Distance Learning in Schools of the Republic of Karelia: the Complexity of Organization and Prospects of Development

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ABSTRACT

The article is devoted to organizational and technological issues of implementing distance learning for schoolchildren of the Republic of Karelia in the context of curbing the spread of coronavirus infections. The results of an initiative study in the form of online survey of teachers of the Republic involved in distance learning are presented. Based on the data obtained, regional practices and features of the use of information technologies on the organization of distance learning for schoolchildren were described, and the main problems faced by teachers when switching to the distance learning format were identified. The study showed that the vast majority of teachers surveyed note positive dynamics in the development of their competencies in the field of information technology and distance learning, believe that adverse external circumstances were a powerful incentive for the development and application of new modern ways and means of teaching students. The results obtained can be used to improve the regional system of distance learning for schoolchildren as one of the most promising and effective systems of the future educational space.

Keywords: *distance learning for schoolchildren, distance learning technologies, online learning, pandemic, Covid-19*

1. INTRODUCTION

1.1. The development of distance learning for schoolchildren in Russia

In the context of curbing the spread of coronavirus infections, in March 2020, educational organizations in the Russian Federation were urgently transferred to distance learning. A distance learning format is not an absolute innovation in Russian education, but the rapid and widespread transition to distance learning was associated with problems of various nature and order and became stressful for most of the teaching staff of schools, students and their parents. At the same time, it is obvious as a result of the critical situation, forced and mobilizing conditions were created, contributing to the improvement of the modern system of Russian education. In this regard, one of the primary tasks is to conduct a timely analysis of the current situation, identified problems and effective practices in order to take adequate measures. The distance learning in the Russian Federation is regulated by a number of distance educational technologies documents. Distance education technologies are understood as educational technologies implemented mainly with the use of information and telecommunications networks with indirect (at a distance) interaction between students and teachers. The issues of using distance learning technologies in teaching schoolchildren are studied in various aspects: philosophical, pedagogical, social, cultural and etc. In the scientists' works, different problems of modern distance forms of school education are raised: issues of qualities, accessibility and economic efficiency of educational process management. The greatest interest of researchers [4–6] is associated with the study of current problems and features of the use of distance technologies in teaching students the subjects of general education programs of primary general, basic general, secondary general education, the preparation for the state final certification.

The researchers pay special attention to the system of distance learning for students with disabilities or who are home-schooled [7–8], individualization of education, in particular, the teaching of talented and gifted students using distance technologies [9–10].

A significant number of scientific and methodological works are devoted to general pedagogical issues of distance learning, such as the readiness and motivation of students to distance learning [11–12], problems of quality and effectiveness of online-learning [13–15], the issues of communication and spiritual and moral education of students in the context of distance learning [16–17], the

use of modern internet platforms, software and communication tools [18–19].

The analysis of current state of scientific and methodological research and the experience of distance learning of students indicates that to date the distance learning technologies were used by teachers in fragments, with the goal of solving educational, methodical tasks, extension or addition of curriculum and the satisfaction of individual needs of students.

Currently, a number of papers have been published describing the impact and consequences of the Covid-19 pandemic on education in Russia. The authors of the research address the assessment of the effectiveness of digital and educational teaching technologies in the context of Covid-19, the analysis of problems that arise when teachers organize distance learning in self-isolation [20–22].

A few months after the abrupt transition to distance learning, the laboratory of media communications in education of the higher school of Economics, with the information support of the all-Russian trade Union was conducted to identify teachers' opinions on the new conditions and challenges of distance learning in the country [23]. The study surveyed 22600 teachers from 73 regions of the country. It should be noted that due to the insufficient number of respondents, this study lacks conclusions for each region separately.

Meanwhile, the analysis of regional practice and features of the implementation of general education programs in the condition of extreme transition to distance learning is of particular interest from the point of view of improving the regional system of distance learning for schoolchildren.

The purpose of the study is to consider regional practices and features of the use of information technologies, identify problems faced by teachers when switching to a distance learning format and access the dynamics of teachers in the development of their competencies in the field of information technology and distance learning methods.

1.2. Organizational and technological aspects of distance learning for schoolchildren in the Republic of Karelia

The rapid universal transition to distance learning in the context of curbing the spread of Covid-19 coronavirus infection in general educational organizations of the Republic of Karelia began on April 7, 2020 [24]. In order to provide methodological assistance to the management and teachers of educational organizations, the Ministry of education of the Russian Federation prepared methodological recommendations for the implementation of educational programs of primary general, basic general, secondary general education, educational programs of secondary vocational education and additional general education programs using e-learning and distance educational technologies [25].

At the same time, each educational organization within the framework of Federal legislation had the right to develop independently and adopt regulations for organizing conditions for non-contact training including the usage of distance technologies.

In accordance with the recommendations of the Ministry of education of the Republic of Karelia [26]. Management and teaching staff of educational organizations were assigned a number of tasks that need to be solved in a short time: (1) The development and approval of local regulations on the organization of educational process using distance technologies. (2) Analysis and correction of local regulations of educational organization, regulating the current certification. (3) Making changes to ensure the development of general education programs using distance learning technologies in the annual calendar and training schedule, calendar and thematic plans of working programs. (4) Formation of the schedule of classes in accordance with the adjusted curriculum, taking into account the differentiation by class and reducing the time of lessons [27]. (5) Informing students and their parents about the implementation of educational programs or parts of them using e-learning and distance learning technologies including familiarization with the schedule of classes, the schedule of current and final control of academic disciplines, consultations.

Monitoring of current academic performance in educational organizations (electronic journal: schedule, grades, homework) was carried out by using the automated information system "Electronic education" of the Republic of Karelia [28].

Along with the organizational problems associated with the widespread introduction of distance learning, there was a question of methodological and technical support for teachers, the operator for organizational and methodological support of educational organizations of the Republic of Karelia was identified as the "Karelian Institute for education development". The Institute has been implementing programs for professional development and retraining of teachers using distance technologies, including the resources of online communities, as well as training teachers in modern technologies of distance and online learning (30). However, despite the ongoing efforts to introduce ICT technologies into the Karelian school system and the number of teachers (more than 30% of the total number in the region) who completed advanced training programs, at the time of the Covid-19 pandemic, it was impossible to assess and expect the absolute readiness of teachers for the new format of training.

2. MATERIALS AND METHODS

The study was conducted in several stages. At the first stage, the main indicators of implementation and indicators of distance learning for schoolchildren were identified. The method of questioning teachers was chosen as the methodological basis. The questionnaire contained both closed and open-ended questions, so the respondents were given the opportunity to express their own opinion. The opinions expressed by informants during the processing of the results were subject to thematic grouping. The questionnaire was anonymous and teachers' personal data was not recorded.

At the second stage, a survey of teachers working in both large urban schools and small rural schools in the region was conducted.

The respondents were attracted to participate in the survey through e-mail newsletters and informational posts in social network communities and educational portals of the Republic of Karelia.

Thus, teachers from all municipalities of the Republic of Karelia were involved in the study.

At the third stage of processing and analysing the data obtained, conclusions and recommendations were formulated to improve the process of distance learning for schoolchildren in accordance with the new requirements of the changing life of society.

3. RESULTS

3.1. Characteristics of teachers participating in the survey

In total, 294 teachers from Petrozavodsk – 40.8%, Medvezhegorsky district – 23.1%, Prionezhsky district – 8.3%, Belomorsky district – 6.8%, Kondopozhsky district – 2.7% and other districts of Karelia. Most of the surveyed teachers work in general education organizations located in urban areas – 70.1% and 29.9 % in rural areas.

Figure 1 shows 43.5% of the respondents are teachers aged 41-50 years; the share of teachers aged 51-60 years was 22.3%, from 31-40 years – 20.4%, from 20-30 years – 11.6%, over 60 years – 2% of teachers.

Survey respondents teach in classes of different occupancy levels. In urban districts, the number of students is higher: 46.3% is the share of classes with 16 to 25 students. The share of classes with a small number of students from 5 to 15 people is 29.9% and these are classes in rural municipal educational organizations.
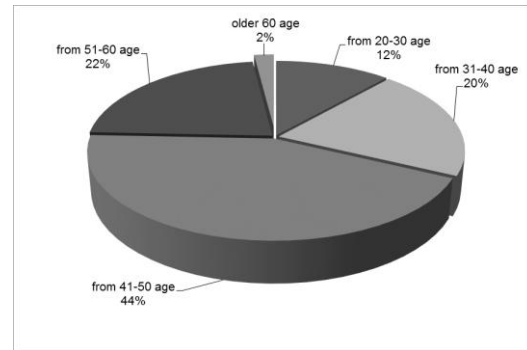

Figure 1 Age structure of teachers surveyed

The survey data show that as a result of self-assessment, the level of proficiency in distance learning technologies at the beginning of the Covid-19 pandemic among Karelian teachers is quite high: 68.3% of the total number of teachers surveyed noted that they had experience in self-study of forms and technologies of distance learning, 72.8% completed advanced training courses, 27.9% previously used distance learning in their work. It is important to note that 12.9% of the teachers surveyed had experience in organizing distance learning for schoolchildren in their organization, and 27% of them were the mentors of the development of distance learning for schoolchildren.

It is important to take into account that 96 teachers (32.7%) had no experience with distance learning technologies for schoolchildren before the start of the Covid-19 pandemic. The survey showed that the difference between urban and rural teachers is insignificant (less than 1%) And by age structure, teachers in the age groups from 41 to 50 years – 28 teachers (9.45%), from 31-40 years – 20 teachers (6.8%), from 51 to 60 years – 16 teachers (5.4%) and from 20-30 years – 14 teachers (4.7%) were more unprepared for new challenges.

3.2 Characteristics of teachers' activities during distance learning

The study showed that during the period of distance learning, most of the surveyed teachers often used the resources of social networks, information systems – "Bars.WEB-obrazovanie", "Dnevnik.ru" which are linked to educational organizations and are already well-known to students and their parents. These resources were used to inform and consult, to transfer students' homework and study learning materials. It is important to note that 81% of teachers surveyed identified the use of "VKontakte" social network as the most accessible and popular tool for interacting with students and their parents. In the second place in the terms of importance was the information and educational system "Bars.WEB-obrazovanie" – 49.7%. The format system of communication via e-mail was also among the most popular resources – it was allocated by 40.1% of respondents out of a large number of educational

platforms operating within the framework of providing online access to training and testing resources. Teachers identified as shown in the Figure 2: uchi.ru, yaklass.ru, classroom.google.com, resh.edu.ru, as well as among other options, they indicated Foxford, Infolesson.ru, Online Test Pad, Moodle.
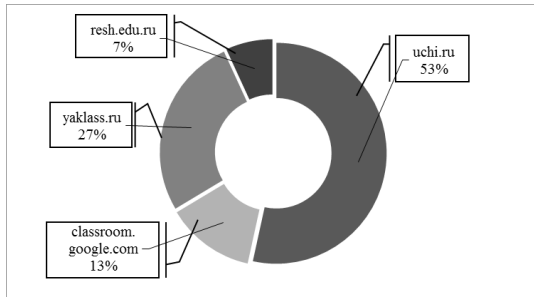

Figure 2 The diagram of teachers' responses about the most frequently used Internet resources for distance learning

According to the study 44.2% of teachers said that they conducted lessons in an online format. The most frequently used video and audio conference programs were Zoom (24.5%) and Skype (12.9%). 164 teachers or 55.8% admitted that they didn't conduct lessons online and used free online services to implement the educational process.

To control students' knowledge, teachers often used the following forms: photos with answers and solutions (92.5%), testing with automatic response processing (55.8%) and manual response processing (41.5%), the preparation of presentations or other electronic documents (41.5 %), oral surveys in an online lessons (5.2%), video recordings of completed homework (23.8%).

Among the forms of knowledge control used, teachers also noted: voice messages, Google testing forms. The study of the issue of working time costs Figure 3 during the distance learning showed that teachers spent more than 4-5 hours on preparing tasks and lessons – 40.8%, from 1 to 3 hours – 32% and more than 5 hours of working time were noted by 27.2% of the surveyed teachers.

To check and control students' knowledge Figure 3, teachers spent from 4 to 5 hours – 36.7%, from 1 to 3 hours – 34.7% , more than 5 hours of working time were noted by 28.6% of the surveyed teachers.
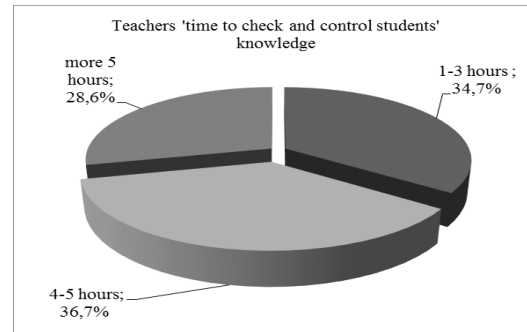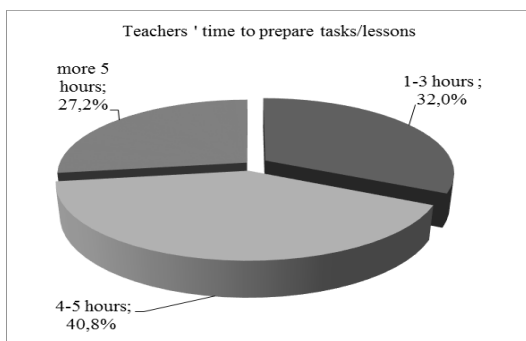

Figure 3 The diagram of teachers' working hours for preparing and checking lessons and tasks during distance learning

3.3 Characteristics of the effectiveness of distance learning organization for schoolchildren

The majority of teachers, who participated in the survey, rated the level of effectiveness and productivity of distance learning organized by them as "average" (46.9%), "good" (35.2%). Only 6.8% of teachers rated the level of effectiveness of their distance learning as "high".

Figure 4 shows 3.4% of teachers recognize the level of distance learning organized with their participation as "low", 7.5% rate it "unsatisfactory".
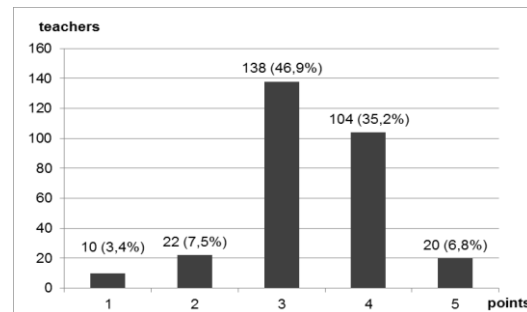

Figure 4 Distribution of teachers' assessment of the level of productivity of distance learning organized by them

In general, most teachers consider the experience of distance learning to be useful (85% out of 100% of the maximum possible). In the future, more than 80% of the survey participants are ready to use the skills acquired during distance learning. Teachers note as a result of working in new conditions, they were able to: gain experience in self-development and implementations of different forms of distance learning(74.8%), realize the value of individual distance learning technologies and readiness to master them in the future (35.4%), specifically take advanced training courses (25.2%), become authors of their own distance – learning resources (9.5%), become a

mentor for the development of distance learning in their educational organizations (3.4%)

Most of the teachers surveyed Figure 5 identified important competencies that they need to improve or acquire in order to organize distance learning successfully in the future.
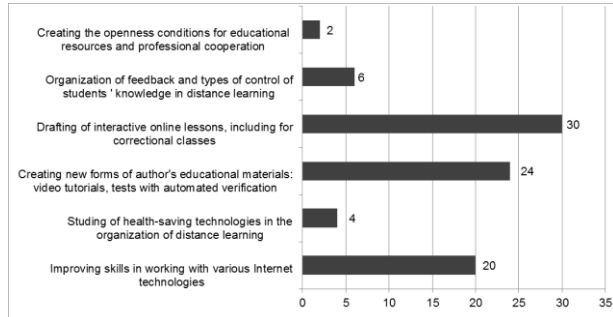

Figure 5 The list of competencies required for teachers to organize distance learning successfully

Among them it should be noted the needs of teachers in: (1) improving the skills of creating interactive forms of online lessons (10% out of 100 possible), (2) creating the author's educational materials – video tutorials and tests with automatic verification of answers – 8.1%, (3) improving the skills of working with various internet technologies and educational platforms, taking into account psychological, pedagogical and age characteristics of students – 6.8%.

4. DISCUSSION

Generalizing the results obtained in the course of the study, it can be summarized that this extraordinary universal transition to distance learning has both positive and negative consequences.

The first impressions of "shock situation" of helplessness among all participants of the educational process changed to the form of a constructive dialogue and exchange of relevant information, to showing mutual respect, mutual understanding and mutual tolerance. The skills of students' self-organization of their time, self-discipline and self-control in preparing for their lessons and completing tasks were very important. The inclusion to new formats of learning contributed to the creation of new author's educational resources. The universal transition to distance learning caused by the Covid-19 pandemic has created a number of difficulties in organizing and ensuring the availability of educational services in the new electronic format.

Teachers, students and parents felt that the school infrastructure was not ready to implement the digital educational process. Suddenly their own availability of digital world resources was insufficient: a low-signal level of the home Internet, the lack of a modern computer or laptop for each family member. The problems of children motivation and responsibility for online learning have become acute, which can affect a significant increase in differentiation in the level of knowledge and generally affect the quality of students' education.

A generalized list of positive and negative consequences is presented in the Table 1.

Table1 Positive and negative consequences of switching to a new format of distance learning

Positive: what the participants learned	Negative: what the participants were not ready for
Search and exchange of up-to date information via available means of communication	Share up-to date information via school websites
Joint action in the new situation	Support the learning process technically
Manifestation of mutual respect, mutual understanding and tolerance	Use interactive forms of learning in an online model
Self-organization, self-discipline and self-control	Implement the educational program in full
Use of new forms of training	Estimate the students' results objectively
Providing assistance and support to relatives and colleagues	Choose open educational resources consciously
Helpful use of open educational resources and creation of copyrights	Study distance technologies responsibly

5. CONCLUSION

The study of regional experience of switching to a distance learning format for schoolchildren in the spring of 2020 revealed features and problems in the field of information technologies and methods e-learning education. The result of feedback from teachers showed that in today's unpredictable world, it is extremely important for all participants in the educational process to learn how to overcome the digital divide and barriers associated with the lack of live communication.

An important result of the study is a positive assessment by teachers of the dynamics in the development of their professional competencies. One of the reasons for this assessment was personal motivation of teachers to improve

their skills in the field of information, communication and distance technologies.

It is obvious that distance learning become an integral part of modern school education and the subject of researchers and education managers' close attention. Future changes of educational system depend on how thoroughly successful solutions and the best regional practices will be studied and replicated at all stages of implementing distance learning for schoolchildren.

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