickly. In addition, both children and students note in conversations the lack of computers at home, in conditions of education of several students of different age.

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

The present situation with the mass transfer to online learning demonstrates that the "digital revolution" in education is a necessary but an insufficient condition of transfer to its new quality. We agree with the authors of the report *Global Education Futures*, who note that the condition of "student's independence" and "self-management" - providing the wider right of voice and choice to students - is much more important, provided that it is implemented not at the expense of teachers and pedagogues but in cooperation with them. It becomes clear that the future is not only in skills that will help us in programming robots but in those skills and qualities that make us people, and, in the first turn, it is empathy. And, indeed, we will agree with the authors that we are witnessing the birth of an educational approach of a

different type, the "collectivity education", where not separate persons but teams, organizations, and societies are taught [4, p.8].

## 5. CONCLUSIONS

The mass transfer to learning with the use of remote technologies shows that digital literacy is not a feature spontaneously acquired by a person, living in the digitalization era.

According to the report prepared by the Secretariat of OECD headed by OECD Committee on Digital Economy Policy, formation and development of knowledge, skills and attitudes that are vital for life in digital society, should be deliberate and manageable, and this condition is mandatory for achieving the main objective of digitalization - people's life quality increase [10]. By obtaining the experience of modern educational methods, including those with the application of remote technologies, e-learning elements in objective circumstances, the system of school and higher education of Russia can already be capable to solve this set task.

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