

## PEDAGOGICAL CONDITIONS OF GEOMETRIC IMAGINATION FORMATION IN PRIMARY CLASS STUDENTS WITH INTELLECT DEFECTS

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**ABSTRACT:** - In this article, the scientific theoretical foundations of the formation of geometric imaginations in elementary school students with intellectual disabilities are covered. An analysis of the pedagogical conditions for the formation of geometric concepts in elementary school students with intellectual disabilities is given.

**KEYWORDS:** Elementary school students with intellectual disabilities, geometric imagination, pedagogical conditions, education, geometric concepts, individual characteristics, practical activities, concepts.

### INTRODUCTION

Gathering enough emotional experience is a necessary basis for general mental development, formation of thinking process. This process is based on the active assimilation of the properties of material reality. They are determined by direct contact with the object. B. G. Ananov, P. A. Blonsky, L. S. Vygotsky, P. Ya. Galperin, L. V. Zankov, A. V. Zaporozhets, P. I. Zinchenko, A. N. Leontev, A. According to A. Lyublinskaya, S. L. Rubinshtein, L. S. Sakharov, B. M. Teplova, E. V. Shorokhova, active activity is the leading condition for forming concepts and determining their quality level. The movements of the human hand with the object lead to the formation of the size and contour (shape) in the brain and its mental "copy". According to B. G. Ananov and A. V. Zaporozhets, the sign that provides the most information to the mind and the first signal system is the contour of the object [1, 53]. In the formation of mental actions, the leading role of subject-

practical activity, that is, the logical component in the formation of concepts, was determined [4, 86].

Mastering the standards of form implies mastering the system of actions for their practical application. The stages of the formation of these actions are closely related to the subject-practical activity of the child and its development. In subject activity, the child should master three main types of sensory movements:

1) determining its appearance when comparing it with the newly mastered object, identifying or searching in memory for something similar or close to it in terms of characteristics (comparing the image of the form with the new object and making a conclusion about its shape);

2) to include the perceived object in a certain category according to its shape by looking for additional signs that confirm the correctness of the conclusions;

3) modeling, which implies a final conclusion about the characteristics (shape) of the object, specifying all the characteristics characteristic of such objects.

Under the influence of play, effective and constructive activity, these actions develop from practical actions with objects to their gradual reduction and the ability to visually recognize the features of the object. Children develop the ability to mentally divide an object into parts, in which children consider each of them separately and then combine them into a whole. The main role in the formation of mental processes belongs to the leading forms of activity. The formation of ideas in students with normal development and intellectual disabilities at the age of primary school is carried out under the influence of education.

We relied on the research of L.S. Vygotsky in search of ways to ensure the effectiveness of forming geometric concepts in students with intellectual disabilities. The conclusion was based on the unity of the directions of development of a normal and anomalous child, the need to teach children with intellectual disabilities in the process of practical training and the initial formation of "practical" intelligence, the leading role of education in development. Education should precede development and be the basis for it [5, 50].

The reasons for students' low level and poor quality of geometric imagination, insufficient use of their drawing and graphic skills are the reasons for learning disorders. Inadequate use of effective practical activities in mathematics lessons in learning the elements of geometry negatively affects the effectiveness of the process of forming concepts about shape.

The formation of geometric concepts in the educational process - the child's individual characteristics, assimilation of the emotional components of the concepts during practical activities, their generalization and their combination with the study of theoretical knowledge help the development of mental actions. The uniqueness of each child's disability and the characteristics of learning the geometric material associated with it require an individual and differentiated approach, taking into account separate groups of children. Summarizing and combining information is the most important psychophysiological mechanism of brain activity. The implementation of interdisciplinary connections is based on the generalization and integration of information obtained in the system of teaching subjects. Therefore, it can be concluded that concepts with the necessary completeness, stability, integrity and effectiveness can be formed on an interdisciplinary basis.

One of the ways to make interdisciplinary connections and to provide conditions for the formation of qualitative concepts of form is to include constructive activities in this process. V.P. Grikhanov, N.F.Kuzmina-Syromyatnikova, Yu.T.Matasov, M.N.Perova, S.M.Popovich, P.G.Tishin participated in the development of the methodology for teaching mathematics to children with intellectual disabilities. V.V.Ek and N.P.Pavlova, V.A.Shinkarenko, who took part in the development of the methodology of labor education, noted the possibilities of using construction to improve the quality of learning and solve corrective and developmental issues. Construction affects the development of students' spatial concepts, thinking, speech, and imagination [7, p. 13].

M.N. Perov described the activity of making geometric shapes as an opportunity to make interdisciplinary connections of geometric material with mathematics and technology education, to combine knowledge acquisition using them. [3,53].

Implementation of interdisciplinarity in the educational process of oligophrenopedagogy is recognized as one of the most important areas of work in education in order to develop knowledge, skills, skills, develop the ability to express them, and ensure effective generalization. The specific characteristics of the composition of students with mental retardation, the content of mathematics and technology lessons, the specific characteristics of the organization of the educational process serve to increase the corrective and developmental value of the implementation of interdisciplinary connections in the field of special education.

A.K. Aksenova, T.V. Varenova, V.V. Voronkova, M.F. Gnezdilov, A.N. Graborov, G.M. Dulnev, I.G. Eremenko, H.S. Zamsky, N. Research by F.Kuzmina-Syromyatnikova, M.N.Perova, V.N.Sinev, V.V.Khitryuj and others shows the possibilities of knowledge acquisition and the prospects of the developmental influence of students on the knowledge activity in the implementation of interdisciplinary connections during the educational process. Various methods developed by these researchers there are instructions on the necessity and importance of communication in the educational process in the teaching methodology of various academic subjects and further development of this problem in special pedagogy. In the works dedicated to the education of children with intellectual disabilities, issues of interdisciplinary connections between labor education and general education are considered. Special attention to this aspect of the problem is related to the importance of labor training in adapting students to future social and life conditions, the ability to acquire knowledge from various subjects and use it in practice. Combining learning of the material with its practical application has a corrective and developmental value, ensures solid and conscious learning of the material, helps to form the skills of transferring knowledge and skills to a new situation [2, 153 ].

H.S.Zamsky believes that an important condition for achieving the effectiveness of acquiring knowledge and skills in children with intellectual disabilities is to ensure the variability of the conditions of reinforcement, repetition and application. Repetition, which helps to increase the level of knowledge, shows the options: performing practical tasks that require the application of knowledge from different disciplines in a changing environment, variety of materials, conditions for performing exercises.

GM. Dulnev states that, while recognizing the positive effect of work on the consolidation of theoretical knowledge in practice, the integration of labor education and general education subjects limits the issues specific to each subject.

S. L. Mirsky shows that in the process of teaching children with intellectual disabilities to work and other subjects, their interaction is interdependent in the implementation of interdisciplinary connections. Labor education not only requires the involvement of knowledge from other subjects, but also helps to form generalized educational skills necessary for the development of reading, writing and speaking skills. The author believes that interdisciplinary connections are one of the important conditions for the formation of the ability to "reflect the image of science". Implementation of such connections in the process of preparation for work is

considered as a unique technique aimed at correcting and developing the target aspects of work and other types of activity. He believes that ensuring the interdependence of the studied sciences is the most important aspect of forming the ability to see and understand the causal relationships of objects and phenomena of the surrounding environment.

S.Sh. Aytmetova, L.S. Vavina, E.N. Gruzintseva and others emphasize the importance of establishing interdisciplinary links between the Russian language and labor lessons, which, in their opinion, improves motor skills, speech, spatial orientation, which help master oral and written speech. has a significant corrective and developmental effect on students.

According to S.Sh. Aytmetova, the special organization of interrelated speech and practical activities in labor lessons in a special school increases the effectiveness of speech development in the relevant classes.

A.M.Pyshkalo defines the need for early formation of practical skills of a drawing-graphic nature: depicting (drawing) shapes and lines using drawing-graphic tools. Various types of practical activities have a special place as sources of geometric knowledge. Practical work is also considered as the main condition for the formation of the ability to apply them. Modeling is widely used in them: the production of geometric shapes when working with various materials (paper, plasticine, etc.). He emphasizes that the formation of knowledge about geometric shapes is of an experimental and practical nature. The necessity of conscious application of mathematical knowledge by primary school students in technology lessons, the possibility of practical use of the material before the requirements of the mathematics program is shown experimentally. A.M.Pyshkalo justified the possibility of practical acquaintance with forms (cylinder, cone, etc.) and phenomena (symmetry, etc.) studied in the systematic course of geometry in higher grades.

Our observations in the educational process show that the unity of terms in defining geometric objects in mathematics and technology classes is insufficient. If in mathematics lessons students learn specific geometric terms, then in technology lessons, geometric shapes are designated by the names of household objects ("circle" instead of circle, "line" instead of rectangle, "cube" instead of cube). In mathematics classes, there is not enough variability of practical work (the same materials, types of tasks, etc. are used. They do not fully correspond to the logic and characteristics of their formation and use by children. The situation, to a certain extent, is related to the development of insufficient methodology of the problem. Currently,

technology in science methodology, there is no system of practical works and exercises that help to form geometric concepts and drawing-graphic skills in practical activities.

The integration of mathematics and technology in the process of special education has a positive effect on the application of general methods of formation and consolidation of geometric concepts and their active use in practical activities in technology classes. The positive role of interdisciplinary connections in the formation of a comprehensive system of knowledge and skills with a generalized character, a high level of generalization and efficiency is recognized by all researchers. The developmental task of interdisciplinary connections is of particular importance for implementation, and involves the development of thinking processes, attention, memory, perception, and speech. It was proven that the coordination of interdisciplinary integration in the process of special education has a positive effect on the formation of knowledge and practical experience, and it is necessary to analyze and research it as an object of scientific research..

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