




# PRACTICAL EXPERIENCE IN ORGANIZING DISTANCE LEARNING IN SECONDARY SCHOOLS

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## ABSTRACT

The COVID-19 pandemic has re-emphasized distance learning. It became a powerful impetus for the transition from theoretical considerations to the practical implementation of such training in the school system (Strategy New Growth Model - New Social Policy, 2020). This article describes the experience of organizing such training for children in the 4th quarter of the 2019/2020 academic year. It considers all stages of implementation of distance learning, such as solution of legal issues regulating the activities of an educational institution; effective construction of the educational process, considering the important relationship "student-teacher"; the right choice of information technology that meets the capabilities and limited skills of students, and has a user-friendly interface. The experience of distance collaboration between a teacher, a student and his parents is also presented, which made it possible to build effective teaching and achieve a high-quality education.

**Keywords:** Organization of distance learning. Information technology. Network technologies. Online learning. Online course development.

## EXPERIÊNCIA PRÁTICA NA ORGANIZAÇÃO DE ENSINO À DISTÂNCIA EM ESCOLAS SECUNDÁRIAS

EXPERIENCIA PRÁCTICA EN LA ORGANIZACIÓN DE LA EDUCACIÓN A DISTANCIA EN ESCUELAS SECUNDARIAS

## RESUMO

A pandemia COVID-19 voltou a enfatizar o ensino à distância. Tornou-se um poderoso ímpeto para a transição de considerações teóricas para a implementação prática de tal treinamento no sistema escolar (Strategy New Growth Model - New Social Policy, 2020). Este artigo descreve a experiência de organização dessa formação para crianças no 4º trimestre do ano letivo 2019/2020. Considera todas as etapas de implantação do ensino a distância, como solução de questões legais que regulam as atividades de uma instituição de ensino; construção efetiva do processo educativo, considerando a importante relação "aluno-professor"; a escolha certa de tecnologia da informação que atenda às capacidades e habilidades limitadas dos alunos e tenha uma interface amigável. Também é apresentada a experiência de colaboração a distância entre professor, aluno e seus pais, que possibilitou a construção de um ensino efetivo e o alcance de uma educação de qualidade.

**Palavras-chave:** Organização de ensino à distância. Tecnologia da informação. Tecnologias de rede. Aprendizagem online. Desenvolvimento de cursos online.

## RESUMEN

La pandemia de COVID-19 ha vuelto a enfatizar el aprendizaje a distancia. Se convirtió en un poderoso impulso para la transición de consideraciones teóricas a la implementación práctica de dicha formación en el sistema escolar (Strategy New Growth Model - New Social Policy, 2020). Este artículo describe la experiencia de organizar dicha formación para niños en el 4º trimestre del curso académico 2019/2020. Considera todas las etapas de implementación del aprendizaje a distancia, como la solución de los problemas legales que regulan las actividades de una institución educativa; construcción efectiva del proceso educativo, considerando la importante relación "alumno-maestro"; la elección correcta de tecnología de la información que cumpla con las capacidades y habilidades limitadas de los estudiantes, y tenga una interfaz fácil de usar. También se presenta la experiencia de colaboración a distancia entre un docente, un alumno y sus padres, que permitió construir una enseñanza eficaz y lograr una educación de alta calidad.

**Palabras-clave:** Organización de educación a distancia. Tecnología de la información. Tecnologías de red. Aprendizaje en línea. Desarrollo de cursos en línea.

## INTRODUCTION

Recently, the issue of informatization of school education has received much attention. This is expressed in the introduction of various means of information and communication technologies (ICT) into the process of teaching children, the development of new e-learning methods.

The COVID-19 pandemic has changed a lot, again focusing on distance learning. It became a good reason to test in practice how the school education system is ready for mass distance learning of children.

This article presents the experience of organizing distance learning for students of primary and secondary schools in the 4th quarter of the 2019/2020 academic year. Thus, the school administration and the teaching staff needed to solve several issues, namely:

- update and finalize local regulations of the school;
- determine the ways of interacting with the student, considering his capabilities and needs;
- select sources of educational content.

## METHODS

Distance learning is regulated by Federal Law No. 273-FZ "On Education in the Russian Federation" dated December 29, 2012. For the organization of distance learning, a general educational institution develops and adopts the following regulatory documents: regulations on the organization of distance learning; order on the organization of distance learning; timetable of classes; instructions for all participants in educational relations; guidelines and other documents.

Distance learning is organized only with the consent of the legal representatives (parents) of students, confirmed by an application.

As practice has shown, timetabling should consider the capabilities of children. For example, primary school classes are best done while the parents are at home and can help the child with technical issues. For high school students, any time of classes can be chosen. But in all cases, one should be guided by SanPiN standards.

Let's consider ways of organizing interaction between a student and a teacher. The following options can be distinguished: media and TV technologies, case technologies, network technologies.

In case technology, educational materials are assembled into a specific set - a case. Cases are sent or given out to the student for independent study. Communication with the teacher is kept to a minimum. With sufficient motivation, the student can independently study and master a significant amount of material in a wide range of subjects, if such training is supported by the content of the case. Practice has shown insufficiently high efficiency of this method of interaction. Many students faced difficulties in mastering the material on their own. While in elementary school parents could still help children, in elementary school there are already consultations of teachers to clarify the material. Case technologies should be used only in cases where there is no other technical possibility to organize the interaction of the teacher with the student.

Online communication has become a key point in organizing distance interaction between schoolchildren and teachers. Without "live" online communication, achieving the desired results from students and controlling their activities becomes difficult.

The 7 best services for organizing distance learning at school according to the Telecomdom website (the ranking order is given according to a survey of teachers on this website) (12):

- Russian e-school is a large domestic service created as part of the "Education" national project. Both students and teachers can use it for free. The best teachers in the country have prepared more than 120 thousand interactive video lessons and assignments. Students can take a full course in every school subject. Kids will love taking tests, working with virtual labs, visiting museums and reading books in the library.

- Uchi.ru is one of the most popular educational platforms widely used in our country. Students can study all school subjects from grades 1 to 4. The website provides other functions, such as teaching programming; preparation for the graduate test; preparation for the basic state examination; organization of Olympiads. During classes with a teacher, students can study for free. In connection with the quarantine, new services are being introduced to organize distance learning. Online lessons will be held live in English, mathematics, Russian and the world around them for primary grades.
- Yandex.Textbook is another innovative online education service that will especially appeal to teachers and students. To date, 45 thousand exciting tasks in the Russian language and mathematics are available here for elementary school and fifth grade students. The teacher will be able to save his time. A convenient system for selecting and checking assignments has been developed for teachers. It allows analyzing the progress of each student and determining which topics he needs to work better on. The main advantage of the service is the ability to find an individual approach for each student.
- Foxford is a professional online school that contains teaching materials for all school subjects. There are different forms of distance learning, such as online courses; lessons with a tutor; external studies. In connection with the quarantine, the service provides free access to all basic training courses from grades 3 to 11. To do this, the teacher must log in and add accounts there for each of his students. Students can also log in and study for free.
- GeekBrains is a charity campaign was launched by the educational service GeekBrains, a large project from the Mail.ru Group company. It cannot be used to organize distance learning in schools, but it will help to get a profession in one of four directions: programming; marketing; design; control.
- Coursera is the world's largest educational service. Leading universities in the world publish their courses here. During the quarantine, students had a unique opportunity to get free access to training through the Coursera for Campus platform. Students can study remotely 3,800 subjects.
- Open education is a service more suitable for students and applicants who would like to understand what they want to study. Here you can get access to basic disciplines that are mastered at leading Russian universities, such as Moscow State University, StPPU, HSE, etc. Any course is free of charge and provides a certificate upon completion.

In our conditions, ZOOM has operated most steadily, and therefore became the main platform for conducting online lessons. Many platforms failed to withstand peak loads and crashed. None of the platforms are currently ready to offer a complete set of development lessons. These sites provide a lot of interesting material, but the role of the teacher in the selection of resources and the methodological approach is extremely important.

## RESULTS AND DISCUSSION

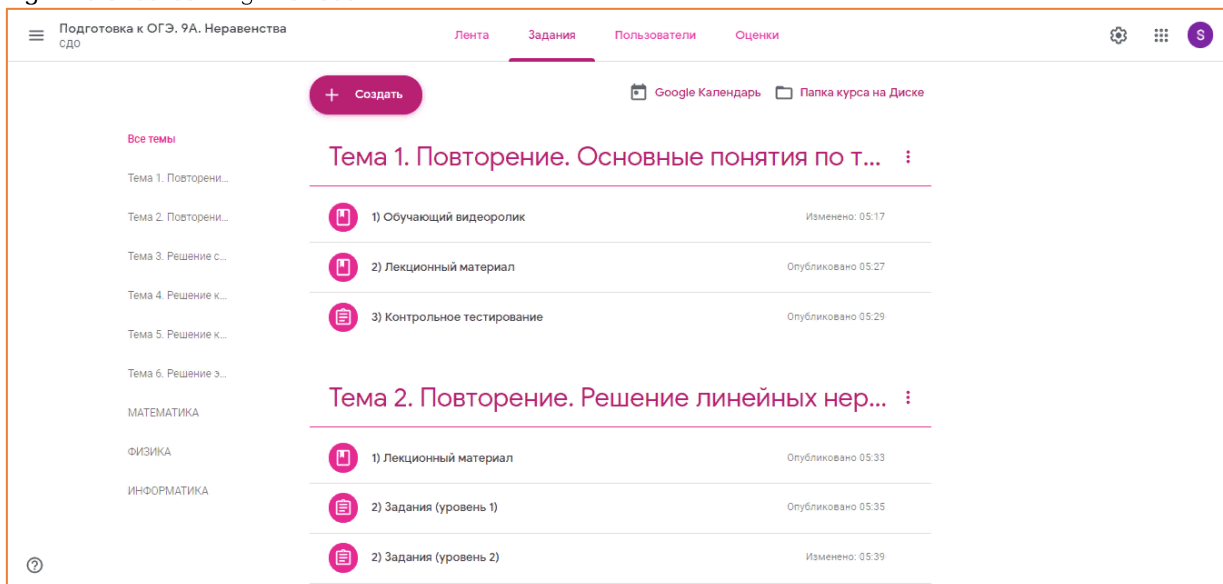
We shall consider an example of organizing distance learning on the topic "Inequalities" to prepare for the basic state examination in mathematics for grade 9A of "Omet" Naberezhnye Chelny boarding school No. 86 for children with disabilities".

At the beginning of each lesson, online communication with students proceeded in ZOOM. The teacher answered the students' questions, checked their homework, explained the material. Then the students worked independently in the Google Classroom system.

The course includes a set of topics. Each topic is a separate lesson. The topic includes materials of different types. This can be a lecture material, a training video, written tasks (by level), reports, testing.

Figure 1 shows the interface of the distance learning system with the created course.

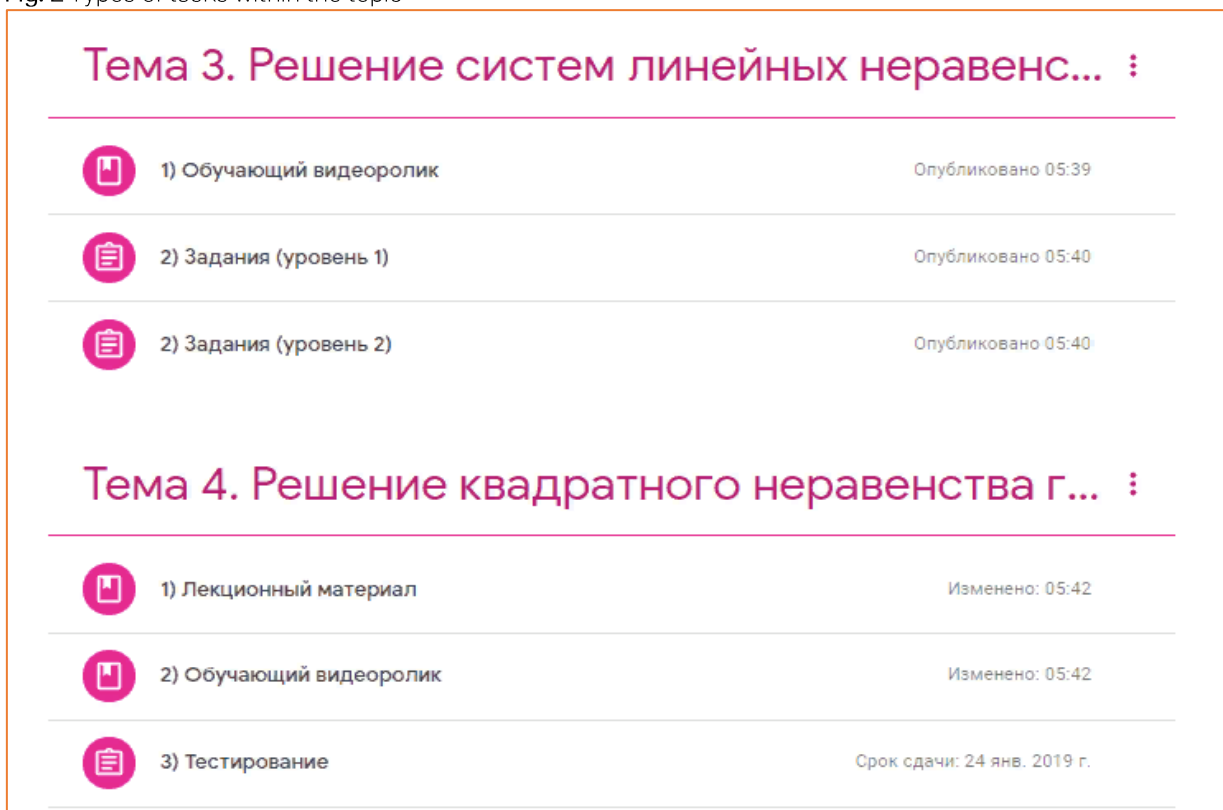
Fig. 1 Distance learning interface



Source: "Omet" Naberezhnye Chelny boarding school No. 86 for children with disabilities" (2020)

Figure 2 shows the different types of materials within topics.

Fig. 2 Types of tasks within the topic



Source: "Omet" Naberezhnye Chelny boarding school No. 86 for children with disabilities" (2020)

We shall consider in more detail the organization of the material within the topic.

Fig. 3 shows the lecture material. The student's actions are detailed.

Fig. 3 Lecture material

Тема 4. Решение квадратного неравенства г... ⋮

1) Лекционный материал Изменено: 06:03 ⋮

▶ 1 учащийся

- 1) Прочитай цель, план занятия, раздел "Актуализация знаний" материала урока
- 2) Ознакомься с обучающим видеороликом (в СДО)
- 3) Изучи алгоритм решения квадратного неравенства графическим способом.
- 4) Пройди тестирование (в СДО до 24.12.2019)
- 5) Выполни домашнее задания (отправить решение по СДО до 25.12.2019)

2. Материал урока.docx  
Word

Source: "Omet" Naberezhnye Chelny boarding school No. 86 for children with disabilities" (2020)

The material is opened using the built-in text editor, avoiding the need to install additional programs.

Figure 4 shows an example of the test created. Tests are generated by the built-in Google Forms editor and graded automatically.

Fig. 4 Test example

Вверх

Вниз

Вправо

Влево

Если неравенство строгое, то точки 1 балл

Закрашены

Выколоты

Если неравенство не строгое, то 1 балл

граничные точки входят в промежуток, удовлетворяющий неравенству (квадратные скобки)

граничные точки не входят в промежуток, удовлетворяющий неравенству (круглые скобки)

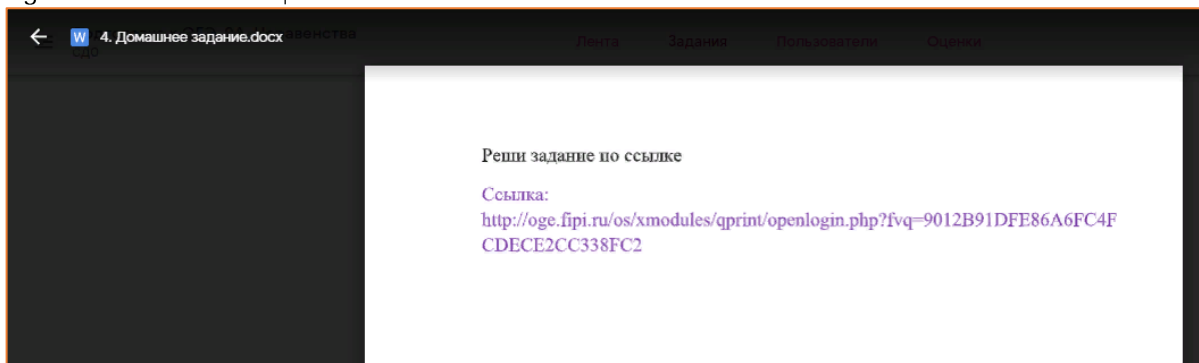
**Отправить**

Source: Elaboration of authors from Google Forms.

The practical task is given in the form of a link to "BSE Open Bank". Figure 5 shows an example of a link. The selected distance learning system allows students to organize independent study of the topics selected by the teacher.

As the practice of working with grade 9 students has shown, children like the form of work presented below. For a deeper understanding of the material and analysis of practical tasks, it is advisable to attach training videos to the lessons. There is a lot of material on the Internet. The teacher needs to correctly select it. Video material can also be attached, if needed.

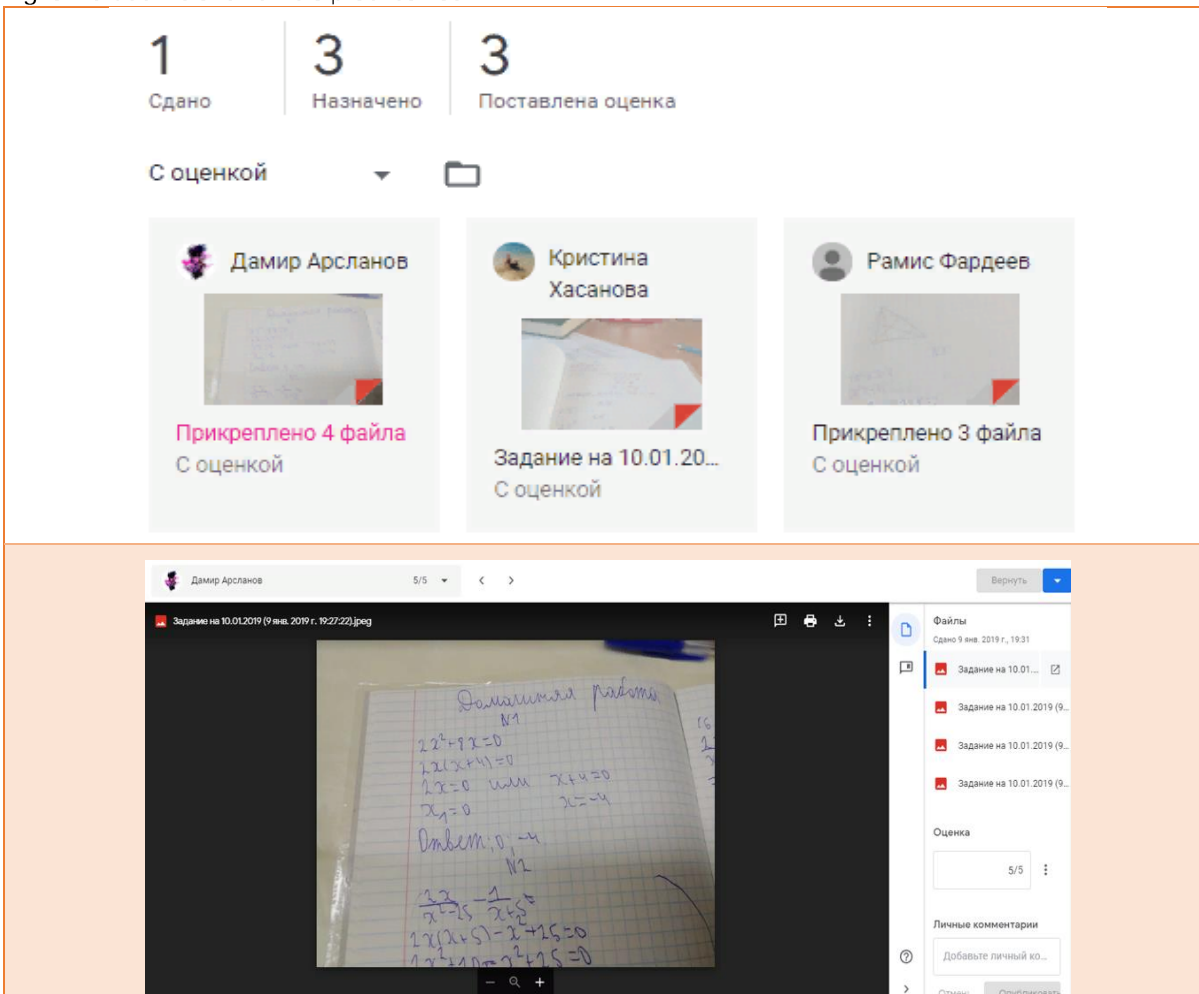
Fig. 5 Practical task example



Source: Search data

For quick control of knowledge, it is convenient to use tests that are easily created right in the system. In addition to multiple choice tests, you can write tasks that require a short answer. This test format is very similar to the BSE tasks. Written tasks are required to develop practical skills. The student can solve them in a notebook and send a photo from the notebook or a video solution with comments to the teacher. The teacher checks and grades the resulting media file. Figure 6 shows an example of a student's response to a practical task.

Fig. 6 A student's answer to a practical task



Source: Search data

The teacher and student can comment on the solution using chat. The work on the creation and testing of distance courses was carried out within the framework of lessons with 9th grade students of “Omet” Naberezhnye Chelny boarding school No. 86 for children with disabilities”.

Teaching children to work in the distance learning system took 40 minutes. All children understood the principles of work and became interested in distance learning. Observations have shown an increase in motivation to learn even among poorly trained students.

## SUMMARY

The tests showed that all the students mastered the educational material at the same level as in the face-to-face work. The study of literature, sources on the Internet and the experience of creating distance courses allow us to outline the following recommended scenario of a distance course:

- Set the goals and objectives of the course.
- Consider the peculiarities of the target group for which this course is being created and choose a distance learning methodology - think over the organization of the educational process, methods of interaction between teacher and student, types and forms of classes.
- Structure and prepare educational material - divide the course into sections, and further into small semantic parts - topics (classes). Each section and each lesson of the module should have a heading.
- Select practical tasks for each topic.
- Media fragments - pictures, tables, diagrams, videos, according to the requirements of ergonomics.
- Select literature and hyperlinks to Internet resources for each module (topic). Careful selection of links will allow the student to save a lot of time, eliminating the need to independently search for information and link the course with the world's best information sources.
- Develop a system for monitoring and assessing student knowledge - select tests, tasks, control questions, topics of essays.
- Consider options for organizing feedback.
- Develop teaching materials for the study of the course, the course timetable.
- Post course materials in the distance learning system.
- Test the course, including on different screen resolutions and different browsers.
- Involve a colleague (colleagues) to test the course to develop critical comments thereon.
- Finish the course considering the comments provided.
- Try the course in the distance learning process.
- Modernize the course based on the results of educational testing (KLIUEVA, 2017).

## CONCLUSIONS

The practical significance of the work done lies in the fact that the experience of building a distance course can be introduced into the work of any educational institution. Achieving high-quality education in the context of distance learning requires not only building and implementing a course based on the feedback from students and parents, but also modernizing it based on the use of the achievements of science and technology in the educational system.

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## REFERENCES

- AGLIAMZIANOVA, G.N., ABAIDULIN, R.N. *Distance learning in the practice of modern education and ways to improve it [Journal]*. Problems of modern pedagogical education. Ser.: Pedagogy and Psychology. - Ialta: Humanitarian and Pedagogical Academy (branch) of V.I. Vernadsky Crimean Federal University, 60: Vol. 1. 2018.
- AGLIAMZIANOVA, G.N., ABAIDULIN, R.N. *Distance learning technologies in modern education*. Proceedings of the VII International Makhmutov Readings "Problematic Education in the Modern World". Yelabuga Institute, Kazan (Volga Region) Federal University. Yelabuga, 2018.
- KLIUEVA, E.A. *Remote support for studying the topic "Arithmetic and geometric progressions"*. Graduation thesis. [Place of defense: PGSPU]. - Perm, - 67 p.: ill. 2017.
- KUMPULAINEN K., MUTANEN, M. Collaborative practice of science construction in a computer-based multimedia environment. *Computers & Education*, vol. 30. n. 1-2. p. 75-85. 1998.
- LEWIN, C. Talking book design: what do practitioners want? *Computers & Education*. Vol. 30. № 1-2. P. 87-94. 1998.
- SCHOOL AND DIGITAL TECHNOLOGIES: a memo to a modern teacher. Available at: <https://rosuchebnik.ru/material/shkola-i-tsifrovye-tekhnologii-pamyatka-sovremennomu-pedagogu/>. Access: 20 Jun.2020.
- STRATEGY NEW GROWTH MODEL - *New social policy. Final report on the results of expert work on topical issues of Russia's socio-economic strategy*, 2020. Book 1. Chapter 11. 2020.
- THE 7 BEST SERVICES FOR ORGANIZING DISTANCE LEARNING AT SCHOOL [Electronic resource]. Available at: <https://telecomdom.com/dlya-shkoly/distantsionnoe-obuchenie-servisy/>. Access: 20 Jun.2020.
- VEEN, W., LAM I., TACONIS, R. A virtual workshop as a tool for collaboration: towards a model of telematic learning environments. *Computers & Education*, vol. 30. n. 1-2. p. 31-39. 1998.
- WARD, R. Active collaborative and case-based learning with computer-based case scenarios. *Computers & Education*, vol. 30. n. 1-2. p. 103-110. 1998.
- WATSON D., BLAKELEY B., ABBOTT, C. Researching the use of communication technologies in teacher education. *Computers & Education*, vol. 30. n. 1-2. p. 15-21. 1998.
- WHITTINGTON, C.D., SCLATER, N. Building and testing a virtual university. *Computers & Education*. vol. 30. n. 1-2. p. 41-47. 1998.

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