

Adolescents' and Secondary School Teachers' Perception of Online Learning Under COVID-19 Pandemic

Olga V. Rubtsova

Moscow State University of Psychology & Education, Moscow, Russia
ORCID: <https://orcid.org/0000-0002-3902-1234>, e-mail: ovrubsova@mail.ru

Tatiana A. Poskakalova

Moscow State University of Psychology & Education, Moscow, Russia
ORCID: <https://orcid.org/0000-0003-4932-0921>, e-mail: poskakalova@gmail.com

Sergei S. Andrianov

Moscow, Russia
ORCID: <https://orcid.org/0000-0003-4535-1712>, e-mail: ivolga727@mail.ru

Sergei L. Artemenkov

Moscow State University of Psychology & Education, Moscow, Russia
ORCID: <https://orcid.org/0000-0002-1619-2209>, e-mail: slart@inbox.ru

The article presents the results of the research project "Education under COVID-19", implemented by the Center for Interdisciplinary Research on Contemporary Childhood in Moscow State University of Psychology and Education. The research was conducted from October 2020 till January 2021. The main goal of the project was to identify the specific features of adolescents' and secondary school teachers' perception of online learning under the pandemic. 141 adolescents and 91 secondary school teachers from different regions of the Russian Federation participated in the research. According to the data, despite facing certain challenges, the majority of adolescents regard online learning either in neutral, or in positive light. Adolescents with high levels of metacognitive skills were the most efficient in adapting to online learning. In contrast with adolescents, most teachers assess online learning negatively. The authors of the paper consider opposing online and offline education as the least efficient strategy. They stress the need of overcoming the dichotomy and emphasize the role of child-adult interactions that can be organized in face-to-face, distant and hybrid learning formats.

Keywords: pandemic, COVID-19, online learning/teaching, adolescents, teachers, meta-subject competences, motivation, academic performance, child-adult interactions.

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Особенности восприятия онлайн-обучения в период пандемии COVID-19 подростками и учителями общеобразовательной школы

Рубцова О.В.

ФГБОУ ВО «Московский государственный психолого-педагогический университет»
(ФГБОУ ВО МГППУ), г. Москва, Российская Федерация
ORCID: <https://orcid.org/0000-0002-3902-1234>, e-mail: ovrubsova@mail.ru

Посакалова Т.А.

ФГБОУ ВО «Московский государственный психолого-педагогический университет»
(ФГБОУ ВО МГППУ), г. Москва, Российская Федерация
ORCID: <https://orcid.org/0000-0003-4932-0921>, e-mail: poskakalova@gmail.com

Андрианов С.С.

г. Москва, Российская Федерация
ORCID: <https://orcid.org/0000-0003-4535-1712>, e-mail: ivolga727@mail.ru

Артеменков С.Л.

ФГБОУ ВО «Московский государственный психолого-педагогический университет»
(ФГБОУ ВО МГППУ), г. Москва, Российская Федерация
ORCID: <https://orcid.org/0000-0002-1619-2209>, e-mail: slart@inbox.ru

В статье представлены результаты исследовательского проекта «Обучение в условиях COVID-19», реализованного на базе Центра междисциплинарных исследований современного детства МГППУ в октябре 2020 — январе 2021 гг. Основная цель проекта — выявление особенностей восприятия онлайн-обучения в период пандемии учащимися подросткового возраста и учителями основной школы. Выборку исследования составили 141 подросток и 91 учитель основной школы из разных регионов Российской Федерации. Согласно полученным данным, большинство подростков воспринимают дистанционный формат нейтрально или даже положительно. При этом наиболее успешно с онлайн-обучением справились подростки с высоким уровнем метапредметных компетенций. В отличие от подростков, у большинства учителей сложилось отрицательное отношение к онлайн-обучению. С точки зрения авторов, в условиях стремительно изменяющейся социальной реальности противопоставление онлайн- и офлайн-форматов обучения представляется неконструктивным. Авторы связывают перспективы повышения эффективности образовательного процесса с преодолением дихотомии очного и онлайн-форматов и смещением акцента на проектирование разных типов детско-взрослых взаимодействий, которые могут быть организованы в очном, дистанционном и смешанном форматах.

Ключевые слова: пандемия COVID-19, онлайн-обучение, дистанционный формат, подростки, учителя, метапредметные компетенции, мотивация, успеваемость, детско-взрослые взаимодействия.

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Introduction

The COVID-19 pandemic has unleashed the biggest crisis ever in the education system. According to the UN as of July 2020, the crisis affected 98.6% of students worldwide, including 1.725 billion children and young adults, from preschoolers to university students [21]. In record time, schools and other educational institutions in different countries were forced to look for new ways to continue the learning process, carrying out the so-called “education in emergency” — literally, “education in an emergency situation” [20].

E-learning tools and platforms (platforms with video conferencing function, including Google Hangouts Meet, Zoom, Slack, Cisco, WebEx, cloud resources Elias, Moodle, BigBlueButton, Skype, Microsoft Teams, Google Classroom, Canvas, Blackboard, While) played a key role in ensuring the continuity of the educational process during the pandemic [16]. At the same time, the choice of platforms by specific educational organizations turned out to be spontaneous, since, in fact, there was no time to analyze resources suitable for different subjects and categories of students [14].

Among the main problems that came to the fore in connection with the transition to online learning¹ were technical difficulties, including problems of access to the Internet, technical imperfection of available resources, lack of skills of both teachers and students in using various platforms, as well as lack of places where this could be learned. In addition, the lack of experience of teachers and students, teachers’ ignorance of possible strategies for working with different categories of students in the virtual space affected the learning process [17; 22]. Subsequently,

among the problems associated with online learning, such difficulties took shape as a drop in learning motivation, a decrease in academic performance, forced or unauthorized “exclusion” from the educational process, lack of system of acquired knowledge, the problem of adequate assessment of acquired knowledge and competences, loss of contact between students and teachers [24].

It is obvious that the organization of educational activities, implemented mainly in a virtual environment, is a serious challenge for psychological and pedagogical science. This circumstance is due to the fact that technologies act as a new means of mediating activity [8; 9], which qualitatively changes the nature of interactions, including those between all the participants of the educational process (students and the teacher, students themselves). At the same time, following a number of authors [7; 12], we would like to emphasize the need to overcome the dichotomy of “traditional full-time” and online education, since the effectiveness of the educational process is determined not so much by the learning format itself, but by the nature of the organized child-adult interactions [4].

During the pandemic, a lot of research appeared focusing on various aspects of online learning. Among the key topics highlighted both by foreign and domestic authors are:

- psychological well-being of students, negative emotional states (stress, boredom, apathy) under the pandemic [3; 6; 13; 15; 27];
- the level of cognitive load and the phenomenon of the so-called “ZOOM-fatigue” of students in conditions of long-term online interaction [8; 27];

¹ With the onset of the pandemic and the transfer of the educational process to the online space, three main terms were used in the English-language scientific discourse: “online learning”, “distant learning” and “hybrid learning”. In the Russian-language literature, the concepts of “online learning” and “distant learning” were predominantly used, and many authors operated with them as interchangeable. This article mainly uses the term “online learning”.

- academic and digital risks, risks of differentiation (unequal access to information) under the pandemic [1; 9];
- training in practice-oriented specialties (agricultural, medical, etc.) in the absence of practical training and field research [25; 26].

A separate area of research is related to the study of the effectiveness of online learning among various categories of students (depending on age, presence or absence of disabilities, personal characteristics, etc.) [2; 23].

In September 2020, the research project “Learning under COVID-19” was launched in Moscow State University of Psychology and Education. The project was implemented on the basis of the Center for Interdisciplinary Research on Contemporary Childhood. The main goal of the project was to identify the peculiarities of the perception of online learning during the pandemic by teenage students and secondary school teachers. The results of the project are briefly presented in this article.

Research Design

The first stage of the project “Learning under COVID-19” was held from September to November 2020. The study was conducted in the form of a survey on the Google Forms platform. The questionnaire was posted on the social network “VKontakte” and another social network². The survey involved 141 adolescents aged 13—18 from various regions of Russia, as well as Russian-speaking countries of the Near Abroad.

The following research methods were used:

- Questionnaire “Learning under COVID-19 pandemic” for teenagers (O.V. Rubtsova, T.A. Poskagalova, 2020).
- Inventory “Assessing Metacognitive Awareness” (G. Schraw and R. Dennison,

adaptation of A.V. Karpov and I.M. Skityaeva, 2005) [5].

The “Learning under COVID-19 pandemic” questionnaire was developed specifically for this project. The methodology included 25 questions aimed at diagnosing adolescents' emotional state in the context of the transition to online learning, their perception of educational material, as well as the difficulties that they faced in the learning process.

The “Assessing Metacognitive Awareness” inventory was developed by G. Schraw and R. Dennison and adapted by A.V. Karpov and I.M. Skityaeva. The technique assessed the level of development of metacognitive functions, as well as indicators of activity regulation (declared, procedural and conditional knowledge) and indicators in the field of cognition regulation (planning, information management strategies, control of components, self-correction strategies, analysis of one's own effectiveness) [5].

The second stage of the study took place from October 2020 to January 2021 among secondary school teachers. The study was conducted in the format of a survey on the Google Forms platform. Participants were recruited in the social network “VKontakte”, as well as by the “snowball” method among teachers. In total, 91 teachers from different regions of the Russian Federation took part in the survey. The age of survey participants ranged from 21 to 66 years (average age — 43.6 years), work experience — from six months to 46 years (average — 17 years). Subject areas covered such subjects as Mathematics, Foreign languages, Biology, Chemistry, Technology, Physical culture.

The questionnaire “Teaching under COVID-19 pandemic” (developed by O.V. Rubtsova, T.A. Poskagalova, 2020) was used as a research methodology at

² On March 21, 2022, it was recognized as banned on the territory of the Russian Federation.

the second stage of the project. The questionnaire for teachers included 17 questions aimed at diagnosing the difficulties of teaching online, the perception of students' academic success and their emotional state under the pandemic.

Empirical data were processed using descriptive statistics methods.

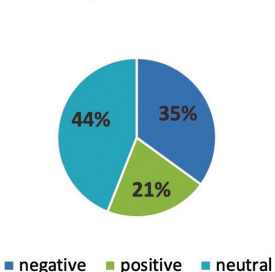
Perceptions of Online Learning by Adolescent Students

According to the empirical data obtained, in the context of the COVID-19 pandemic, the majority of adolescents developed neutral (44%) or positive (21%)

attitude towards online learning. A stable negative attitude was formed in 35% of adolescents. At the same time, the vast majority of respondents noted that the quality of the educational process has deteriorated during the pandemic (Fig. 1).

According to the data received, 77% of teenagers found it difficult to switch to online learning. Thus, more than half of the respondents experienced difficulties in adapting to the new requirements of teachers (54%). Among other problems, adolescents indicated closed space (26%), new requirements of relatives (24%), and the need to master new technologies (Fig. 2).

What attitude to online learning have you formed during the pandemic?



How has the pandemic affected the quality of the learning process?

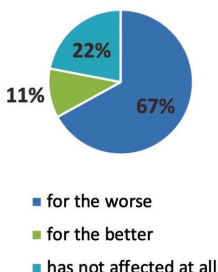


Fig. 1. Adolescents' perception of online learning and the quality of the learning process during the pandemic

The most difficult thing to adapt to during self-isolation was (multiple choice question):

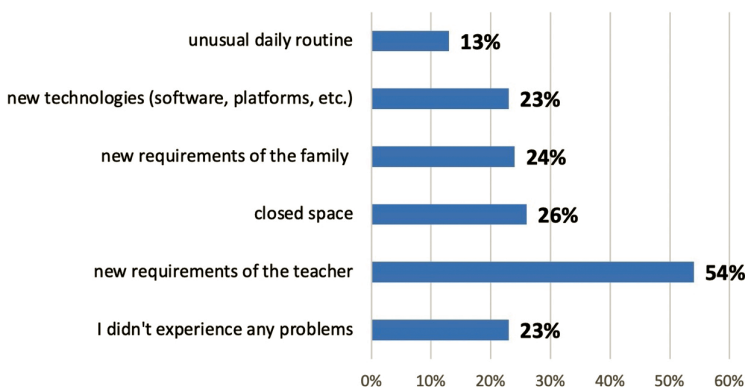


Fig. 2. Difficulties that adolescents faced during self-isolation

At the same time, according to adolescents' self-report, the greatest difficulties for them were caused by a large amount of homework and self-discipline (Fig. 3).

Among the main fears that teenagers experienced in the online format were the fear of not coping with online learning and worsen-

ing the grades (46%), as well as the fear of not understanding what teachers are talking about (46%). Adolescents also noted technical concerns, including fear that the Internet connection will be cut off (44%), or that the necessary materials (homework, test) will fail to upload into the system, etc. (Fig. 4).

**What was the hardest thing to get used to while learning online?
 (multiple choice question)**

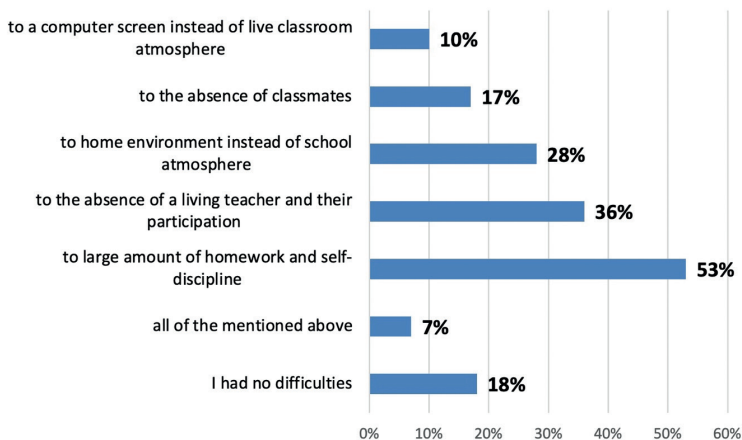


Fig. 3. Difficulties that adolescents faced during self-isolation

What were the most common fears that you experienced while learning online? (multiple choice question)

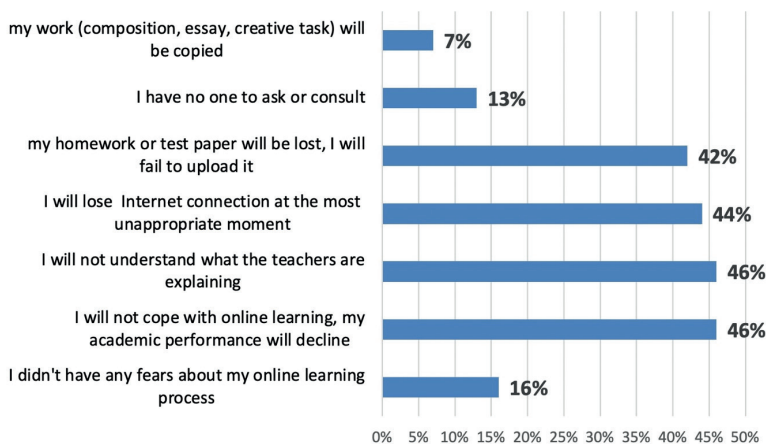


Fig. 4. The most common fears that adolescents experienced while learning online

Answering questions about studying various subjects online, 40% of adolescents noted that the most difficult thing for them was to study mathematical disciplines (Fig. 5). At the same time, 22% indicated that it was easier for them to study the subjects of the humanitarian cycle.

Thus, the obtained data indicate that, despite the prevailing neutral attitude towards the online format, most adolescents experienced various difficulties associated with the organization of the educational process and the need to adapt to new requirements. We could assume that it was in this context that adolescents characterized the online format as less effective than ofline education.

Features of the Perception of Online Learning by Adolescents with Different Levels of Meta-subject Competencies

To analyze the characteristics of the perception of online learning by adolescents with different levels of meta-subject competences, the survey data using the “Learning under COVID-19 pandemic” questionnaire were compared with the results using the “Assessing Metacognitive Awareness” method.

According to the results of the “Assessing Metacognitive Awareness” test, adolescents (N=141) were divided into three subgroups:

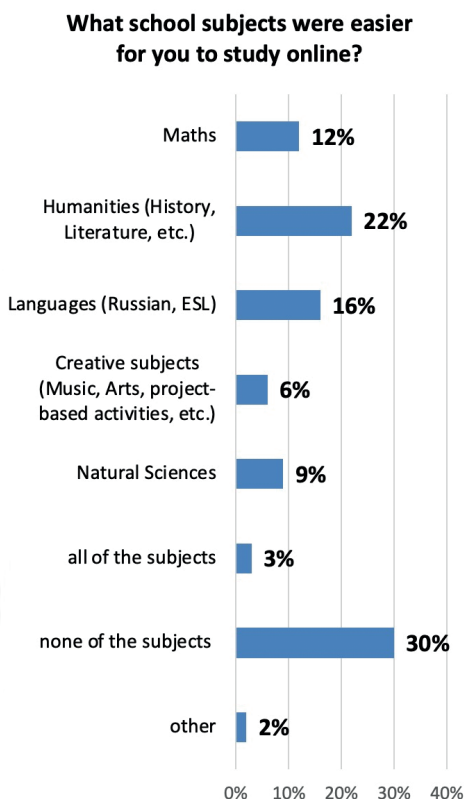
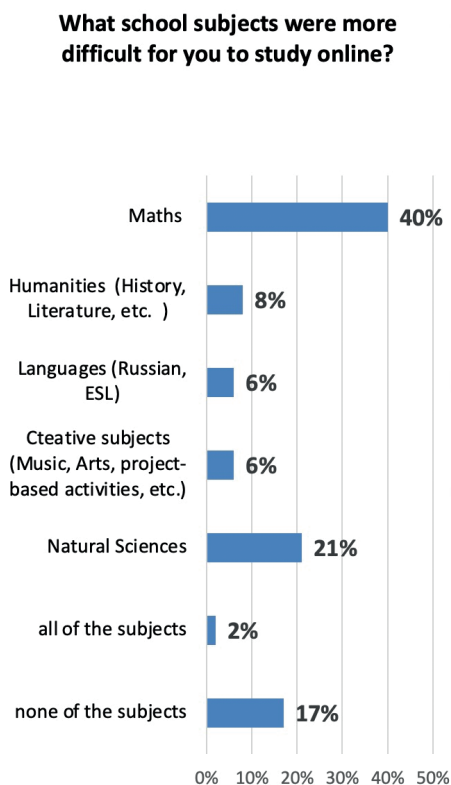


Fig. 5. Adolescents' perception of how different subjects were studied online

- adolescents with a conditionally low level of development of meta-subject competences — 27 points or less (N=41);
- adolescents with a conditionally average level of development of meta-subject competences — 28—35 points inclusive (N=71);
- adolescents with a conditionally high level of development of meta-subject competences — 36 points or more (N=29).

The selection of three sub-samples made it possible to identify some trends in the perception of online learning experience by adolescents, depending on the

level of their meta-subject competences (MC).

According to the data obtained, adolescents with low levels of MC in general had a harder time adjusting to the online format compared to adolescents with higher levels of MC. Adolescents from the subgroup with low levels of MC more often experienced difficulties in mastering new software products, it was more difficult for them to understand the explanations of teachers. In addition, it was much more difficult for such adolescents to organize their own learning process, to force themselves to study without adult control (see Table 1).

Table 1
Difficulties encountered by teenagers in the transition to the online format

Answer options	Adolescents with conditionally low levels of MC (N=41)		Adolescents with a conditionally average levels of MC (N=71)		Adolescents with a conditionally high levels of MC (N=29)		General sample (N=141)	
	Number of people	% of subsample	Number of people	% of subsample	Number of people	% of subsample	Number of people	% of sample
What learning difficulties have you had to face during the period of self-isolation?								
It was difficult for me to master new platforms and software products for education.	9	22%	9	13%	3	10%	21	15%
My relatives interfered with me, the home environment distracted me.	23	56%	21	30%	11	38%	55	39%
I did not understand the explanations of teachers in an online format.	23	56%	30	42%	11	38%	64	45%
It was difficult for me to force myself to study, because the teachers did not control me, I had to force myself to study.	30	73%	25	35%	11	38%	66	47%
I was bored with studying online, I was distracted by parallel activities in the Internet (social networks, entertainment resources, games, etc.).	28	68%	45	63%	21	72%	94	67%
It was hard for me to sit at the computer for a long time.	9	22%	22	31%	10	35%	41	29%
While online during self-isolation, you consumed more:								
Entertainment content	29	71%	53	75%	17	59%	99	70%
Game content	21	51%	31	44%	10	35%	62	43%

Answer options	Adolescents with conditionally low levels of MC (N=41)		Adolescents with a conditionally average levels of MC (N=71)		Adolescents with a conditionally high levels of MC (N=29)		General sample (N=141)	
	Number of people	% of subsample	Number of people	% of subsample	Number of people	% of subsample	Number of people	% of sample
Content related to communication and transmission of information	23	56%	36	51%	18	62%	77	55%
Education related content	12	29%	36	51%	20	69%	68	48%
During the period of online learning, did you feel:								
More anxious	23	56%	33	47%	14	48%	70	50%
More nervous	21	51%	34	48%	11	38%	66	47%
More free	15	36%	27	38%	13	45%	55	39%
More independent	7	17%	14	20%	9	31%	30	21%
More rested	12	29%	34	48%	12	41%	58	41%
My feelings haven't changed	2	5%	1	1%	2	7%	5	4%

Interestingly, in a self-reported study, teens with low MC levels were less tired from spending too much time in front of the computer. Perhaps this is due to the fact that adolescents in this subsample consumed significantly less content related to learning (29%) compared to adolescents from the group with average and high levels of MC (51% and 69%, respectively).

It should also be noted that in the conditions of self-isolation, adolescents with high levels of MC generally felt less nervous and anxious, as well as more free, independent and rested, which allowed them to better cope with the educational process (Table 1). These data correlate with the results of foreign studies confirming the relationship between the level of metacognitive awareness and emotional regulation, including the ability to control negative emotions, “brighten” them [18; 19].

The data on the dynamics of motivation of adolescents with different levels of MC during the period of self-isolation are also of interest. Most of the respondents from the general sample noted that their

performance did not change when they switched to online learning (Fig. 6). At the same time, 35% of adolescents with high and 40% of adolescents with average levels of MC expressed the opinion that their academic performance has improved under the lockdown.

When asked about the preferred format of education in the future, the majority of adolescents (47% of the entire sample) indicated the offline format (Fig. 7). At the same time, 53% of teenagers supported the idea of blended or online learning (32% and 21%, respectively). Interestingly, the mixed format was the most popular in the subsample of adolescents with high levels of MC (38%), while the remote format was preferable in the subsample of adolescents with average levels of MC (24%). The least popular mixed and online formats were in the subgroup of teenagers with low levels of MC (34% and 17%, respectively).

In general, the obtained data indicate that adolescents with high levels of meta-subject competences coped better with the transition to online learning compared to

During the pandemic, your academic performance:

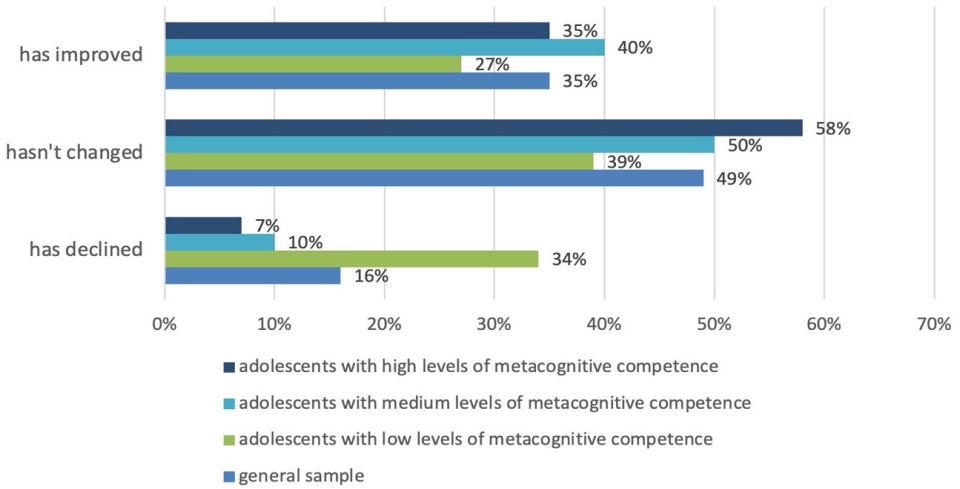


Fig. 6. Academic performance of adolescents with different levels of metacognitive competence

Learning format preferences among adolescents:

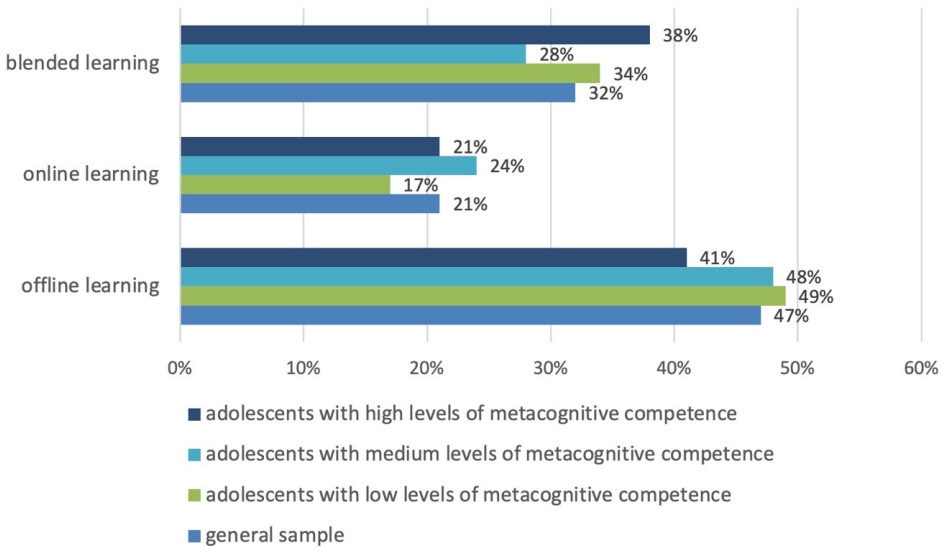


Fig. 7. Learning format preferences of adolescents with different levels of metacognitive competences

adolescents with low levels of these competences.

In the final part of the survey, teenagers were asked to think about possible ways to

improve learning in online format. Among the main wishes of teenagers are the following:

- improvement of educational platforms and software, making them easy to use and uniform;
- streamlining the presentation of information — reducing the volume of material for self-study, balance between theoretical and practical tasks, timely distribution of tasks, taking into account the time for their implementation;
- providing communication with the teacher, opportunities for counseling on assignments, as well as obtaining additional feedback and clarifications;
- more active involvement of students in dialogue, rejection of exclusively lecture formats;
- reduction of technical failures, Internet outages.

Perceptions of Online Learning by Secondary School Teachers

According to the data obtained, the vast majority of teachers perceive the pandemic and the transition to online learning as a stressful situation (85%). At the same time, 52% noted that the transition to online learning had a negative impact on their professional motivation, while 48% did not see such a connection. More than 69% of

teachers expressed concern that in the next academic year, education could completely or partially switch to distance learning, noting that they would prefer to avoid such a scenario.

Interestingly, according to the survey, adolescent students and teachers perceive the impact of the online format on the learning motivation of adolescents differently. Thus, among teachers, 89% are convinced that the new format contributed to a sharp decrease in the educational motivation of adolescents, but among the students themselves, only 45% of the respondents reported such an effect (Fig. 8).

Thus, the vast majority of teachers have a negative attitude towards online learning and are afraid of the possibility of switching to a distance format. At the same time, teachers tend to exaggerate the difficulties and problems that adolescents face in online learning.

Among the wishes for the online learning format, teachers noted the following:

- improvement of technical equipment (availability of computers for all students, refusal to study on smartphones, etc.);
- finalization of online learning platforms in order to bring them as close as possible to the format of face-to-face classes;
- consistency in the application of selected programs;

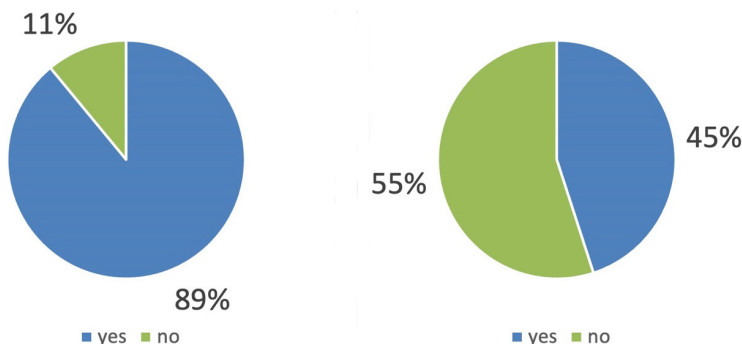


Fig. 8. The number of teachers (on the left) and the number of students (on the right), considering that online learning has negatively affected students' learning motivation

- organization of online courses, seminars, workshops for teachers on mastering various forms of remote work;
- adapting an individual approach to children with disabilities;
- reduction of bureaucratic reporting associated with the new format;
- automatization of the process of checking works and intermediate certification;
- compliance with digital etiquette (for example, no calls and messages 24/7 from students, parents and administration).

Discussion and Conclusions

The conducted research shows that, despite the various difficulties that adolescents faced when switching to online learning, most of them perceive the distance format neutrally or even positively. Unlike teenagers, most teachers have developed a negative attitude towards online learning. Moreover, according to the data obtained, teachers tend to exaggerate the negative effects of the distance format, including its negative impact on the level of adolescents' learning motivation.

An important result of the study was the identification of the relationship between the level of development of adolescents' meta-subject competences and the effectiveness of their learning in an online format. According to the data obtained, adolescents with high levels of meta-subject competences generally coped better with online learning: they experienced less difficulties associated with adapting to a new format, and, surprisingly, many of them noted an improvement in academic performance under the pandemic. In addition, adolescents with high levels of meta-subject competences have developed a positive attitude towards online learning, and many of them support the idea of learning in blended or distance format in the future.

In general, both among teachers and teenagers, the prevailing opinion is that the

online format is less effective than face-to-face education. The analysis of the empirical data suggests that the low effectiveness of the online format during the pandemic was due to several factors — primarily, the spontaneous nature of the transition to online learning and the unpreparedness of both adolescents and teachers to work in new conditions. The need to master new technologies in an extremely short time and the lack of opportunities to acquire the necessary skills did not always allow teachers to effectively organize the educational process. This was manifested primarily in an increase in the volume of independent work of students. According to the teenagers themselves, it was a large amount of independent work, as well as the new requirements of teachers, that were the most difficult for them to adapt to during self-isolation.

It is necessary to emphasize the differences in the wishes of adolescents and teachers regarding learning in an online format. The wishes of teachers relate, first of all, to the improvement of the technical component (finalization of educational platforms, improvement of technical equipment, etc.). Adolescents also note the need for technical improvement of the educational process in an online format, however, in addition, they pay attention to the importance of proper organization of interaction between students and teachers, including the need to maintain a dialogue and ensure interactive cooperation in online learning.

From our point of view, in the context of a rapidly changing social reality, the opposition of online and offline learning formats seems to be the least constructive. The authors associate the prospects for improving the efficiency of the educational process with the design of various types of child-adult interactions, which can be organized not only in person, but also in remote and mixed format.

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Information about the authors

Olga V. Rubtsova, PhD in Psychology, Associate Professor, Head of the Center for Interdisciplinary Research on Contemporary Childhood, Moscow State University of Psychology & Education, Moscow, Russia, ORCID: <https://orcid.org/0000-0002-3902-1234>, e-mail: ovrubsova@mail.ru

Tatiana A. Poskakalova, Research Associate, Center for Interdisciplinary Research on Contemporary Childhood, Moscow State University of Psychology & Education, Moscow, Russia, ORCID: <https://orcid.org/0000-0003-4932-0921>, e-mail: poskakalova@gmail.com

Sergei S. Andrianov, PhD in Engineering, Moscow, Russia, ORCID: <https://orcid.org/0000-0003-4535-1712>, e-mail: ivolga727@mail.ru

Sergei L. Artemenkov, PhD in Engineering, Professor, Head of the Center for Information Technology for Psychological Research, Moscow State University of Psychology & Education, Moscow, Russia, ORCID: <https://orcid.org/0000-0002-1619-2209>, e-mail: slart@inbox.ru

Информация об авторах

Рубцова Ольга Витальевна, кандидат психологических наук, руководитель Центра междисциплинарных исследований современного детства, доцент кафедры «Возрастная психология имени профессора Л.Ф. Обухой» факультета «Психология образования», ФГБОУ ВО «Московский государственный психолого-педагогический университет» (ФГБОУ ВО МГППУ), г. Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0002-3902-1234>, e-mail: ovrubsova@mail.ru

Посакалова Татьяна Анатольевна, научный сотрудник Центра междисциплинарных исследований современного детства, ФГБОУ ВО «Московский государственный психолого-педагогический университет» (ФГБОУ ВО МГППУ), г. Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0003-4932-0921>, e-mail: poskakalova@gmail.com

Андрианов Сергей Сергеевич, кандидат технических наук, г. Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0003-4535-1712>, e-mail: ivolga727@mail.ru

Артеменков Сергей Львович, кандидат технических наук, профессор кафедры прикладной информатики и мультимедийных технологий, руководитель Центра информационных технологий для психологических исследований, ФГБОУ ВО «Московский государственный психолого-педагогический университет» (ФГБОУ ВО МГППУ), г. Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0002-1619-2209>, e-mail: slart@inbox.ru

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