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**PROJECT AND RESEARCH ACTIVITIES ORGANIZED IN**  
**MODERN SCHOOL**

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**Abstract**

The paper evaluates the theory and practice of managing project and research activities, studies the organizational features of research activities, describes an experiment towards the effectiveness of organizing project and research activities of learners at modern secondary school. It concludes that a current need for the formation of project and research skills in the younger generation is determined by the development needs of modern society. A modern person should consider education as a means of fulfilling his/her own educational, cultural, social, future prospects, as well as a way of forming basic competencies that guarantee the success of the entire human life. The most pivotal prerequisite for effective management of the quality of education delivered at modern schools will be the development of public forms of education management. It is important to note that social partnership and education management authorities, which establish organizational mechanisms, have a special impact on the way project and research activities are organized. The education system has a complete package of legislative and regulatory documents on the alliance of general and further education, which opens up wide opportunities for exploiting the potential of project and research activities in the educational process of a modern school. In recent years, various concepts, projects, forms to ensure the alliance of general and further education of children have been integrated into educational practice. However, an overwhelming majority of them do not have practical and theoretical significance, scientific novelty.

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*Keywords:* Educational process, learner, project-based activity, project, school



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## **1. Introduction**

In the face of globalized education and the integration of new learning technologies, schools are forced to establish the bonds between theoretical knowledge gained by learners and its practical application. One of the main tasks set by the modern federal state educational standard involves the implementation of educational activities based on a combination of theoretical and empirical approaches. This idea assumes that at all stages of education, the school will actively introduce research activities into the educational process.

The paper is relevant due to the fact that currently project and research activity is an integral part of the educational process. Implementing the FSSES, educators should integrate project and research activity into the educational process, thereby increasing the quality of education among learners and improving the quality of research skills developed. The importance of integrating project and research activities into core curricula is largely due to the need for a variable component of secondary education, aimed at stimulating learning and cognitive motivation of learners, contributing to the practical application of theoretical knowledge and practical skills mastered at school.

The findings on the problems related to organizing project and research activity when learners acquire secondary education indicate a long-time interest in this topic in Russia. More than a hundred years ago, in the dictionary entry of the “Russian Pedagogical Encyclopedia” I.Ya. Lerner noted the use of project and research activities in the educational process. Modern researchers of this problem, such as Leontovich (2006) and others comprehensively and thoroughly study the value-oriented, methodological, psychological, substantive aspects of the organization and didactic support of student research activities.

## **2. Problem Statement**

The paper deals with the issue of organizing project and research activity at modern schools. The relevance of this research topic is constantly increasing, but despite this, this domain of the educational process has not been fully explored yet.

## **3. Research Questions**

The subject of research is the process of organizing the project and research activity of schoolchildren.

## **4. Purpose of the Study**

The paper aims to study the process of organizing the project and research activity of learners in a modern school.

## **5. Research Methods**

The following research methods were used, namely: analysis of information and educational and methodological resources, analysis of the Federal State Educational Standard of Higher Education,

analysis of recommendations, best practices and experience of organizing project and research activity of learners in a modern school.

## 6. Findings

Project and research activity is not a novelty in national education and world pedagogy. A current need for the formation of project and research skills in the younger generation is determined by the development needs of modern society. Blonsky should be considered as a founder of the Russian school of project and research activity. He believed that all schools engaged in educational activities should primarily provide training for future professional activities. It was necessary to form labor skills and abilities starting from primary school, so that the formation of knowledge components went in sync with practical ones. He believed that at school pupils needed to learn to live while the method of work should be the key method of cognition (Adamenko, 2004).

In 2020, due to the coronavirus pandemic, Russian schools had to switch to a distance or semi-distance learning format, and this affected not only specialized education, but also all project and research activities as a way of acquiring knowledge, skills and abilities.

Based on the teaching practice evaluated during this period, the following benefits are visible in distance project and research activities:

- independence in educational and cognitive activities;
- changing learner-teacher relationship from subject-object to subject-subject;
- more effective interdisciplinary bonds;
- development and formation of learners' creativity;
- modified teacher's role from someone who merely gives information to someone who consults;
- higher quality education (Zolotareva et al., 2016).

From the perspective of contemporary pedagogy, project and research activity aims to:

- enhance the cognitive activity of learners;
- provoke cognitive and research interest;
- improve the quality of education;
- develop skills and competencies required for project and research activity;
- establish the relationship between theoretical and practical knowledge (Dorokhina, 2006).

The authors find it extremely important to analyze the theory and practice of project and research management at school, to study the organizational features of research activity in an educational institution.

The paper considers some mechanisms designed to arrange project and research activity in the conditions of a modern school based on the ideas of Prof. Lazarev's scientific school. He found that it is most effective to manage the quality of education by organizing the project and research activity at an educational institution, provided that:

- motivation for learning is provided by innovative project activities;
- learners have internal self-control and encouragement for educational activities (Leontovich, 2006).

Prof. Lazarev believed that, these functions, being implemented in line with appropriate content, will lead to higher quality education. That is why these functions can be perceived as basic principles of management in an educational institution, which form target management. Target management can be viewed as an inseparable chain of elements: “objectives – process – result”.

Following these principles can not only improve the quality of education in an educational institution, but also avoid declarative announcement of objectives in the project management and not let all management decisions come down to one result.

The most important condition for effective management of the quality of education in a modern school will be the development of public forms of education management. Advanced training of teaching staff in project and research activity can be effectively provided by organizing advanced training classes both at the educational institution itself and outside. Such classes can be based on a modular principle, which has now gained recognition and widespread use in higher and additional professional education. Each training module implies independent learning and cognitive activity of learners that is managed by the teacher, which is undoubtedly relevant in the epoch of distance education today (Biryukova & Kovshova, 2020).

The most important condition for effective quality management of education in modern times. The main function of a teacher is to provide methodological support for learners in their self-study and cognitive activities.

Teacher’s activities can be grouped around the following levels in the organization of project and research activities of learners:

1. Theoretical and methodological level;
2. Technological level;
3. Project or research defense.

At the theoretical and methodological level, the teacher must know the basic methods and types of projects and research, as well as their typology. At the technological level and the level of project defense, a project or research is structured, the technology is selected, the requirements for project documentation and the rules for conducting pre-defense are analyzed (Marchenko, 2017).

At the practical level the main learning outcome of project and research activities is learner’s well-established project competence. Further, the paper will consider the levels of learners’ project and research skills, competencies, which determine the level of quality of education.

The successful project and research activities in educational institutions convince the necessity of defining and using a technological organizational mechanism. Provided that all the rules and methodological recommendations are observed, as well as didactic, methodological and managerial conditions, project and research activities will be organized and performed successfully and efficiently (Khabibullina & Kulakova, 2021).

For the last quarter of a century organizational mechanisms have been developed and piloted to provide project and research activities. They are largely bound to certain regional characteristics of education systems. Constant updates and revision of the legislative and regulatory framework enables this dimension in a wide range of models, concepts, projects.

Unfortunately, a great deal of practice-oriented organizational patterns to ensure project and research activities that have appeared in some regions of the country, in most if any cases, do not have any practical value and theoretical novelty. They are a simple enumeration of actions, their algorithm. In exceptional cases, the developers who represent regional departments of education or local governance of additional professional education indicate and describe the organizational and pedagogical conditions, listing the agents concerned, indicating the composition of project teams, timelines for implementation and specific actions.

The main disadvantages of the existing organizational mechanisms are an unsatisfactory theoretical validation of practical material. They often inaccurately reflect the regional variability of financial and economic, personnel, program, demographic and scientific and methodological conditions of education.

Experimental work to determine the effectiveness of the organization of project and research activities in an educational institution was carried out at Secondary School No. 5 named after Kadyrov in Grozny, in several stages – from 2019 to 2021.

The existing practices of using project and research activities showed that a modern school needs an integral system of didactic and methodological support for organizing project activities of learners. Hence, a contemporary school needs a holistic educational and methodological support for the organization of secondary education, extracurricular activities of schoolchildren, including the organization of project and research activities. Theoretical and instructive, technological and axiological foundations for the implementation of universal learning activities to ensure proper project and research activities should be mastered in meta-subject courses, in the framework of extracurricular activities, additional education (Kolesnikov, 2020).

Therefore, a meta-subject extracurricular course “Learning Project” was integrated into the educational process of seventh graders, aimed at mastering instructive knowledge, research skills and experience in the implementation of project and research activities. 25 schoolchildren participated in the experiment.

The pupils were told that a competence-based approach focuses on the willingness to solve problems, which is especially important for the development of research skills. In this regard, research skills should be interpreted as the most important component of the secondary education. Given a universal nature of research skills, they can be most effectively developed when they are strictly subject to some well-orchestrated and comprehensive pedagogical interaction with learners.

The progress of didactic and methodological support of research and project activities was evaluated at the generalizing stage that compared the results achieved with those expected.

The performance indicators were: learners’ independence, awareness of the implementation of research skills, readiness to apply a more complex technique within educational and cognitive activity.

Learners’ proficiency in research skills was measured at basic and advanced levels. Basic level: learners have some research skills, while the teacher helps learners to conduct research. Advanced level: learners possess all the skills required for research activities and independently conduct research.

Three main methods were used to assess the progress: evaluation by the jury at a school competition for projects and research; assessment of the outcomes achieved upon mastering the skills

within the meta-subject course “Learning Project”; self-assessment of mastering the culture of educational and cognitive activity, bearing in mind the portfolio comprised of learners’ sociocultural achievements.

The authors also conducted a survey among the participants of the elective course “Learning Project” to determine the level of readiness to master research skills. They identified two factors that define learners’ readiness to master research skills: positive emotional and neutral relationships.

Based on the results of this survey, out of 100% (25 pupils) of those attending the course “Learning Project”, 95 % of learners had a positive outlook and a positive emotional attitude towards research activities, which undoubtedly led to a positive base for developing research skills, 5% had a neutral attitude. This survey shows how effective the training was and all the positive results of the final conference proved the effectiveness of the course.

The in-school competition for projects and research unites the activities of schoolchildren, school teachers and further education teachers at all stages involving preparation, conduct and summing up the results of this educational action. Instructive, methodological and regulatory documents that determine the organization and implementation of projects and research serve as a resource for coordinating the advisory activities of school teachers, as well as scientific advisors representing institutions of further education and higher education.

Learners’ progress in mastering research skills was determined by the following indicators:

- Learners’ independence;
- Awareness of the implementation of research skills;
- Readiness to apply a more complex technique within educational and cognitive activity.

Learners’ proficiency in research skills was determined at the basic and advanced levels.

Basic level: learners have some integrative research skills, whereas the teacher helps learners conduct research.

Advanced level: learners possess all the integrative skills of research activities and conducts research on their own.

To assess the progress, four main methods were used: the jury’s assessment of the school competition for projects and research; self-assessment of mastering the culture of learning and cognitive activities based on the portfolio comprised of learners’ sociocultural achievements; feedback from the supervisor. The indicators of improved research skills in the study were: a higher level of learners’ independence; higher awareness of the implementation of a certain research skill; more readiness to apply a more complex technique within learning and cognitive activity.

Internal and external experts did peer review and prepared an expert opinion, defining the basic and advanced levels of the outcomes achieved. The data obtained were presented in percentage (Table 01). The experts were involved in both stages of the experiment. At the control stage in the form of project or research pre-defense, the jury made a preliminary assessment of the project or research and reliability of the emotional level of readiness for mastering research skills. Emotional assessment was carried out by interviewing the learners for their involvement in the project or research.

**Table 1.** Progress in mastery of integrative project and research skills

Integrative research skills	Proficiency levels	2019–2020 academic year, %		2020–2021 academic year, %	
		Control group	Experimental group	Control group	Experimental group
Defining a project or research problem	basic	24	28	13	58
	advanced	4	4	4	33
Goal setting	basic	24	24	24	33
	advanced	8	4	8	58
Making a hypothetical assumption	basic	18	24	28	58
	advanced	4	4	8	38
Stating tasks for testing hypothesis	basic	14	18	18	58
	advanced	4	4	8	38
Defining adequate research methods	basic	14	14	24	48
	advanced	8	4	8	48
Drafting the implementation of a project or research	basic	14	8	18	48
	advanced	4	4	14	48
Collecting source theoretical and practical information	basic	24	28	24	58
	advanced	4	8	4	33
Performing a necessary experiment	basic	18	24	24	64
	advanced	4	14	4	34
Presenting the progress and results of work	basic	24	18	24	68
	advanced	4	14	4	28
Evaluating the progress and results of work	basic	14	8	18	74
	advanced	4	4	4	24
Defending the results of research or project	basic	14	14	18	44
	advanced	8	8	14	54

The presented results confirm that didactic and methodological support integrated for research and project activities contributes to an increase in the quality level of projects, and this – to an increase in the quality of education of schoolchildren in general.

The results of the survey involving the participants in the competition of projects and research showed that in the experimental classes the number of learners increased by 37%, believing that the teacher who completed the course “Pedagogical Project of Research Supervisor” can successfully act as a scientific supervisor of the project. According to the learners surveyed, teachers’ professional competence implied being aware of the values of research skills, applying adequate methods for the development of these skills.

Thus, the final progress in the development of research skills, the expansion of knowledge in the field of project and research activities and the growth of emotional satisfaction from project and research activities confirm the effectiveness of the developed and implemented didactic and methodological support for the organization of project activities of schoolchildren in order to improve the quality of education.

## 7. Conclusion

Summing up the theory and practice of organizing research and project activities, the following conclusions should be drawn:

- Firstly, the existing national education system has a full package of legislative and regulatory documents on the alliance of general and further education, which opens up wide opportunities for using the potential of project and research activities in the educational process of a modern school.
- Secondly, over the past twenty years, various concepts, projects and forms to ensure the alliance of general and further education of children have been created and integrated into educational practice.
- Thirdly, a vast majority of practice-oriented models for organizing research and project activities do not have practical and theoretical significance, scientific novelty.
- Fourthly, a significant drawback in the organization of research and project activities is the lack of a sufficient deep theoretical rationale for its organization for school leaders, which would address the variability of educational, scientific and methodological, personnel, financial and economic conditions of education in the Russian Federation.

For the last quarter of a century organizational mechanisms have been developed and piloted to provide project and research activities. They are largely bound to some regional characteristics of education systems. Constant updates and revision of the legislative and regulatory framework enables this dimension in a wide range of models, concepts and projects.

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