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DIFFICULTIES IN MASTERING MATHEMATICS AT THE ELEMENTARY LEVEL OF EDUCATION IN SCHOOL FOR CHILDREN WITH SEVERE SPEECH DISORDERS (SSD)

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Abstract. The publication discusses the main problems and features of mastering mathematics at the initial stage of schooling by students with severe speech disorders. Particular attention is paid to the difficulties associated with solving arithmetic problems, and an analysis of the requirements of the curriculum in this aspect is given.
Keywords: mathematics, teaching, school, severe speech disorders, students, problem solving.

At the present stage the problem of studying the peculiarities of mastering the mathematical knowledge and ideas with children of primary school age with severe speech disorders (SSD) has become topical for several reasons: increased age of children in learning math content, increased the requirements of school mathematical training, changed social conditions and the attitude of adults to the care and education of children.

Despite the theoretical validity of the didactic conditions of teaching mathematics in educational institutions, V. A. Kozlova, A.M. Leushina, Z. A. Mikhailova, N. I. Nepomnyashchaya, E. I. Shcherbakova, etc. They talk about the difficulties of forming mathematical representations in children. The main errors in the performance of mathematical tasks are allowed due to the inability to exercise self-control, explain their actions, include mathematical terms in speech utterance.

To a greater extent, difficulties in mastering mathematics at the initial stage of school education are observed both in children with preserved mental development and in children of primary school age with SSD. According to researchers (V. A. Krutetsky, K. Barth, etc.), the inability of children to math is more common than the inability to read.

Failure to make correct calculations can seriously complicate a person's life and hinder their career. The ability to count is a fundamental skill, without which it is impossible to fully receive an education and in the future-to master the profession.

The analysis of world experience allows us to identify the most important trends in understanding the need for mathematical education for all school children, the desire to include general mathematics courses in the curriculum at all levels of education and the deep differentiation of mathematical training. The formation of a dynamic, comprehensively developed personality makes it necessary to familiarize children with the logic of counting activity, which is of great importance for the holistic, including cognitive development of the child.

Studies of many scientists have proved that the specific features of the development of the cognitive and speech sphere in primary school children with SSD determine the specifics of the formation of their mathematical representations and concepts (L. B. Baryaeva, E. A. Ekzhanova, A. Germakovskaya, R. I. Lalaeva, etc.) [1; 2]. The formation and development of the functions of the account is closely connected with speech, which, being included in its

structure, acts, on the one hand, as a means of expressing this complex system of knowledge, and on the other – as an organizer of the activity of the account.

In the structure of the symptom complex of disorders in speech underdevelopment, difficulties in the formation of counting operations are observed, which is due to the insufficient formation of the following verbal and non-verbal mental functions:

- ∇ visual gnosis;
- ∇ spatial perception;
- ∇ manual motor skills;
- ∇ temporary views;
- ∇ successive and simultaneous abilities;
- ∇ memory;
- ∇ logical operations;
- ∇ impressive and expressive speech [1; 2].

The specifics of the development of children with speech disorders are reflected in the quality of their assimilation of mathematical knowledge, the acquisition of skills and abilities. However, it should be noted that the success of mastering counting activities directly depends on the formation of information, planning and regulating functions of speech, since the process of mastering counting operations includes the stage of verbalization of counting actions, or the stage of their voicing by the child. Therefore, children of primary school age with SSD have significant difficulties in mastering the account and counting operations.

The study of speech and non-speech mental functions in primary school children with SSD shows that they have insufficiently formed many processes that ensure the mastery of elementary mathematical activities. Aborted and successive simultaneous processes (disturbances in the determination of the ratios of the parts and the whole, making connections between elements of the structure of the whole, in the implementation of successive functions removesprite and redagavote), incompleteness of logical operations, the discrepancy norm of mathematical knowledge (mistakes in understanding the meanings of mathematical terms, naming numbers, orientation in the natural row numbers, back account, implementation of the arithmetic operations of addition and subtraction) – all this has a negative impact on the process of forming accounting operations.

For example, let's consider how speech disorders and the associated difficulties in mastering mathematical knowledge and concepts affect the process of understanding and solving arithmetic problems.

Problem solving plays an important role in teaching mathematics to students: a culture of thinking, communication and expression of their own thoughts is instilled; the ability to listen to the opinion of the teacher and classmates is developed, to analyze and evaluate what is heard; accuracy in keeping records; expanding horizons; cultivating a sense of collectivism among school children, etc.

In the process of solving text problems, children also learn: to perform operations of analysis and synthesis, abstraction and concretization; to conduct reasoning by analogy; to generalize ways of solving problems; to find signs of abstract mathematical concepts in real objects and, consequently, to establish the connection of theoretical knowledge in the field of mathematics with life. Problem solving contributes most to the mental development of students with SSD, especially the formation of their logical thinking. Solving problems, children learn to think coherently, consistently, reason and justify their judgments. The process of solving problems contributes to the development of memory, attention, coherent speech, enriching the

vocabulary of children through new words and phrases, as well as the use of familiar expressions in other conditions.

Finally, tasks are of great educational importance, as they contribute to the formation of such important personal qualities as curiosity, perseverance, activity, initiative, and patience.

In the framework of research by A. Germakovskaya, G. S. Gumenna, L. S. Tsvetkova, the peculiarities of the process of understanding and solving arithmetic problems in students with SSD were noted:

- ∇ difficulties in analyzing the content of simple arithmetic problems;
- ∇ difficulties in establishing dependencies and relationships between task data;
- ∇ difficulties in finding arithmetic operations corresponding to logical relations of aggregates in the problem;
- ∇ difficulties in understanding the condition and final question of the arithmetic problem [2; 4].

Based on the analysis of the curriculum for special general education institutions for children with severe speech disorders and for children with learning difficulties in the academic subject "Mathematics" (1st grade), it was found that it was developed on the basis of the mathematics program for 1st grade general education institutions. The program provides for the assimilation of mathematical concepts on a specific life material. Work on preparing for solving simple arithmetic problems begins from the first days of school, where children are introduced to simple problems that reveal the meaning of mathematical actions and illustrate different cases of their practical application, but, directly, text arithmetic problems are introduced in the third quarter of the 1st grade, where children begin to get acquainted with simple arithmetic problems of different types. By the end of the school year, in the process of working on simple arithmetic problems, pupils with SSD in the 1st grade should develop skills that would contribute to the gradual mastery of analysis and problem solving, namely:

- ∇ identify the main features that distinguish the task from other tasks;
- ∇ recognition of tasks-tasks and tasks that are not tasks;
- ∇ differentiation of concepts about the condition and question of the problem;
- ∇ conducting a comparative analysis of the problem;
- ∇ describing the situation referred to in the problem condition;
- ∇ highlighting the condition and question in the task text;
- ∇ highlight the numbers mentioned in the problem text [3].

Meanwhile, the teacher, in turn, should form in students with SSD a conscious implementation of the choice of action when solving simple tasks to find the sum and difference. Also, in parallel, in mathematics lessons with primary school students with SSD, it is recommended to work on the formation of the ability to read mathematical texts (expressive smooth reading, with the emphasis of the main points in the voice). Development of students ' ability to reformulate the text of the problem, i.e. the ability to retell in other terms will contribute to a better understanding of its meaning.

Based on the above, it is worth mentioning one of the main directions in the work with pupils of primary school age with SSD – about vocabulary work, which largely depends on the understanding of the meaning of the task and, as a result, the result of the activities of younger pupils. Vocabulary work in mathematics lessons to teach the solution of simple arithmetic problems is to explain the meaning of incomprehensible words that are specific mathematical terms, as well as other words that characterize the names of people's occupation,

profession, etc. In this case, the value is expanded words (familiarization with the polysemy of words), clarification of the meanings of words, enrichment with new words denoting quantitative, spatial and other relations, some species and generic concepts. Simultaneously with the explanation of words and phrases, there is a clarification and consolidation of pupils ' understanding of their meaning. It is often used to explain the meaning of words using illustrative clarity. Illustrative visualization is mainly used in the 1st grade in the form of drawings that are used in a ready-made form from a textbook or in a multimedia presentation.

Based on the analysis of the textbook for the 1st grade of special general education schools with the russian language of instruction, we found out that in the textbook all the work in teaching problem solving is carried out on the basis of rational use of various forms of visibility.

When introducing tasks of a new type, the teacher uses full subject visibility or schematic display of data with the help of circles, squares, etc. also in the textbook the content is presented, where each lesson corresponds to a certain topic. In the classroom, pupils with SSD solve problems of different types:

- ∇ the problem of finding the balance;
- ∇ the problem of finding the sum;
- ∇ tasks to increase the number by several units;
- ∇ tasks to reduce the number by several units.

So, the learning process at the first stage of general secondary education should be organized taking into account the age, cognitive and speech capabilities of primary school pupils with SSD, the specifics of the program requirements of the subject, its place and role in school education.

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