

# Implementation of interdisciplinary projects in vocational training of future teachers for the education of children with special educational needs in the Russian Federation

## Ejecución de proyectos interdisciplinarios en la formación profesional de futuros docentes para la educación de niños con necesidades educativas especiales en la Federación Rusa

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### ABSTRACT:

One of the topical school problems is the discography of elementary schoolchildren, since mistakes in writing made by students should be addressed through the interaction of the elementary school teacher and the speech-language pathologist-defectologist. One of the factors, in the authors' opinion, is the influence of the native Yakut language in showing signs of dysgraphia in elementary schoolchildren in the first years of schooling.

**Keywords:** vocational training, project training, inclusive education, educational standard interdisciplinary project

### RESUMEN:

Uno de los problemas actuales de la escuela es la discografía de los niños de escuela primaria, ya que los errores de redacción hechos por los estudiantes deben abordarse a través de la interacción del maestro de la escuela primaria y el patólogo-defectólogo del habla y el lenguaje. Uno de los factores, en opinión de los autores, es la influencia del idioma Yakut nativo en la aparición de signos de disgrafía en niños de escuela primaria en los primeros años de escolaridad.

**Palabras clave:** formación profesional, formación de proyectos, educación inclusiva, proyecto interdisciplinario educativo estándar

## 1. Introduction

The relevance of the research topic is due to the fact that the Federal State Educational Standard of Elementary General Education for Students with Health Limitations entered into force on September 01, 2016 in the Russian Federation. It should be noted that this educational standard is the first legal document aimed at implementing inclusive education in the country. In this regard, there is an active comprehension and search for effective ways of its implementation in the practical work of the elementary school at this stage in the pedagogical community. The authors emphasize that the implementation of the standard has become, although expected in the system of Russian school education, but insufficiently prepared, so today there are more questions in its implementation in the practice of schools than answers. The acute shortage of qualified specialists in the field of working with children with special educational needs and the remote living of a significant number of families with children from health limitations from specialized remedial schools or classes does not facilitate the realization of the educational rights of children with health limitations. Per capita financing of rural schools results in the fact that the school cannot afford to include a specialist in working with children with health limitations. At the same time, each rural and urban Russian school today has a certain number of children, who need special help. The impossibility of opening special classes and providing individual assistance to a specialist in the context of each model school, the reluctance of parents to recognize the presence of abnormalities in the development of their child and the right to choose a parent for training in a standard school create a situation when a child in need of certain specialized care sits at a desk peers in the ordinary class, the elementary school teacher is not prepared to provide educational services in accordance with their needs. Therefore, the child is left without the attention of the teacher and does not receive much development and education, which is so necessary. That is why today it is extremely important to determine the most effective conditions for the implementation of inclusive education, which will ensure to children with special educational needs equal to their healthy peers the development opportunities necessary for their full integration into society. One of the important factors of qualitative implementation of the standard is the provision of qualified personnel who have at least basic competence in working with children with health limitations in elementary school in conditions of inclusive education.

In the article we proceed from the position that the main contingent of children with special educational needs is children with health limitations. However, children with special educational needs also include children with small cognitive and behavioral disorders, which consequently lead to difficulties in mastering the educational program. At the present time, systematic work is needed to change the content of the training of future teachers in a Russian higher educational establishment in order to increase their competence in implementing the federal state educational standard for elementary general education for students with health limitations, including special educational needs. It is the willingness of a particular teacher to be the main factor in promoting inclusive education in a modern school, since it depends on the teacher and the speech-language pathologist to create the necessary favorable conditions for the successful development of the educational program by children with health limitations, starting with the development of an adapted educational program for the child and ending with the creation of a psychologically comfortable environment in classroom for socialization and adaptation of the child. Only if the student in the process of studying actively studies situations with the solution of problems of specific children with health limitations, then in practical work he will be more ethical and considerate; will be ready psychologically and practically to work with children and their families.

In this article, the authors present the experience of implementing the design work of the two departments of the M.K. Ammosov North-Eastern Federal University: the Department of Elementary Education and the Department of Special (Defectology) Education, within the framework of which practical-oriented interdisciplinary preparation of students for work with children with special educational needs is carried out.

The purpose of this article is to: substantiate the relevance and significance of the application of interdisciplinary projects as an effective form of professional training of future teachers for the implementation of inclusive education and to prove its effectiveness in the experience of the departments of the Pedagogical Institute of the M.K. Ammosov North-Eastern Federal University. In the course of work on this article, the authors determined the following tasks: to reveal the relevance of the professional training of future bachelors to the implementation of the Federal state educational standard of elementary general education for students with health limitations, to analyze the state of the problem in pedagogical theory, and to describe the experience of implementing a specific interdisciplinary project in the field of professional interaction of the elementary school teacher and speech-language pathologist.

In recent years, the system of Russian education has been renewed; the convergence of special and general education institutions, the changing attitude of society towards children with health limitations and the conditions for organizing their education and upbringing arise naturally. The pedagogical community centered its attention on the issue of joint education of normally developing children and children with health limitations.

Inclusive education in Russia today is aimed at creating an integrated system in the general education organization that provides optimal conditions for the upbringing and development of children of the normal health and with health limitations, for social and psychological rehabilitation and integration. The most important task of inclusive education is to give children with health limitations confidence in their own abilities, motivating them to learn in a model school and achieve success together with other students. Moreover, the authors believe that the introduction of inclusive education, despite all the complexities of its perception by society, has been introduced in the country in a timely manner and is aimed at changing in Russian society as a whole quite often an intolerant attitude towards handicapped people, with certain developmental abnormalities, and eliminating fears and barriers in communication between healthy people and people with health limitations.

It's no secret that in a mass Russian school, a child with special educational needs becomes, as a rule, a problem for the traditionally arranged teaching and educational process. As a rule, such children are at home schooling as needing an individual program. This is confirmed by statistical data. So, the authors give our work experience in one of the most territorially large subjects of the Russian Federation - the Republic of Sakha (Yakutia), which is located in the North-East of Russia and captures significant territories of the subarctic and arctic zone of Russia. In the republic there are 5 cities and 33 districts in rural settlements, therefore, mainly rural schools prevail in the Sakha (Yakutia), about 70% of them. Rural settlements, in addition to the central regions, are located at a great distance from each other, and from educational centers. Thus, according to the data of the main educational management body in the entity - the Ministry of Education and Science of the Republic of Sakha (Yakutia): in general educational organizations of a general type, 2,341 children with disabilities were trained in 2016, 73 of them children with visual impairment, 66 with hearing impairments, 83 speech disorders, 225 with muscular-skeletal disorders, - 647, with a delay in mental development - 908, with mental retardation - 339 people. 1274 students are enrolled at home, including 893 handicapped children (Ministry of Education, 2016). As it was said, mostly children are at home schooling. Nevertheless, these figures indicate that inclusive education is being introduced in regional general education schools.

In the Russian Federation, the state educational standard of elementary general education for students with health limitations is now defined by 8 options for the development of adapted basic educational programs: deaf, hard of hearing, late-deaf, blind, visually impaired, with severe speech disorders, autistic spectrum disorders, with abnormalities of the muscular-skeletal system, with mental retardation, with complex defects. It is known that prior to the implementation of this standard, the training of these categories of children was carried out mainly in special remedial schools that were not always accessible to children from remote areas of the republic, which sometimes deprived children of the opportunity to receive quality specialized assistance in training. Today, the implementation of the standard granted the right to parents or legal representatives of the choice for the child of the educational organization, but did not solve the problem of ensuring the quality of the provided services for this category of children in a typical general education school. One of the main problems is the lack of readiness of elementary school teachers to work with children with health limitations, since the teacher needs serious additional training. One of the problems is the fact that institutions of vocational education also do not have specialists in the full spectrum today, capable of preparing teachers for the implementation of all options of adapted educational programs. In addition, in the process of professional training for a bachelor is difficult to allocate a sufficient number of hours for a full interdisciplinary training of teachers.

Proceeding from this, in the system of vocational education of teachers in pedagogical colleges and higher educational establishments of the Russian Federation it is necessary to look for flexible, varied forms of interdisciplinary training in related fields. One of these flexible, practical-oriented forms is project activity, since the choice of the project topic in the process of pedagogical practice can depend on the students themselves, on the basis of practice. Since the curriculum for training future specialists for each pedagogical profile is compiled separately by each profile department, the organization of interdisciplinary work of students and teachers of different departments in search of a comprehensive solution of specific educational problems is new for the Russian practice of the work of higher pedagogical universities and is effective in pedagogical practice and writing research papers. It is at this stage that the authors consider it effective to create and introduce students into the process of preparing interdisciplinary projects.

## 2. Literature review

Inclusive education today is considered one of the priorities of the state educational policy in the Russian Federation. There are more than two million children with health limitations in the country. In 2008, Russia signed the UN Convention on the Rights of Persons with Disabilities. Article 24 of the Convention states that, in order to realize the right to education, participating States must ensure inclusive education at all levels and lifelong learning. As the Federal Law "On Education in the Russian Federation" emphasizes, all children, including those with health limitations, have the right to a full-fledged childhood, equal to everyone with the right to education in the general education system (Federal Law, 2012).

The basis of inclusive education is ideology, which excludes any discrimination against children that ensures equal treatment for all people, but creates special conditions for children with special educational needs. Inclusive education is the process of developing general education, which implies the accessibility of education for all, in adapting to all the needs of all children, which provides access to education for children with special needs. The federal state educational standard for elementary general education of students with health limitations of the Russian Federation establishes differentiated requirements for the results of mastering the adapted basic educational program in accordance with the special educational needs of different groups of students with health limitations (Federal Standard, 2014).

In the course of preparation of this article, the authors studied foreign scientific articles on the application of interdisciplinary projects in the process of teaching students, as well as articles on the formation of attitudes toward children with health limitations and, in general, inclusive education in different countries. Consideration of this material allowed asserting that there are similar problems in the implementation of inclusive education and the state of training in different countries around the world, the need for focused, practical, student-centered training for working with children with health limitations, and on the prospects for the development of projects in the future. Thus, Grant, M. M. (2011), Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991), Bell, S. (2010) wrote about the effectiveness of the application of project-based education and the conditions for increasing the effectiveness of its application and they defined design technology as the closest to the conditions of real life and practical-oriented technology for teaching students of the future profession, activity methods are in demand at the present stage of implementation of the new standards of education. The article by Thomas, J. W. (2000) is interesting for understanding the theory of project activity, which reveals the theoretical foundations of project teaching, beginning with the concept of the process, requirements to students as participants. For the further implementation of project training in the professional training of future teachers, the authors reviewed the work of Krajcik, J.S., & Blumenfeld, P.C. (2006) on the methodology of project teaching, developed as a guide for students to correctly build project training as one of the most effective methods of solving specific life professional problems. In line with the subject of this article, the authors also agree with the opinion of Edmondson A.C., & Nembhard I.M. (2009) on the importance of project teams as a form of solving problems in which each expert contributes and his competence in solving the problem, the authors analyzed in article principles and conditions of effectiveness in the team.

Of course, the authors paid a lot of attention to understanding the concept of interdisciplinary projects in the teaching of students. In this aspect, authors such as König, B., Diehl, K., Tscherning, K., & Helming, K. (2013) were selected, since their works have structuring of interdisciplinary studies widely discussed by the community of researchers. Bark, R.H., Kragt, M.E., & Robson, B.J. (2016) presented their vision of the correct organization of interdisciplinary research, giving an expanded view of the specific tasks that the participants of the group need to solve to achieve a common result by solving, which allowed for making adjustments in the planning of further research. The specific experience examined in the articles by BoixMansilla, V., & Duraisingh, E. D. (2007) on the implementation of interdisciplinary projects in the practice of preparing students, what difficulties they encountered, and also the articles by Kezar, A., & Elrod, S. (2012) on the example of the organization of an interdisciplinary educational environment of teaching and learning students, also help to compare the prospects and opportunities for applying project training in the practice of preparing students.

As part of the discussion of the topic, intersections in the subject of research have repeatedly occurred on project-oriented learning or problem-oriented learning, the works by Brassler, M., & Dettmers, J. (2017) compared the two approaches. As a result of the author's analysis, a problem-oriented project is proved to be more effective. The authors agree in this regard, since the very content of the project should be problem-oriented and proceed from the need to solve a specific pedagogical problem, rather than a project for the sake of the project. Nowadays, the concept of a transdisciplinary approach is often used in conjunction with an interdisciplinary approach, therefore we have studied the article Klein, J.T. (2008, August), where the author analyzes interdisciplinary and transdisciplinary approaches in research, describes the basic principles in conducting complex studies, including the variability of goals, indicators and evaluation criteria, consideration of the importance of social and intellectual cooperation, efficiency and relevance.

And, of course, a large number of authors worked on the problem of implementing inclusive education in elementary school, but in this work the authors correlated their research interest with the content of the work Black-Hawkins, K., & Florian, L. (2012) an interesting experience of Scottish elementary school teachers on the implementation of an inclusive approach, which helped the authors to more deeply reveal the essence of the problem and the way to implement inclusive education in the work of a particular teacher in the elementary class. The article by Porayska-Pomsta, K., Frauenberger, C., Pain, H., Rajendran, G., Smith, T., Menzies, R., Lemon, O. (2012) shows importance of an interdisciplinary approach to analyzing the social skills of children with autism and typically developing children, which leads to a new methodology for achieving satisfactory results in studying such a complex phenomenon as autism. This article as a whole focuses on the methodology of work in line with the authors' research. The authors also linked their experience on the issue of training teachers for the implementation of inclusive education with the works by Florian, L. in co-authorship

with Linklater, H. (2010), who outlines the relevance of the teacher training program for working with children with health limitations. Also, the materials of the article have the experience of teacher training presented in the work published earlier by the authors, which describes the stages of organizing the pedagogical practice of future bachelors (Neustroev et.al., 2016).

Ananyev B.G. (2001), Belyaeva A.P. (2003) and others were the first in the Russian pedagogy of the Soviet period, to describe in their works the practical aspects of the implementation of interdisciplinary design of teachers. Initially, interdisciplinary projects were used to connect learning with the productive work of students, connecting learning with life. Throughout the 1970s, the problem of the interdisciplinary approach to teaching has become one of the key issues in Russian pedagogy.

Many authors consider the problem of interdisciplinary nature in their studies at the present stage of the development of Russian pedagogical science. Thus, N.B. Shumakova considers interdisciplinary integration as a way of organizing the content of education, which is based on the integration of objects of study, themes, problems from different fields of knowledge through their meaningful connection with general ideas of an interdisciplinary nature that reveal the meaning of the global theme. It can be concluded from this statement that enrichment of content, based on the application of thematic interdisciplinary integration, will contribute to the formation of professional and general cultural competencies of students of a pedagogical higher educational establishment (Shumakova, 2014). Various authors of the definitions of interdisciplinary integration in education from the position of combining the academic disciplines like Perekhozheva E.V. (2012), Blagov Yu.V. (2016), and Sirenko S.N. (2013). Directly the problem of organization of interdisciplinary projects in Russian higher educational establishments was studied by Emelyanov A.V., Rykov S.V. (2015) and Peciliuskine P., Dapkus D. (2013), Kharitonova O.V., Bagautdinova A.Sh., Tarlykov V.A., Shekhonin A.A. (2017).

This study considers also the work by Blinova L.N., which rightly states that a lot of attention should be given to the gradual introduction of students into professionally oriented activities for teaching children with health limitations in conditions of inclusive education based on project activities (Blinova, 2016) in the training of elementary school teachers. Borodina V.A. substantially reveals the types of projects and methods of project activity for future teachers-defectologists (Borodina, 2017).

Thus, we believe that the authors' theoretical analysis allows for substantiating the relevance in the theory and practice of the subject of the study.

### 3. Materials and methods

In the Pedagogical Institute of M.K. Ammosov North-Eastern Federal University in the course of implementation of practice-oriented training of future teachers, the project activity of students is organized. The active application of the design method is due to its effectiveness in the process of forming students' general cultural and professional competencies in the course of an independent solution of a specific task in the field of future professional activity under the mentoring of the teacher. The project involved 2 students studying for elementary school teachers (1 student-Bachelor of 4 year) and speech-language pathologist-defectologist (1 student-Bachelor of 4 year).

The study was conducted within 3 months in the framework of pre-diploma practice among students in the 2nd grade, where 25 students of Yakutsk City National Gymnasium took part as test subjects. For comparison, a control group of 35 students of the 2nd grade of the secondary general school No. 2 in Yakutsk was defined. Both schools are general educational, in the classrooms children enter the district of residence, the classes with the Yakut native language of instruction are selected in the experiment.

The profound analysis of the abnormalities of various forms of linguistic analysis and synthesis is of decisive importance in the selection and use of the method. Here, a method was used to identify the discography of students of R.I. Lalaeva and L.V. Venediktova (2004).

Thus, the level of formation of the process of writing in elementary schoolchildren was diagnosed; their (dysgraphic) errors in writing, the degree of mastery of grapho-motor skills, and the degree of phonetic-phonemic and lexical-grammatical aspects of speech were formed.

The following tasks were used to study of written speech and diagnosis of the presence of dysgraphia in children:

1. Study of the writing skills. Thus, the lessons of Russian and Yakut language included auditory and verbal dictations, as well as copying (from the printed text) a fragment from a fairy tale.
2. Study of the reading skills. The following tasks are set to study reading skills: determine the nature of reading: syllables; words; proposals, text; to determine the understanding of the read words, sentences, text, retelling the text; determine the reading speed (reading during one minute); specify the method of reading (letter-by-letter, syllable-by-syllable, verbal-phrase).

### 4. Results

The implementation of the Federal state educational standard for elementary general education for students with health limitations presupposes a close interaction of all participants in the educational process. So, it defines as a mandatory condition for the implementation of option 5.1 of the adapted basic general educational program of elementary general education for students with severe speech impairments, logopedic accompaniment of trainees, the coordinated work of the speech-language pathologist with the elementary school teacher, considering the special educational needs of the students (Federal Standard, 2014).

It is known that the teaching of children to write is successful provided that the child has no deviations in the development of speech function. Abnormalities in its development lead to significant difficulties in mastering the writing skill. A serious obstacle in mastering students' reading and writing skills, mastering the grammar of their native language is dysgraphia.

The researchers note that for children with speech abnormalities, the factor of bilingualism is aggravating, exacerbating their difficulties in mastering Russian writing at the initial stage of school instruction, which determines the specificity of carrying out logopedic work at the stage of diagnosis and remedial action (Golikova E.O. (2006), Goncharova V.A., Katz E.E. (2014), Lizunova L.R. (2004), etc.).

Training of teachers considering the needs of the regional educational space of the Republic of Sakha (Yakutia) assumes the formation of their readiness to work in conditions of bilingualism.

As an example, the authors use the example of a project activity, organized in the Pedagogical Institute of the M.K. Ammosov North-Eastern Federal University and present the activity as a description of implementing a joint project of the departments of special (defectology) education and elementary education on the topic "Interaction between the teacher-elementary school teacher and elementary school teacher in overcoming the dysgraphia of Yakut-speaking elementary schoolchildren", whose goal is to determine the professional competence in the field of interaction among future teachers participants in the educational process to overcome the dysgraphia of elementary schoolchildren in bilingualism. The implementation of this project included the following stages: preparatory, organizational, basic, and final.

The goals and objectives of the project were formulated, and project participants from among the students and teachers were identified at the preparatory stage. When forming the project team, the following criteria were considered: interest of potential participants in effective work on the project; level of knowledge, skills; conformity of the direction of training and the required competences of the team members to the project topic; readiness of the group members for cooperation and teamwork; the consistency of the complexity and scope of the project with the training load of the participants in other disciplines (Safonova and Podolsky, 2013). The final qualification work was defined as the form of project implementation.

At the organizational stage, during the collective discussion, the problem of the insufficiently developed mechanism of interaction between the speech-language pathologist and the elementary school teacher in overcoming the dysgraphia of elementary schoolchildren in bilingualism was identified, the need for distinguishing the functional of pedagogical work in this aspect of the speech-language pathologist and the teacher. It was determined that the studies in the form of final qualification works by two students of designated departments on the following topics in order to solve this problem, within the framework of the project: "Overcoming the dysgraphia of elementary schoolchildren in the process of interaction between the speech-language pathologist-teacher and the elementary school teacher in bilingualism" and "Overcoming the dysgraphia of elementary schoolchildren in the process of interaction of the elementary school teacher and speech-language pathologist at the national school". The content of this stage also included the definition and justification of the project evaluation criteria, the distribution of responsibilities between the project participants and the planning of their work.

The main stage of work on the project involved close interaction of students with the scientific supervisors of final qualification works and included the analysis of scientific and methodological literature on the research problem, the study of existing educational practices, the formulation of goals, research objectives, hypothesis, diagnostic methods in the study, analysis the results of the ascertaining stage of the experiment. The participants of the project jointly organized and conducted a survey of oral and written speech in 60 students of 2 classes with Yakutsk-Russian bilingualism, considering the dominant language, analyzed its results, identified specific mistakes because of lack of mastery of the Russian language and language interference.

Examination of writing skills in children in the experimental class showed the following results:

- 2 (8%) students demonstrated abnormalities of writing because of insufficient knowledge of the Russian language;
- 6 (24%) students demonstrated articulatory-acoustic dysgraphia. Writing demonstrates substitutions of letters, both in graphic similarity and in terms of acoustic similarity, permutations of letters, omissions and insertion of superfluous;
- 10 (40%) of students demonstrated dysgraphia due to language analysis and synthesis abnormalities. The revealed difficulties and mistakes of writing indicate the lack of forming phonemic analysis and synthesis and the inadequacy of differentiating speech sounds in children; grammatical inaccuracies and graphic errors are common for children;
- 5 (20%) students demonstrated dysgraphia based on phonemic recognition abnormalities;
- The analysis of written works also showed that 1 (4%) of the students have optical dysgraphia, unformed optical-spatial perception, i.e. the difficulty in orienting on the notebook, did not distinguish the red line, violated the order of letters and syllables.

Diagnosis of writing in children in the control group showed the following results. The authors present the diagnosis of writing: 3 (8%) students demonstrated abnormalities of writing skills because of the lack of knowledge of the Russian language. 7 (20%) students demonstrated articulatory-acoustic dysgraphia. 10 (28.5%) students demonstrated dysgraphia based on language analysis and synthesis abnormalities. The revealed difficulties and errors of the writing skills indicate the lack of formation in children of phonemic analysis and synthesis, the inadequacy of differentiation of speech sounds; children are characterized by grammatical inaccuracies and graphic errors. 2 (5%) students have dysgraphia based on abnormalities of phonemic recognition, 2 (5%) students have optical dysgraphia, and 3 (8%) students have agrammatic dysgraphia.

The results of the diagnosis of writing and reading of elementary schoolchildren are presented in Table 1.

**Table 1**  
Writing diagnosis by an elementary school teacher and a speech-language pathologist

No.	Types of dysgraphia	Experimental class		Control class	
		Q-ty of students	%	Q-ty of students	%
11	Optical dysgraphia is the inability (or difficulty) to master writing skills in the normal development of the intellect)	1	4%	2	5%
22	Abnormality of writing skills because of the lack of knowledge of the Russian language	2	8%	3	8%
33	Articulatory-acoustic dysgraphia (dysgraphia based on disorders of oral speech, or "tongue-tied speech in writing")	6	24%	7	20%
44	Dysgraphia based on abnormality of linguistic analysis and synthesis (abnormalities of various forms of linguistic analysis and synthesis: the division of sentences into words, syllabic and phonemic analysis and synthesis)	10	40%	10	28,5%
55	Dysgraphia based on abnormalities of phonemic recognition (partial specific abnormality of writing skills, formed on the background of insufficiency or distortion of perception of the speech signal)	5	20%	2	5%

Based on Table 1, it can be seen that dysgraphia based on language analysis and synthesis (40%), as well as phonemic dyslexia (25%), are the most typical disorders. Articulatory-acoustic dysgraphia (24%), dysgraphia based on abnormalities of phonemic recognition (20%) is also common. Most children showed signs of different types of dysgraphia at the same time.

According to the results of the study, 10 (40%) students with signs of dysgraphia from 25 children were identified in the experimental class.

10 (28%) students were identified with signs of dysgraphia from 35 children in the control class.

After revealing dysgraphia, further work began with a speech-language pathologist for a detailed study of the problems and ways to solve them.

Summarizing the results of the entire survey, 4 groups of elementary schoolchildren were singled out according to the state of oral and written speech: 1) children with a normal development of oral and written speech - 53.3% (32 children); 2) children with a normal development of oral speech, having abnormalities of writing skills related to insufficient acquisition of the Russian language - 3.3% (2 children); 3) children with abnormalities of oral and written speech (dysgraphia) - 38.4% (23 children); 4) children with oral and written speech disorders (dysgraphia and writing abnormalities related to insufficient Russian language acquisition) - 5% (3 children). Thus, the conducted study confirmed the need to take into account the factor of bilingualism in the process of diagnosis and remedial effects in dysgraphia.

The main directions of corrective work on overcoming the dysgraphia of elementary schoolchildren in bilingualism were determined based on the results of the ascertaining stage of the study. Planning of the remedial work of the elementary school teacher was carried out in accordance with the "teacher-speech-language pathologist-family" model, which provides for the organization of various forms of active interaction of all participants in the educational process in overcoming the dysgraphia of children. In the course of the project activity, the contents of an elementary school teacher's work in remedial work on overcoming the dysgraphia of elementary schoolchildren in the national school at the stage of diagnosis, at Russian language lessons, in after-hours activities, in interaction with parents were determined.

Considering the results of the ascertaining stage, a plan was developed for interaction between the speech-language pathologist and the elementary school teacher in the work on overcoming the dysgraphia of elementary schoolchildren in bilingualism. The goal of the interaction between the speech-language pathologist and the elementary school teacher was to overcome the students' abnormalities of written speech and difficulties in mastering the Russian language. The design of the joint work was carried out considering the inclusion in its structure of targeted, organizational, meaningful, effective blocks that reveal the process of step-by-step interaction.

The final stage of work on the project included its protection in the form of protection of final qualifying works, as well as analysis of the results obtained and their evaluation, determination of perspective directions of the project development during the discussion at the inter-departmental meeting of its participants.

The fulfillment of the final qualification work by students in the framework of the inter-departmental project required increased independence, organization and responsibility in the course of professional interaction with teachers, students, teachers of schools, students. During the implementation of the project, its participants received valuable experience of professional interaction, replenished the knowledge and skills in their professional field and related fields.

## 5. Discussion

The obtained results of the study of students and mentors undoubtedly require further study, because during the discussion of this research at the stage of protection of bachelor's work, students have identified some shortcomings in the procedure for observing author's diagnostics in terms of technical performance and interpretation by students. The selection of children is also in different learning environments, as both groups are trained using different educational technologies and teaching and methodological kits. The experimental group is trained according to Elkonin-Davydov's developmental learning program, in which more serious attention is paid to sound and letter analysis. Nevertheless, the results in both groups were approximately the same for abnormalities. Children with dysgraphia belong to the category of children with special educational needs. Nevertheless, as

shown, even with some errors, the results of the research, the problem of dysgraphia is becoming more relevant in terms of detailed study in the framework of interdisciplinary project research of students.

It can be seen that in both classes there were abnormalities in oral and written speech, the causes of which are articulatory-acoustic abnormalities, phonemic recognition abnormalities, linguistic analysis and synthesis, and optical dysgraphia. If consider the causes of abnormalities, then the authors can conclude that these signs of dysgraphia are related to the presence of bilingualism in students, as both groups with native Yakut language of instruction. The absence of some sounds of Russian speech in the Yakut language leads to sound substitution, the lack of skills of phonemic recognition of sounds in Russian words. Semantic misunderstanding, inconsistency of gender and cases, temporary forms in speech is also often caused by the lack of knowledge of Russian among children, especially those who attended kindergarten and in the family had only a Yakut-speaking communication environment. Observations of teachers indicate that these signs of dysgraphia in most children in the learning process disappear as the Russian language is mastered.

Undoubtedly, the further investigation of the issue is of interest, considering the elimination of study errors in comparing Yakut-speaking and Russian-speaking children studying in the same educational technology and program, and also testing the hypothesis of eliminating abnormalities with the development of Russian speech in bilingual children.

In the course of work on justifying the results of the interdisciplinary project of future teachers, the authors faced such problems as the lack of domestic research in addressing specific problems of children with health limitations or who need remedial care from different specialists. In this regard, the authors believe that the presented pilot project is one of the examples of further active implementation of project activities in the process of training future teachers. The introduction of the new standard obliges modern teachers to form their teamwork skills in the complex solution of educational problems. The university already has interdisciplinary researches carried out in the team of teachers of kindergartens and schools, doctors, defectologists, psychologists, and social teachers. However, student joint projects remain a promising direction in the process of training specialists of a new format in a higher educational establishment.

Such a statement of work requires a certain change in the curricula from the departments of higher educational establishments, since it becomes necessary to agree on the timing of the practice and to protect course studies and final qualification works. Currently, the discipline on the implementation of inclusive education in the mass school is being introduced into the curriculum, and the interdisciplinary component is being strengthened in the modules of the academic disciplines. It should be noted that in the process of preparing future teachers for interdisciplinary tasks in the field of inclusive education, project activities should be of a lengthy nature, since changes are possible small in the case of systematic long-term work, which can help form the real competencies of graduates. Moreover, the departments of a higher educational establishment, in the person of managers and curators of student projects, should strive to ensure the continuity of student research, so that the solution of scientific problems by students is carried out seriously and contributes to the practical solution of problems of child development.

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## 6. Conclusion

Introduction of new educational standards in the Russian Federation aimed at increasing access to quality education for children with health limitations in conditions of inclusive education has led to the scientific novelty of the manuscript. One of the main problems in implementing new standards is the insufficient level of readiness of pedagogical personnel to work with children with developmental health limitations in a mass general education school. Currently, the pedagogical community of Russia is experiencing a lack of information about the ways and means of teaching and educating children in special educational needs.

One of the most effective and timely forms and methods for solving this problem is the joint project activity of teachers and students at the university to study the state and ways of solving certain educational problems in the practice of the school, during which future teachers acquire the necessary professional competence in psychological and pedagogical support of different children, master the methodology of research work. In addition, project activities on finding the ways of remedial care for children with special educational needs should be carried out in project teams of an interdisciplinary nature, where students-future teachers, doctors and psychologists learn to work in a team, to find a comprehensive and objective explanation of the causes and prospects for the individual development of a child.

At the present stage of development of vocational education, interdisciplinary projects of students are the future, as it expands their horizons, allows for approaching and comprehending the problem in a complex way, teaches to work in a professional team. Professional competencies of future teachers in working with children with health limitations or those in need of correction are in high demand today in a mass school, and the arming of teachers will allow them to be more competitive and ready to become leaders in the pedagogical community. In turn, their professional competence will contribute to improving the quality of the provision of educational services provided by the modern general education school and to the growth of the confidence of Russian society as a whole in the education system. And most importantly, it will significantly improve the quality of life of children with health limitations and children who need minor remedy of developmental disorders and their families, which is the main mission of the teacher's profession.

An example of a study of dysgraphia in elementary schoolchildren by future teachers in the process of joint project activity proves the urgency of the issue and the inadequacy of teachers' readiness to address the educational needs of children in a mass school, the difficulty of determining the causes of the emergence of certain problems in educational activity to the ordinary elementary school teacher without interaction with a defectologist and parents. As can be seen from the study conducted among 60 elementary schoolchildren, the signs of dysgraphia in Russian speech are determined in a considerable number of modern bilingual children, the reason for this is, in most cases, not so much a neurological disorder as insufficient knowledge of Russian at the first stage of schooling. As training and mastering the Russian language in children, these signs should gradually decrease, which also requires additional research, as well as comparisons with children not bilinguals. Methodical literacy of a particular elementary school teacher, who teaches the child the basics of the Russian language, is of particular importance.

Thus, based on the analysis of literature, the authors came to the conclusion that the organization of interdisciplinary projects lies in the implementation of the competence approach in the preparation of future teachers, contributing to the integrity of the educational process, the depth of knowledge through awareness, the formation of the ability to apply in practice ways of working with knowledge in accordance with the requirements of the modern school.

Experience in the implementation of interdisciplinary projects makes it possible to assert that their implementation in the practice-oriented training, oriented to the real needs of existing educational practice, on the one hand, and the requests for the formation of professional competence and personal readiness of future teachers for professional activities, on the other, mobilizes their opportunities in self-realization, development of professionally significant qualities such as responsibility, ability to self-development, creativity, ability to work in team of like-minded people to achieve a personal and professionally meaningful goal.

It follows that today it is necessary for higher educational establishments to move to a more flexible format for the organization of pedagogical practice and for an interdisciplinary approach in the research activities of students, for which it is necessary to understand the new tasks by the teaching staff of a higher educational establishment themselves, mastering the skills themselves to work in the team of mentors of students, which is important for coordinated work over the specific study. This situation requires changes in the methodology for organizing the pedagogical practice of future teachers, changes in the curriculum and the content of the educational training program.

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