



Original Article

## Interdisciplinary Approach in Remedial Work on Speech Development for Students with Disabilities

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### ABSTRACT

The success of socialization of children with disabilities is determined by a sufficient level of formation of speech activity. Ideas about difficulties in mastering the language and speech abilities of children with developmental disabilities that hinder their successful socialization serve as the basis for optimizing the learning and upbringing process. The purpose of the article is to consider the features of speech development of students with disabilities and determine the main directions of correctional work based on an interdisciplinary approach. The methodological basis of the study was interdisciplinary, systematic, activity-based, complex and individually differentiated, aiming at the development and improvement of speech among students with disabilities. The data obtained from the study of the speech capabilities of children with disabilities of different nosological groups indicated that they had violations of the formation of various components of the language system that affected the process of speech communication necessary for adaptation, integration and socialization. There was the need to create a correctional speech therapy work with an interdisciplinary nature, containing technologies, methods and techniques aimed at developing the speech of students with disabilities. Based on the results of this study, the directions of correctional speech therapy work, i.e., diagnostic and prognostic, software design, organizational and procedural, advisory and educational, were proposed, revealing the specifics of an interdisciplinary approach that allows optimizing the process of speech development of students with sensory, speech disorders, and mental retardation.

### GRAPHICAL ABSTRACT



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## Introduction

At present time in Russia, the development of the educational system, including special education, is being realized [1]. Humanistic values that emphasize the importance and uniqueness of each person are the basis for highlighting the strategic line of the modern educational process, which involves the inclusion of all children, including children with disabilities [2, 3]. The adoption of the Federal state educational standard of primary education students with disabilities, which are a set of mandatory requirements in the implementation of the adapted basic educational programs of primary general education in organizations engaged in educational activities, ensures the full realization of the ideas of unified educational space of the Russian Federation and accessibility of education for all children under school age, taking into account features of psychophysical development, individual possibilities [4, 5].

Under some circumstances, the entire education community recognizes the fact that in educational institutions, there is a significant increase in the number of children with disabilities who have difficulties in learning, because of individual peculiarities of development, resulting in the creation of a special learning environment. In the Education Act of the Russian Federation, special training conditions are defined as conditions for training, education and development of students with disabilities, which involve the use of special educational programs for training and education, special textbooks, teaching aids, didactic materials, and special technical training tools for collective and individual use [6].

For successful inclusion of children with disabilities in General education schools, it is necessary to create special educational conditions, where the priority is given to the correctional and developmental area, which is a mandatory part of extracurricular activities that support the process of mastering the content of AООP NOO.

According to Zvoleyko et al. (2016), the implementation of correctional-developing region is carried out through the content of remedial courses in psychological and

pedagogical support, one aspect of which is speech therapy work.

The analysis of publications of psychological and pedagogical special literature in the field of speech therapy for children, as well as the study of the real state of the problem of speech development of students with disabilities of various categories, confirm the existence of a contradiction between the existing potential of speech therapy tools and the lack of development of ways to use them in correctional work in modern educational conditions. This fact leads us to rethinking the approaches of the established speech therapy practice, in which an interdisciplinary approach is of paramount importance.

In order to solve this problem, this article reveals the importance of implementing an interdisciplinary approach in correctional speech therapy and focusing on the multifunctional activity of a speech therapist [7]. Many scientists discussed special pedagogics and special psychology. For instance, Enderby, et al. (2000) and Ryan (2004) stress that an interdisciplinary approach to special education is an essential methodological tool for its further development [8-10]. An interdisciplinary approach involves a form of organization of scientific knowledge that is based on certain connections between various systems of special pedagogy and special psychology, correctional and developmental technologies, methodological methods of work, and, ultimately, ensures the effectiveness of achieving a specific goal and solving tasks. It is noted that the basic positions of psychopedagogical assistance to children with disabilities come from the theoretical and methodological basis of interdisciplinary approach, involving the integration of pedagogical, psychological, medical, and social trends [11]. The specificity of the methodology of the interdisciplinary approach is to integrate knowledge based on interdisciplinary, mental-mediated, indirect-applied connections [12]. This makes it possible to cover all vectors of correctional and developmental work, and provides the most optimal conditions for the implementation of special work on the

development and improvement of speech of students with disabilities [13].

### Material and methods

To identify the features of speech development of students with disabilities, an experimental study

**Table 1:** Composition of participants in the experimental study

NO	Categories of students with disabilities	Number of participants
1	Students with visual impairments (amblyopia, strabismus, astigmatism, myopia, etc.)	15
2	Students with mental retardation	15
3	Students with severe speech disorders (General speech underdevelopment (III-IV level of speech development), minimal dysarthric disorders, rhinolalia, etc.)	15

The diagnostic program was developed based on materials [14]. Speech material was selected based on the content of approximate adapted basic educational programs of primary general education for students with disabilities.

Observation, conversations, and experimental tasks were the major methods to study the formation of the language system. In the process of monitoring the speech activity of students, the features of communication with adults and peers were determined.

Before the experimental study, a conversation was specially organized, during which the features of the impressive side of speech of younger schoolchildren with disabilities were determined to establish the ability to understand the semantic content of instructions for tasks.

In order to determine the features of speech development of primary school students with disabilities, a diagnostic program was developed that included specially selected experimental tasks: Recognition and distinction of phonemes; repetition of sounds, syllables, words; and reconstruction, compilation and reproduction of speech utterances.

The diagnostic program consisted of three blocks of tasks aimed at studying a specific component of the language system.

#### First block of tasks

Examination of phonetic-phonemic processes included: a) The study of the state of sound reproduction in different positional and combination conditions (isolated, in syllables, words, phrases); b) the study of phonemic

was conducted in which primary school children with visual impairments, mental retardation, and severe speech disorders participated (Table 1). The study was carried out based on general education organizations in Moscow.

hearing (defining the abilities to recognize and distinguish the sounds of native language as parts of words and isolated); c) the study of sound analysis and synthesis.

#### Second block of tasks

Examination of lexico-grammatical aspect of speech included: a) The assessment of the vocabulary condition (formation of the semantic structure of a word in the unity of its main components; identification of opportunities of lexical units: Usage and semantics); and b) the study of the condition of grammatical speech layer on the morphological (the assessment of formed skills of word-formation and word changing) and syntactic (the assessment of abilities to build up different phrasal constructions) layers.

#### Third block of tasks

The examination of the state of coherent speech focused on the following items: a) Text summary/retelling; b) production of monological speech with and without visual basis; and c) taking into consideration the students' disorders, diagnostic tools were adapted, for example, while writing texts of descriptive nature for children with visual impairment, a wide range of dimension figures and objects were used, besides the pictures offered were large and bright with bold outline.

Grammatically complicated constructions offered for children with speech disorder and delayed

psychological development were simplified and divided into short phrases.

### Result and Dissection

The complex evaluation of the development of language system led to the conclusion that the students with eyesight impairment and developmental delay show a range of specific features while commanding the structural components (phonetic-phonemic, lexico-grammatical, syntactical) of the language (Figure 1).

Those respondents who have eyesight impairment while fulfilling tasks connected with the defining of phonetic-phonemic layer of speech faced much difficulty in spelling certain phonemes (poor articulation, unstable pronunciation), at the same time they demonstrated the ability to differentiate the acoustically complex sounds. Overall, the successful completion of the tasks of this block equaled to 80.4%. The lexico-grammatical aspect of the language was characterized by numerous essential drawbacks: The used figures of speech and means of communication were poor and monotonous. The children with eyesight impairment did not differentiate the attributive vocabulary, besides they showed the limited usage of abstract notions. Only 53,6% of all students could manage the tasks. The students with sight impairment showed the ability to use collocations of different forms in their speech at a sufficient level; however, they used the same pattern in their speech and made mistakes while choosing an appropriate word and in the agreement of lexical units while building up new sentences. The coherent monologue speech was less extended and was limited to the enumeration of actions and events. While retelling a story these children gave only a brief description of the plot; at the same time, the children's texts did not reflect the artistic peculiar features. 67% managed this block of tasks.

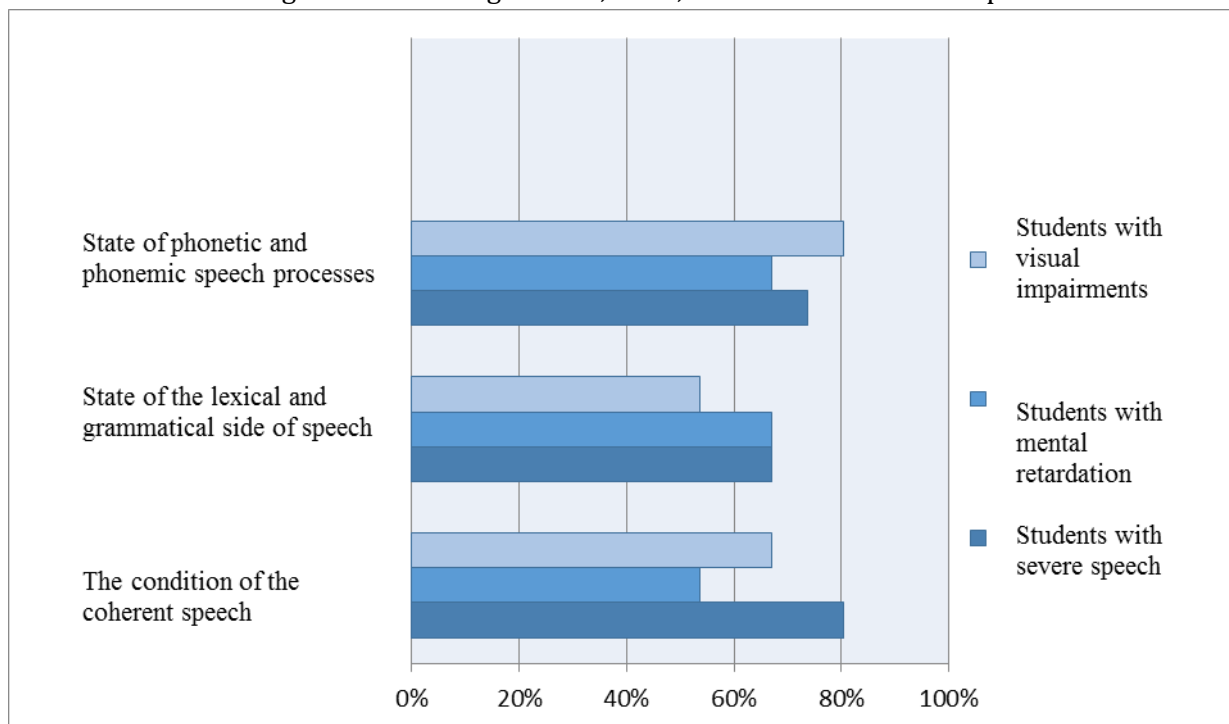
The students with delayed psychological development faced the following difficulties while doing the tasks: They demonstrated an inaccuracy in differentiating sounds and stable disorders in sound producing sphere of speech.

Students show the results the analytical syntactic abilities when working with simply structured words, while more complicated in sound-syllable structure words were beyond their understanding. Only half of the children (53.6%) managed to do the tasks of the 1<sup>st</sup> block. As for the second block, a number of lexical mistakes were made: The incorrect usage of words with close meanings, verbal paraphasia, and the misuse of lexical compatibility. Inspecting the grammatical aspect, we could observe that children's statements were not correctly formed grammatically, the wrong word order was used, and the rules of coordination and government were violated. As a result, 67% of all tasks were fulfilled. While producing a coherent speech, such mistakes as semantic discrepancy in contents of the text were evident fragmentation in text presentation, as well as the distortion of composition structure and logical order of text fragments. Besides, the children with delayed psychological development demonstrated the limited use of figures of speech. The evaluation of phonetic-phonemic aspect of speech among children with Severe Speech Disorders revealed certain difficulties in analysis and synthesis of sound word structure, defining sounds characteristics; some students had difficulty in differentiating sounds which had similar acoustic features and mistakes in pronunciation of sounds with late language acquisition (late ontogenesis).

Overall, 80.4% of all respondents managed to do the tasks. The lexicon of primary school children is limited in quantitative and qualitative aspects, the semantic fields are narrowed, and the semantic and attributive connections between verbal signs are not developed enough. System relations between lexical units are not fully formed. Grammatical aspect of the language among children with SSD had some peculiar features, which manifested themselves as follows: The answers were simple and lacked variety, the sentences had simple structure, and compound prepositions were wrongly used. The number of students who performed the tasks successfully was 67%. Difficulties connected with monologues production were expressed in the

lack of possibility to choose lexical units of predicative nature. It, in its turn, was reflected in an inaccurate rendering of text messages' idea,

omission of significant parts of speech. The tasks of the 3d block were successfully completed by 73,7% of all children with speech disorders.



**Figure 1:** Indicators of success in performing tasks of the diagnostic program for students with disabilities, %

During the research, it was found out that a group of children with limited health abilities was not congeneric. Each category of children with different psychic and physical developmental disorders possesses specific psychological and pedagogical speech peculiarities, which are unique for one particular category and which should be taken into consideration while choosing what kind of methods of special work should be implemented. Such kind of correction interaction compensates, to a certain extent, the disordered functions and activate psychological processes, which stimulate further children's development. One of the most important psychological functions is speech. This is a sphere where people can demonstrate their abilities to develop cognitive thinking, self-organization and self-realization. The efficient speech acquisition can be guaranteed only in case of effective functioning of all parts of human brain and analysis system as well as adequate conditions of children's upbringing and development both in families and social environment.

The key factor that should be taken into consideration in the process of organizing

correction and speech therapy is the interdisciplinary approach, which presupposes the integration of knowledge from different scientific spheres, which guarantee the results in speech development among children with limited health abilities.

To evaluate correctly the possibilities of development for the children with various disorders, it is essential to do a profound study of their speech peculiarities. This research presupposes the collection of different data, about the child's early development, the level of development of phonemic processes, the peculiar features of organs of articulation and oral praxis, about the development of expressive and impressive aspects of speech. The presence of not only speech disorders but intellectual and sensory deprivation leads to the necessity of actualization of the knowledge from all spheres of specialized psychology, logopsychology, psychology of blind and visually impaired, etc, and psycholinguistics. This knowledge forms a fundamental basis for planning and projecting the diagnostic programs. To adequately assess the speech capabilities of students with

disabilities, the method of presenting diagnostic tasks, the selection of appropriate forms of instructions and the selection of diagnostic tools is of particular importance; it should be as convenient as possible for use in the examination process. The results of the study which aimed at studying the features of the speech state of each student with disabilities are of paramount importance in the development of correctional speech therapy work.

In terms of theoretical and methodological nature, the initial position is taken by the concept justified by L. S. Vygotsky about the zone of proximal development, which is understood as the result of completed tasks at the time of research, and the zone of immediate development of the child as an opportunity to learn new knowledge and skills in the long-term plan. Particular importance is attached to the concept of the system structure of the disorder, which is a hierarchical structure of the primary disorder caused by damage to the Central nervous system or analyzers, and secondary disorders determined by the primary ones [11]. The field of applied knowledge covers the existing ideas about the features of the mental development of each student with a particular disorder and the results of a speech examination. Taking into account the obtained data, priority strategies are identified in the development of the content of the program of correctional speech therapy. The software for speech therapy correction of students with sensory, speech disorders, and mental retardation contains an extensive section on overcoming speech deficiencies and developing all components of the language system, it also provides the inclusion in the program of the content of work on the development of basic mental processes and cognitive activity. This integrated approach is due to the close connection between speech disorders and other aspects of mental activity [16].

This direction is a specially organized process of correction and speech therapy work, where a developed program is implemented aimed at overcoming difficulties in phonemic processes, correcting phonetic violations, developing skills to use the rules of grammatical design of

statements in speech, expanding the variability of syntactic constructions, and improving coherent text messages.

Of particular importance in the process of correctional speech therapy work with students with disabilities is the creation of conditions for the development of preserved functions, activation of potential opportunities and increasing the level of overall development. The productivity of correctional speech therapy work is determined by rational selection and combination of adequate methodological methods of work, the use of correctional and developmental technologies and a variety of activities borrowed from various areas of special pedagogy and psychology. The variety of developmental disorders in each case determines the choice of forms of organization and conduct of speech therapy, as well as the development of didactic material.

In the process of correctional speech therapy, one of the important areas is advisory and educational activities, which provide the interaction of all participants in the educational process, including parents. The main goal of the advisory and educational work is to increase the level of knowledge about the features of various developmental disorders in primary school children with disabilities, about potential development opportunities and ways to solve emerging problems in children. In achieving the success of speech development of students with disabilities, as a result of correctional speech therapy, it is of particular importance to solve the problems of creating special conditions not only in the educational organization, but also at home. At home, the social and communication zone expands, and it becomes possible to consolidate and improve the skills acquired in special classes. Advisory and educational activities can be carried out in the following forms of work: Individual and group consultations, workshops, group parent meetings with viewing fragments of classes with students. Currently, poster visual information is widely used in educating families and teaching staff, as well as materials on various issues of teaching and upbringing children with disabilities, posted on social networks.

## Conclusion

The multidimensional nature of the interdisciplinary approach is manifested at various stages of speech therapy). Understanding the uniqueness of speech development of children with visual pathology and mental retardation, aggravated by existing developmental disorders, focuses on the centralization of an interdisciplinary approach, which is essentially a unifying theoretical and methodological basis of knowledge of various scientific fields. Full awareness of the peculiarities of the child's mental development with a certain disorder contributes to a competent approach to determining the main lines of correctional activity in each case. Integration of knowledge of related disciplines, including the subject areas of special pedagogy (speech therapy, tiflopedagogics, pedagogical technologies for working with children with disabilities), special psychology (logopsychology, tiflopsychology, psychology of children with mental retardation), psycholinguistics, linguistics, typhlotechnics, as well as some areas of knowledge of the medical cycle (anatomy, physiology of hearing, vision, speech, etiology, etc.), enrich and expand the content and methodological aspects of correctional speech therapy, which allows to achieve better results in the development and improvement of speech in children with disabilities of various categories.

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## Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to be responsible for all the aspects of this work.

## Conflict of Interest

We have no conflicts of interest to disclose.

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