

Digital educational environment in Russian schools in the estimation of parents

Proshkova Z.V.

Sociological Institute of the Federal Center of Theoretical
and Applied Sociology of the Russian Academy of Sciences
Russia, Saint Petersburg
eder57@yandex.ru

Yashina M.N.

Saint Petersburg State University
Russia, Saint Petersburg
mnya@mail.ru

Abstract — This article presents the opinions of schoolchildren's parents about the digitalization of the school environment. The family assessments of digital educational technologies that are in demand at the school are analyzed in detail. In the sociological study, the focus group method was used, that is, a group interviewing of parents of 7th grade students from three public schools in St. Petersburg. The analysis has resulted in a list of popular digital teaching methods with a summary assessment of the advantages and disadvantages of each technology.

It was found that parents consider an electronic diary, multimedia class equipment and free educational sites for students to be the most effective digital practices at school. Online survey at a lesson, homework in the format of interactive tests, as well as joint editing of Google documents sparks the lowest interest. Probable reason for the low popularity of these technologies is their rare use in school.

The findings point at the need to develop digital educational technologies in the school and create a modern and comfortable educational environment. The digitization of school education is becoming an important factor in the educational way of a person, increasing the diversity of personal and family educational paths

Keywords — *sociology of education, digital sociology, focus group, educational way, family, digital educational technologies at school, digital educational environment at school*

I. INTRODUCTION DIGITALIZATION OF RUSSIAN SCHOOLS

Digital teaching technologies are being actively implemented in all educational fields, starting from preschool education [1]. Online courses for learning foreign languages, as well as distance learning schools [2] are especially popular. The national program "Digital Economy of the Russian Federation" (2019-2024) requires the creation of a developed infrastructure of the information society, in particular, the diversity of the components of the digital educational environment. We are talking about online schools, colleges and universities, as well as secondary schools. The task is to train 40% of the country in digital skills by 2021.

One of the best-known digital education tools in schools is an electronic diary. This is a virtual system "Diary.ru", with which students and their parents can learn about current and final marks, as well as homework. The diary has been introduced into schools since 2009 as part of the federal

project "Education" and is considered to be a successful service. The diary decreased the burden on teachers and made it easier for students' families to receive information in time. Along with the diary, teachers were provided with an electronic journal that allows them to monitor the implementation of the curriculum and the attendance of lessons. By now, 36% of schools have completely switched to online diaries and attendance records [3]. Other educational institutions have the lack of material and technical equipment.

Another innovation that students liked has become interactive whiteboards in classrooms. Learning material is now presented in the form of diagrams, graphs and brightly remembered three-dimensional models. If the student's desk is connected to the board, the tabletop turns into a monitor and keyboard. This approach to the organization of the schoolchildren workplace enhances the interaction of the teacher and student. Other popular digital tools in the school are electronic textbooks, copies of lessons, and didactic Internet content, for example, the project "Infourok" - an educational resource on the network with daily visits by more than a million people. Not only free video lessons are posted on the "Infocourse" platform, but also webinars and intellectual competitions for schoolchildren are held.

Teachers, students and their parents assess the developing digital educational environment differently [4]. Some innovations are supported, others cause irritation. We consider it necessary to find out the position of the parents, since they are the main subjects of interaction between family and school, especially in the elementary grades. Parents create an educational way for children. Parents and closest relatives of the child - grandparents, older brothers and sisters, aunts and uncles - realize the given educational scenario, invest their money, efforts, time into the child [5].

For the successful completion of the chosen educational way, a comfortable and effective educational environment is required. Digital teaching technologies are able to create a modern educational space aimed at the intensive development of the child's cognitive abilities. It is parents who are especially interested in positive changes in the educational environment in schools. Therefore, the goal of our empirical sociological research is to study the attitude of schoolchildren's parents to digital educational technologies in schools. Project issues: introducing parents to the new virtual tools of schooling, the most popular digital educational

methods among families, the pros and cons of digital learning at school from viewpoint of students' parents. And we also strive to replenish the bank of digital sociology developing in the last decade with new empirical research [6].

II. RESEARCH METHODOLOGY. FOCUS GROUPS OF PARENTS

In search of answers to the research questions posed, we conducted three focus groups. A focus group is an interviewing of a group of people. The moderator acts as an interviewer. The well-known Russian sociologist Sergey Belanovsky has been introducing the method into domestic sociological practice [7]. The methodologist considers the focus group as relevant empirical technology in sociological and marketing projects. The method is especially effective if you want to interview a homogeneous group of people on a topic that is familiar to informants.

Group interviewing is a successful alternative to representative survey. Holding a focus group is much cheaper and affordable for a small team of researchers, especially in the case of conducting a focus group online [8]. In addition, open-ended questions are rarely asked in a mass survey, and the respondent cannot fully express and justify his opinion. The respondent is forced to choose one or several answer options developed by the sociologist in advance. This is convenient for cases where you want to say "yes" or "no", give any factual information, answer questions that are understandable to informants and a sociologist.

The focus group is suitable in those studies where it is necessary to discuss in detail and in-depth any problem in which informants are better versed than the sociologist itself [9]. Parents of schoolchildren are a target group well acquainted with the digitalization of schools on a daily basis. They know the school life of the child, discuss with children and other parents innovations at school. Parents' opinions about digital educational technologies are easier and faster to learn not by questioning, but by conducting interviews with mothers and fathers of students.

We organized three focus groups with parents from three schools in St. Petersburg. The sample included two general education schools without advanced training of students and one specialized gymnasium. The parents of seventh grades were interviewed. In the first grade, 16 people participated in the focus group, in the second grade - 19, in the third - 17 parents. Among 52 informants there are 42 mothers and 10 fathers. Each focus group lasted from one and a half to two hours. Not all participants managed to speak out, 1-2 people in the class stayed silent. To record the interview, a video camera was used, about which informants were warned.

The moderator who conducted the focus group used two tricks: to discuss the digital technologies that the informants called, and to ask questions about unmentioned practices. For example, in only one of the focus groups, informants talked about editing documents online in Google. Participants in two other focus groups did not remember this approach, but after a special question from the moderator, it turned out that the technology was popular with schoolchildren and teachers.

The obtained empirical data were analyzed as texts using specialized computer programs for working with unstructured primary information [10]. The most discussed topics were highlighted, expected and unplanned plots were classified, assessments of various digital educational technologies were compared. The advantages and disadvantages of the virtual tools of modern school education, mentioned by the focus group participants, were studied.

Traditional methods of analyzing focus group records were also used. The repeated careful records review of the interview turned out to be the most effective one. The fact is that not all assessments - positive, negative, neutral - were verbally expressed and could be recorded in the transcript of the focus group in the form of text. In half of the cases, the focus group participants made emotional gestures and conveyed their opinions with facial expressions. This part of the communication subsequently required discussion by several researchers, as it was not always unambiguously interpreted.

III. RESULTS OF THE STUDY. SCHOOL DIGITAL EDUCATION TECHNOLOGIES RATING

The hypothesis about the dependence of parents views of digital educational technologies on the type and rating of the school, which informants' children study in, was not confirmed. The parents had approximately the same level of awareness of innovations, although the specialized gymnasium was better equipped with modern digital equipment. Children from non-specialized schools were as active as high school students using Internet resources to complete school lessons and prepare for tests and exams. In addition, in all three schools there were those components of the digital educational environment that were discussed at the focus group. The difference between the schools was the active use of learning digital methods.

The main results of the study were reflected in the table with a list of digital educational technologies that are well known to parents who participated in focus groups. The rating of methods was built up depending on the frequency of mentioning the technology and the time spent discussing it. The number of positive assessments of technology - verbal and non-verbal - decreased in accordance with the decline in popularity of the topic. The number of negative statements, on the contrary, was not related to the volume of attention to educational technology. For example, in 6th and 8th places there were technologies which did not receive negative judgments from informants.

All focus groups talked about the eight most common and familiar for parents online technologies. Methods received 898 assessments, 710 of which were positive opinions, 188 - negative.

themselves are highly rated. The number of positive opinions about digital innovation is almost four times more than critical comments.

TABLE I. DIGITAL TECHNOLOGIES AT SCHOOL IN THE ASSESSMENT OF PARENTS

# №	Named technology	Typical judgments	Number of assessments (+)	Number of assessments (-)
1	Electronic diary	child performance monitoring, homework information, keeps you on your toes and upset	260	21
2	Multimedia boards	excellent quality of presentations, lesson material is presented in the form of memorable schedules and models, helps to better remember lessons, helps to conduct open lessons, short-sighted children from back desks do not see presentations on boards, blackboards often break, older teachers prefer ordinary blackboards	128	45
3	Infourok.ru	convenient for skipping lessons due to illness or competition and other reasons, useful to prepare for control tests and exams, difficult material is simply explained, useful for in-depth study of subjects, help to prepare reports, superficial knowledge, incompetent teachers	125	19
4	Work on school netbooks and tablets	training in modern programs, cognitive computer science lessons, constant communication with the whole class and teacher, Internet access, the possibility to write off during test, distraction from the lesson, rarely available, children do with their smartphones	60	68
5	School online tests	interesting format, training before exams in an online format, frequent testing of knowledge, superficial knowledge, write off each other	50	11
6	Editing Google documents online	convenient for working on texts with the whole class, possibility to comment joint work, ideal for formatting texts, saves time on homework, provides communication in the classroom	49	0
7	Answers to online questions in the lesson	the volume of learned material in the lesson increases, expands and fastens communication with the teacher, changes thinking, children are distracted from the lesson by smartphones, there is no teacher's live speech in the lesson, rarely used in the lesson	24	24
8	Solving tests of Basic State Exam online	helps to prepare for the OGE (Basic State Exam after 9th grade) in advance, increases the amount of knowledge on the subject, practice in online exam formats, reduce fear before exams in 9th grade	14	0
TOTAL:			710 (+)	188 (-)

IV. DISCUSSING THE RESULTS. PARENTS OPINION ABOUT SCHOOL DIGITAL EDUCATIONAL TECHNOLOGIES

It turned out that the parents of seventh grade students had good knowledge of digital educational technologies at school. The degree of satisfaction with the implementation of the digital school concept is average, although the approaches

A. "Electronic diary".

In the first place by the frequency of mention is the Electronic Diary service. St. Petersburg was one of the first Russian cities to introduce a system that could replace paper diaries. Urban families have had computer access to monitoring children's performance for almost ten years. Parents are generally satisfied with the service, as it allows them to know children's success and see homework.

Claims to the electronic diary made by focus groups lie in the psychological field. Parents (mothers) complain that they have acquired an obsessive habit of viewing the diary several times a day, that is, super control has been developed. In addition, families, especially grandparents, are upset because of low marks of children. So, in some families, parents agreed with the children that the responsibility for the marks shifts on the students themselves. Some parents completely abstain from viewing the diary in order to maintain peace of mind and good relations with children.

However, focus group participants criticizing the electronic diary estimate the service positively, and consider the problems that have arisen in connection with the introduction of digital technology in the school environment subjective. None of the parents called to prohibit the diary, the service pick up the maximum number of positive opinions - 260. This is two times more than the second-place interactive whiteboards.

B. Multimedia boards have appeared in urban schools recently. Informants spoke approvingly of this digital tool, but with some caution. Parents said that holding a lesson using the touch board three times increases understanding and memorization of the material. This was reported by teachers at parent meetings, children confirm the effectiveness of the virtual supply of educational material. However, according to parents, multimedia boards are used in lessons too rarely, as teachers are afraid to break them and accustomed to classic boards too much. The interactive tool in all three schools is used predominantly in open classes, when it is necessary to demonstrate the technical equipment of the school. So, multimedia boards have 128 positive assessments, but also 45 negative ones.

C. "Infourok.ru".

In a group with this name, we combined parents' feedback on a variety of educational resources on the Internet that help students learn the curriculum. Infourok.ru platform is the most famous for focus group participants and, according to parents, is in demand among children. There are several other sites with useful educational information for students. Especially, there are a lot of resources where you can study English.

According to informants, accessible Internet portals are necessary if the student missed the teaching material due to illness or other reasons or did not understand the teacher's explanation in the lesson. Learning sites are useful in preparing for intellectual olympiads and for an in-depth understanding of the subject. Parents see the disadvantages of free Internet resources in superficial teaching and not always successful lessons. In general, informants approve Infourok.ru, there are few comments in comparison with other digital educational technologies.

D. 4-8 groups of judgments.

In this section of the article, we will discuss five digital technologies that are significantly inferior in popularity to the first three methods. In fourth place there is "Work on school netbooks and tablets." This practice is the only one of eight that received more negative ratings than positive ones. Parents said that school computers are available to schoolchildren only in computer science classes. At other times, children use their own smartphones or tablets. The informants consider teaching schoolchildren to useful computer programs, for example, Excel program, as an absolute advantage of class equipment with computers.

Fifth and sixth places were taken by digital technologies such as "School online tests" and "Editing Google documents online" that were poorly known by focus group participants. Parents thanked the teachers for the interactive tests, but complained about the rarity of such homework. Editing Google documents attracts by the possibility of joint work on texts, there are no criticisms. In the seventh place there is "Answers to online questions in the lesson." We are talking about teacher questions to which students answer from their smartphones. Parents consider this technology not too successful, negative and positive assessments were distributed equally. Informants say that children are distracted by smartphones during the lesson, the method is rarely used.

The last place in the list of technologies mentioned in focus groups is given to "Online results of Basic State Exam". This refers to the Basic State Exam for graduates of grade 9. It is convenient to prepare for the exam on Internet resources, for example, "Reshu OGE" (<https://oge.sdmgia.ru/>, translator's note). Several students of grade 7, children of focus group informants, began preparing for math and English in advance. Parents give such a digital educational technology only positive ratings.

V. CONCLUSIONS

This sociological study has revealed digital educational technologies at school, known to parents of 7th grade students. An electronic diary has become the most popular and regular element of an interactive educational environment. Other popular approaches include multimedia class equipment and free training sites. The practical recommendations of the project are the development of the most successful digital educational technologies and the search for new useful interactive teaching practices. The empirical prospect of the research is focus groups of online students in grades 9-11 and their parents, as well as teachers.

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