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DISTINCTIVE FEATURES OF SOCIO-PSYCHOLOGICAL ADAPTATION IN LEFT-HANDED CHILDREN AND FACTORS AFFECTING THEIR ADAPTATION

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ABSTRACT. This research aims to explore the nature of left-handed children and identify the necessary conditions for their effective preparation for school. The study analyzes the brain activity of left-handed children, specifically their unique characteristics in visual imagery and spatial perception. The research provides a scientific rationale regarding the negative neuropsychological and pedagogical consequences of forcibly retraining left-handed children to use their right hand. Additionally, the author has developed methodological recommendations for developing graphic skills, organizing an ergonomic workspace, and the use of specialized educational tools designed for left-handed students.

Keywords: adaptation, social adaptation, left-handedness, handedness, lateralization, forced hand switching, early childhood educational environment, accommodation and assimilation, homeostasis, stigmatization, inclusive education.

“Adaptation” is an interdisciplinary concept that has been examined by researchers from various fields of knowledge. The term "adaptation" comes from the Latin *adaptatio*, meaning "to adjust." Analyzing the existing definitions of "adaptation" allows them to be grouped by their common features: definition through translation, which is mainly tautological; and definition of adaptation as a process, a phenomenon, a result, or a characteristic (a system of characteristics).

Adaptation [Lat. *adaptatio*, “adjustment”]: 1) the adjustment of an organism to various living conditions; 2) a change in the level of sensitivity of the sense organs as they adjust to the stimuli acting on them (for example, the eye adjusting to light or



darkness). As the strength of a stimulus changes, sensitivity changes too. When stimuli act weakly, sensitivity increases; when they act strongly, it decreases. The phenomenon of adaptation is characteristic of all external senses (vision, hearing, smell, taste, bodily sensation). Adaptation is strong in tactile, temperature, olfactory, and visual sensations, and weak in auditory and pain sensations. No adjustment develops to internal sensations (for example, thirst and hunger). Adaptation ensures that the organism maintains its normal vital activity and adjusts to various environmental factors: changes in temperature and climate (climatic acclimatization), altitude (altitude sickness), and many infectious agents (immunity). The adaptive reaction is based on continuous changes in the intensity of metabolism. The adaptive reactions of the human body are divided into fast and slow, and into innate (formed during the evolution of the species) or acquired (specific to each organism). For example, withdrawing a limb in response to a painful factor, deeper breathing during physical work, faster blood flow and heart activity together with a redistribution of blood, and an increase in the eye's ability to perceive light in the dark are all innate, fast adaptive reactions. Each person's ability to adapt to different living conditions depends on heredity, age, health, and other factors. Left-handedness is a normal condition. It is a natural characteristic of a person's choice of hand and a normal variation. A study led by Australian scientists identified 41 genetic loci (gene positions) associated with left-handedness and seven additional loci associated with the ability to use both hands equally (ambidexterity). Real-time ultrasound examination showed that lateral behavior begins in the womb as early as the 10th week of pregnancy, which confirms that hand preference is under genetic control. There are roughly five left-handed men for every four left-handed women. It has also been found that family and, to some extent, environmental influences play a role in whether a person is left-handed or right-handed. Our hand preference usually becomes noticeable in the first 2 or 3 years of life. We live in a world designed mainly for right-handed people and created by them. As a result of the social norms of the 19th century and the first half of the 20th century, many left-handed children were forced to learn to work with the right hand during schooling.



To make children give up left-handedness, cruel and oppressive methods were often used, including inflicting bodily injury, tying the left hand, or forcing the child to sit on the left hand while writing. Such practices continue in some parts of the world, particularly in regions of Asia and Africa where left-handedness is still not tolerated. According to the data, two-thirds of the world's population still discriminate against left-handedness. These attitudes may also be relevant to Australia, because with immigration, people bring their cultural beliefs and habits with them. Such cultural attitudes are instilled in the formation of a child's skills within the family before the child starts school, and this conceals the child's natural hand preference once they go to school. It has been more than 60 years since Australian educators stopped "correcting" left-handedness on a mass scale. The timing of this change coincides with the period when the academic achievement of "right-handed writers with a left-hand preference" was found to be lower. Even so, isolated cases are still heard of, in which educators try to steer a student away from left-handedness. Changing a person's left-handedness (natural hand use) causes physiological changes in the brain, but it does not completely eliminate the functional areas responsible for left-handedness. The left hemisphere of the human brain controls the motor functions of the right side of the body, and the right hemisphere controls the left side. However, forcibly changing hand use leads to both hemispheres being involved in control.

Researchers have previously found a link between the prevalence of stuttering and both changed hand use and weak lateralization (the specialization of brain functions in a particular hemisphere). Other consequences of changing hand use include disorders of speech, memory, and concentration, as well as low productivity and low self-confidence. Left-handers who were forced to write with the right hand still continue to prefer the left hand in most other activities, despite intensive writing practice. We often hear apologies from older, "changed" left-handers who are ashamed of their poor handwriting because they were forced to write with the right hand in childhood. To avoid such conflicts in brain function, students should be taught in the right way, with the right tools, and with



the right hand (according to their natural inclination). Although left-handedness is no longer penalized in Australian schools, understanding of the methods needed to support these students seems insufficient. The support given to left-handed students can for now be described simply as "passive." Any curriculum, whether formal or informal, must put left-handed children on an equal level with right-handed children and must not discriminate against left-handed children in teaching methods or resources. Even so, left-handed children should not be singled out, because this leads to discrimination (stigmatization). Left-handed children should be treated like their right-handed peers, but "left-handed techniques" should be taught to them where necessary. This helps them be accepted among their peers and feel normal. Poor development of basic skills leads to insecurity, reduced self-esteem, discrimination and exclusion, and slower progress through the stages of learning. Within the general theory, the well-known scholar Yu. A. Urmantsev analyzes existing definitions of adaptation in order to develop a teaching system and points out their typical shortcomings as follows.

The concept of adaptation includes the dialectical unity of the environment and the object, the unity and struggle of opposites. In our view, there is another important perspective on adaptation: as a process of interaction between subject and object, and between subject and subject. Changes are connected with the emergence of new properties, new combinations of properties, the partial loss or complete disappearance of properties, and so on. Interaction always leads to some kind of dominance, to the prevalence of one thing: of one subject over another, of the object over the subject, or vice versa, and accordingly to adaptation to this dominant. At the same time, the emergence of a dominant, as an inevitable moment in the evolution of all living beings, is in fact the second and leading active side of the adaptation process: adjustment. The adaptation mechanism developed in evolution allows the organism to exist directly under changing environmental conditions. But the organism is not in a static state. The "organism–environment" system is in a state of dynamic equilibrium, so the adaptation process must be carried out constantly. Thanks to adaptation, homeostasis is maintained



in this system. Adaptation processes occur at different levels: molecular, cellular, individual functions, organs, the whole organism, and specific systems. Accordingly, authors who study the problems of adaptation distinguish the following types: biological, physiological, social, psychological, emotional, professional, artistic, educational, literary, technical, linguistic, and others. Moreover, all these types can interact with one another, for example in the formation of biochemical and socio-psychological adaptation. Real, complex adaptation processes represent a single whole, but to build the logical structure of our research we need to single out certain types of adaptation. In the course of our research, we studied how left-handed children adapt to the educational environment in the first years of kindergarten. This is social adaptation, which is connected with general relationships. Social adaptation, like adaptation in general, is the dialectical unity of the environment in the realization of the individual's goals, the unity of the person and the social environment. On the one hand, the person's own nature is being formed; on the other, this environment is changing.

In describing social adaptation, it should be noted that there is continuity between biological and social mechanisms. L. S. Vygotsky wrote that, through social factors, the biological dissolves into the social, the biological and organic into the personal, and the "natural," absolutely unconditional, into the conditional. This is the specific material of psychology. The problem of social adaptation has been studied by many scholars, including G. A. Ball, V. B. Orlov, and E. Erikson. In a broad interpretation, adaptation is understood as the unity of oppositely directed processes of accommodation and assimilation. Accommodation ensures that the functioning of the organism or subject changes in line with the characteristics of the environment, which are processed according to the structure of the organism or the subject's mode of behavior. The processes of accommodation and assimilation are closely interrelated, but in certain situations one of them may play the leading role. The term "accommodation" comes from the Latin word for adjustment.



G. A. Ball stresses that, in studying adaptation, the multilayered components of the "individual–environment" system must be taken into account, because the same phenomena in their objective manifestation can be interpreted differently. The subject's realization of their own goals can be viewed as a particular type of assimilation, that is, an adaptation process that ensures the subject's equilibrium with the environment. The acceptance and solution by a person of tasks proposed to them from outside can be interpreted as a manifestation of accommodation, that is, adjustment to the environment. But if a task is accepted by the person and has become their own task, then actions aimed at solving it appear as a manifestation of assimilation. Ball notes that when accommodation is meant, that is, when adaptation is considered in the narrow sense, the phrase "adjustment to the environment" can be used, but when adaptation is described in the broad sense, the term "adaptation to the environment" should be used. E. Erikson warns of the danger of assimilating the personality in extremely difficult situations, and of losing the self. This is one of the possible outcomes of social adaptation. Social and mental adaptation are closely interrelated. Mental adaptation means the process of establishing correspondence between the mental characteristics, states, and processes of the individual (in the course of their activity) and those of the environment.

As A. V. Morozov noted, this process "makes it possible to satisfy the person's urgent needs and achieve the important goals connected with them, while ensuring the person's maximum activity and that their behavior meets the demands of the environment."

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