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SCIENTIFIC FOUNDATIONS OF WORKING WITH LEFT-HANDED CHILDREN OF PRESCHOOL AGE

Annotation. *This article presents the scientific and theoretical foundations of working with left-handed children of preschool age. In the article we have revealed the concept of left-handedness and examined the theories of scientists about the emergence of left-handedness. We have shown how a left-handed child manifests himself. The theoretical data were based on the works of famous researchers, Kazakhs, Russian countries abroad, who conducted numerous studies of the term, the concept of left-handedness, wrote many books, works.*

The best results are obtained by applying appropriate techniques and techniques to the most important principles of this work – the study of the psychophysiological characteristics of left-handed children, the study of their cognitive, memorizing, attentive abilities. In the article, we have studied and put into practice several effective methods. The study involved 5 left-handed children. In the course of the study, we have drawn up a work plan taking into account their characteristics.

The study of left-handedness has been documented in many literatures as a theory, but has rarely been put into practice. Based on all the data, we provided information about the left-handedness of preschool children, and used various methods to determine the cognitive abilities of left-handers.

Keywords: *left-handed children, cognition, memory, attention, psychophysiological features.*

Introduction

In the mandatory educational standard of the Republic of Kazakhstan, requirements for educational content stated «Protection of the child's life and strengthening of health, full physical development, formation of values of a healthy lifestyle based on the national traditions of the people of the Republic of Kazakhstan».

Teaching children healthy lifestyles and caring for their physical development are key components of modern education, as they contribute to the formation of strong, healthy and active citizens. Respect for national traditions and values is also an important aspect of education, contributing to the preservation of the cultural heritage and identity of the people.

These principles reflect important sociocultural and educational values and guidelines that the organization of education in Kazakhstan must take into account and promote in the interests of future generations [1].

The reason for the difficulties in mastering the children's education program is the preparation of children for school. Parents are concerned about the fact that in preparing a child for school there are problems of lack of interests, poor memory, lack of autonomy, timidity or cowardice. In particular, according to statistics on the size of the Republic, up to 7–10% of preschool children are left-handed, which raises the question of how to organize the pedagogical process with them. Until today, in the field of general and preschool pedagogy, no research has been carried out concerning the ontogenetic development of left-handed children, as well as the development of appropriate methods and means of teaching and pedagogical support for preparing such children for school. However, in some studies, according to scientists, including M.M. Bezrukikh, A.P. Chuprikov, repeated training of a left-handed child leads to the fact that he becomes capricious, irritable and sleeps restlessly, his appetite decreases [2, p.110]

This study's significance stems from the limited awareness among educators and teachers regarding the specific needs of left-handed students, as evidenced by the scarcity of instructional materials designed for this group of children.

The issue of left-handedness remains a particularly intricate one in the fields of pedagogy and psychology.

Historically, there was a prevailing belief that left-handed children needed to be brought into conformity with right-handed standards through retraining, which often resulted in the development of neurotic reactions in these children. In light of contemporary knowledge, it is now understood that left-handedness is not simply a preference for the left hand but involves a fundamentally different distribution of functions between the cerebral hemispheres.

The theoretical and methodological basis of the study was the following: Kazakh O.Zh. Askarova «teaching left-handed children», N.K. Mukhamediyarova, M.N. Kasymova, B.K. Orazova, A.Sh. Bakhtiyarova, I.A. Razin, Zh.T. Temirbolatov, A.R. Dosanova, N.M. Dautov, D.I. Isin, researchers from other countries A.R. Luria's concept of functional blocks of the brain; functional asymmetry of the brain the current state of the problem of left-handed (E.D. Chomskaya; S. Springer, G. Deich; V.L. Bianchi) and the problem of left-handed (N.N. Bragina, T.A. Dobrokhotova; V.A. Moskvina; A.P. Chuprikov; M.A. Annet, D. Khorsand, M.M. Bezrukikh, T.V. Pyatnitsa, I. Makaryev, S. Chizhova, S.I. Popova, E.I. Nikolaeva).

The works of these scientists formed the theoretical basis of this last qualifying work. However, there is still not enough work to organize the process of teaching left-handed children.

Materials and methods

Scientists' opinions regarding the occurrence of left-handedness are not only varied, but also contradictory. Despite many studies on this issue, it can be argued that it remains under-researched and there is no definitive support for any hypothesis. In the literature you can find serious studies that do not have definitive proof, as well as studies confirmed by many years of practice. Despite the fact that population-level right-hand preference is well established, the precise magnitude of the percentages of right – and left-handedness still remains to be elucidated. Handedness prevalence is indeed a point of dispute among different studies. Some of these differences might be explained by small sample sizes in individual studies, a problem that has been identified as one of the reasons for the current replication crisis in psychology [3, p.5].

The numerous hypotheses themselves indicate that left-handedness may have different causes and factors leading to its development.

Of course, various factors – socio-cultural, pathological, genetic-are also taken as the basis in hypotheses explaining the emergence of left-handedness, as well as their complex combination.

Left-handedness is one of the most important and main characteristics of a child that should be taken into account in the process of education and upbringing. It is neither a disease nor a disability. Left-handedness is due to the feature of sharing between the main functions of the hemispheres of the brain. Individuals who are left-handed exhibit distinct patterns of brain activity.

A child who is left-handed often exhibits several characteristics in alignment with the «left-handed» category. When such children naturally choose to hold the pen in their left hand and find it comfortable while learning to write, there is no requirement to enforce a «right-handed» writing approach. Even in situations where a child may score higher on the «right hand» category according to the assessment, if they demonstrate better drawing or writing abilities with their left hand and feel at ease doing so, there is no need to push or insist on switching to the right hand for writing purposes [4, p.15].

Sometimes there is also a situation when right-handed, as a result of exposure to external factors, for biological reasons, become left-handed. Such a situation sometimes occurs when a person's right hand is injured, broken, dislocated joint, and the tendon is forced to involuntarily switch to the left hand. Although the influence of the social environment on the appearance of forced left-handedness is not too high, the observation of this problem is formed by the child's seduction to the actions of peers and adults.

Kostikova M.N. in her dissertation research «Psychological features of school training of Children» proposed the types of psychological training [5, p.25-27]. The value of this work would be to identify for the first time the psychological readiness of the child for school, without presenting the situation on the success of educational activities, to

highlight classifications that analyze the qualitative features of scientific and experimental work and psychological training that ensure this success.

In which hemisphere the speech center of left-handers is divided into different groups depending on the intensity: the speech center is located in the right hemisphere; the speech center is characterized by the presence of the left hemisphere.

If a left-handed child grows up at a normal level, develops, and does not retrain, then it will be easier for them to do the same thing as right-handed ones. The main thing is that you take into account his individual characteristics and have a patient, polite attitude. The opinion of scientists about the origin of left – handedness will be heterogeneous, as well as full of contradictions. Despite the large scale of work on this issue, this topic has not yet been thoroughly studied, and there is no evidence of any assumptions. Therefore, there are reasons that lead to left-handedness. The theory of S. Jackson, an English scientist who believed that left-handedness is a habit caused by the influence of social factors, is one of the first concepts about the origin of left-handedness [6, p.63].

Left-handedness is a group of children who require an independent approach. Because it is these children who tend to be more susceptible to the asthenoneurotic response [7, p.36].

Historically, left-handedness was at the heart of undesirable phenomena, so left-handedness began to be re-taught to right-handedness without fail. Svetlov R.S. «specialists who until now were engaged in the upbringing and health of the younger generation believed that it was necessary to teach left-handers to be right-handed, albeit necessarily forcibly» [8, p.18].

If the child shows the strength to write and act with his left hand, the child begins to show imperceptible asthenic symptoms, in particular, the child quickly becomes tired, the ability to work decreases, signs of fatigue of the left hand and pain in the head appear. During this period, the child's nighttime sleep is disturbed, there is no appetite for food, malaise, incontinence, fever are observed in children, and «resistance reactions» are more frequent in relation to parents, educators, and teachers. In rare cases, there are cases of incontinence, inability to hold a bowel movement.

Left-handers can also be re-taught to the right-hand world « even without any negative situations. As a result, the matter of re-educating children necessitates careful consideration of unique factors, encompassing their health, adaptability, personal beliefs, physiological readiness, and psychological traits within each distinct circumstance. Sometimes it is better for left-handedness itself not to carry out retrain attempts, checking all the external signs that accompany left-handedness in retrain skills.

E.D. Chomskaya's research suggests that the left hemisphere of the brain plays a crucial role in facilitating a person's comprehension of spoken and written language and enables them to respond grammatically and proficiently. Additionally, this hemisphere

allows individuals to effortlessly apply mathematical principles and formulas following formal logic, even if they were not previously acquainted with these rules. However, the left hemisphere's dominance may hinder a person's ability to discern nuances in sound intonation and vocal modulation. If a single picture of the world is formed due to the left hemisphere, then the right hemisphere accumulates a model of the world from separate parts [9, p.47-50].

Simultaneously, the right hemisphere of the brain is linked to subconscious processes.

A.A. Leontieva and V.V. Davydov have repeatedly noted that the transfer of the composition of the action. As a result of the fact that an action loses its motive and turns into an action, it becomes a way when the purpose of the action changes, and the motive of an action turns into the purpose of the action, the latter can become a single action, interactions of the «action-action-operation» and «motive-goal-situation» systems constantly occur. The difference between the sides of A.A. Leontieva's actions clarifies, comprehensively analyzes the nature of their internal semantic content, S.L. Rubishtein also proposed a similar scheme of actions [10, p.445-447].

These hypotheses and explanations about the origin of right-handedness were popular in the last century. Nonetheless, contemporary science has arrived at a more intricate and multifaceted comprehension of the subject of left-handedness and right-handedness. While the hypotheses you've outlined, like organ asymmetry and the «shield and sword» theory, offer intriguing cultural and historical explanations, they lack sufficient scientific backing to fully elucidate the origins of these phenomena.

Present-day research in the fields of neurobiology, genetics, and anthropology suggests that left-handedness and right-handedness have more intricate and multifactorial underpinnings, encompassing both genetic and environmental elements. The emergence of left-handedness or right-handedness is intricately connected to the interplay of genetic, evolutionary, and neurobiological factors.

In the current phase of socio-economic progress, within the context of modernizing educational practices, a multitude of challenges emerge across various levels of the educational domain. This includes the enhancement of children's personal growth, the expansion of cognitive abilities, the nuances of individuality, and the untapped potential within the realm of educational efforts, all of which necessitate a comprehensive exploration of the immediate developmental landscape of children [11, p.28].

One of the early theories about the origin of left-handedness belongs to the English scientist S. Jackson, who assumed that left-handedness is the result of a habit influenced by social environmental conditions. However, according to Jackson, such a habit is not passed on from generation to generation [12, p. 16].

Of course, social factors can influence left-handedness, but many years of research conducted in different countries have shown that the percentage of left-handed and right-handed people in human society remains relatively stable and is not subject to significant changes due to environmental influences. It is likely that purely social factors cannot fully explain the occurrence of left-handedness.

It should be noted that there are cases when right-handers become left-handed not due to biological reasons, but under the influence of external circumstances. This is called «forced» left-handedness. The most common causes of left-handedness, sometimes called “forced” left-handedness, are injuries to the right hand, such as fractures, dislocations, or sprains suffered in early childhood.

The influence of the environment may not always be radical, but it will lead to the same result in shaping the 'powerless lefties'. Children often develop their skills by observing and imitating the actions of adults or peers. Thus, a 'non-violent' change is observed, and many left-handers, surrounded by right-handers, may begin to actively use their right hand. It is impossible to exclude the opposite situation, where a right-handed child will be surrounded by left-handers – he may have left-handers in the family. It should be noted that cases of forced change of hand are often accompanied by neurotic and emotional disorders, as well as problems in coordination of movements and mastery of complex motor skills.

It is true that external conditions and environmental influences can influence the formation of a preferred hand in children, but they cannot fully explain the origin of left-handedness or right-handedness. Modern research in the field of neurobiology and genetics shows that left-handedness and right-handedness are more complex and multifactorial phenomena associated with brain function and genetic factors.

There are still many questions and uncertainties in understanding exactly how people develop their preferred hands. However, modern research continues to deepen our understanding of this process, and it indicates that genetics and functional brain asymmetries play an important role in determining whether an individual is left – or right-handed [13, p.44].

«The achievement of success in a child's» educational journey is influenced by various elements. On one hand, it is connected to the teacher's expertise and qualifications, while on the other, it relates to the student's motivation level and the advancement of their cognitive functions [14, p.10]. Cognitive functions encompass the processes that enable an individual to comprehend the world, interact with others, and understand themselves.

These processes encompass sensations, perception, attentiveness, memory, creativity, contemplation, reasoning, language, and awareness, and they hold significant significance in all facets of human engagement. Cognitive processes are an inherent component of human endeavors, whether it's communication, recreation, learning, or

labor. An individual absorbs information from the world, focuses on various aspects of their activities, plans their actions, and contemplates the subsequent moves. All of these processes contribute to an individual's cognitive analysis of the world.

Moreover, these processes do more than just engage in activities; they also evolve and offer distinct functions [15, p.24]. Examining cognitive processes is a significant challenge within the realm of pedagogy because they represent unique psychological attributes of each individual and interact with the psychophysiological, biological, and social factors that shape development.

In contemporary society, the structure of education holds significant importance, thereby making the enhancement of students' cognitive processes a particularly pertinent concern. This necessitates the exploration of novel and enhanced psychological and pedagogical methodologies [16, p.15]. During the preschool years, there is a marked acceleration in the development of thinking, language skills, memory, attention, and creativity. This phase offers an advantageous environment for the cultivation of specific psychological traits, underscoring the need for a dedicated emphasis on nurturing cognitive processes [17, p.11].

Whether specific functions tend to develop more prominently in left-handed or right-handed individuals is contingent upon the activity of a particular hemisphere of the brain. Recognizing these distinct traits in children holds significant relevance within the realm of education.

Result

Considering the age-related attributes highlighted in the study's title, we will employ the following techniques during the data collection phase: Rice's 'tangled lines' method, specifically crafted for examining attention properties such as concentration and consistency; A. R. Luria's method, utilized for the analysis of memory processes, retention, and recall; and a method for elucidating concepts, discerning causality, and identifying commonalities and distinctions between objects.

The experiment was conducted in Pavlodar region, Bayanaul district, Maikain village, Nurbobek kindergarten, preparatory Groups «A» and «B». A total of 5 children took part in the experiment, 5 of whom were left-handed children.

The aim of the practical phase of this research is to evaluate the extent to which fundamental cognitive processes (such as attention, reasoning, and memory) have developed in left-handed children. Our study employs a range of methodological approaches, encompassing exploration, comparison, observation, and differentiation.

The object of our research is the analysis of cognitive processes in children, depending on the dominance of the left or right hand. We explore how the dominance of one hand can influence the learning process.

For evaluating attention in preschool children, we employ the Riess «Tangled Lines» method. This approach is designed to investigate attention attributes, including concentration and consistency, and it enables the assessment of self-regulation abilities, individual performance characteristics, and how they evolve over time.

In this method, children receive sheets with incomplete lines, where the starting point is evident, and the objective is to identify their endpoints using only their gaze, as the use of hands, pens, or pencils is not allowed. Children are allotted a specific time frame to accomplish this task, and when the allocated time elapses, the instruction «Stop!» is issued, and the task concludes.

While supervising a task, it is crucial to consider the following elements:

- Identify the child's prioritization between speed and accuracy in task completion.
- Assess whether the child engages in self-monitoring of their actions.
- Recognize instances where control difficulties may arise (at the task's outset, midpoint, or conclusion).
- Observe any attempts by the child to use their fingers or a pencil, disregarding the prohibition.

To evaluate memory, we employ A. R. Luria's «10 words» method [16, p.136]. This technique is designed for the examination of information retention and recall processes, essentially delving into memory analysis. The stimulus material consists of ten single-syllable words, and individual forms are completed for each child.

The following set of words is used: Forest, bread, window, chair, Water, Horse, mushroom, needle, Honey, Fire.

Children are given instructions:

Instructions: consists of several stages;

a) «Now I will test your memory. I will tell you the words; you will listen to them and then repeat them in any order you can.»

Words are read clearly, slowly.

b) «Now I will repeat the same words again, and you will listen and repeat – both those who mentioned earlier, and those who remember now. You can call words in any order.»

Based on the results, a memorization table or «memorization curve» is created. Here, The X-axis is the number of samples from 1 to 4, and the Y-axis is the number of correctly pronounced words.

Usually 3-5 words are multiplied in the first presentation, and 8-10 in the third.

4 points-High Level – 9-10 words remembered after the 3rd repetition

3 points-average – 6-8 words remembered after the 3rd repetition

2 points – below average – after the 3rd repetition, 3-5 words are remembered

1 point – low level – performance is assessed, where after three attempts the child remembers only 0-2 words.

For the evaluation of cognitive abilities, we employ a method that encompasses the identification of concepts, examination of causality, and recognition of commonalities and disparities between objects. This approach is designed to explore mental operations that enable the assessment of a child's intellectual process development.

We present the child with stimulating material and pose a series of questions to which the child responds. Each accurate response to the questions earns the child 0.5 points. The highest achievable score for a child through this method is 10 points.

In cases where the study author is uncertain about the child's response was entirely correct, and yet the response cannot be deemed incorrect, the child may be awarded a moderate score of 0.25 points.

Prior to assessing the accuracy of the responses, it is essential to confirm that the child comprehends the question in the same manner. For instance, certain children might not instantly grasp the meaning of a term like «Barrier» or «prohibiting log.»

Please note that not only the answers provided in the provided example are regarded as correct, but also any other responses that align with the meaning and rationale of the question posed to the child are considered correct.

This technique is primarily utilized for psychodiagnostics to evaluate verbal-logical and visual-figurative thinking in preschool children. It not only measures their capacity to reach conclusions but also offers comprehensive insights into crucial cognitive processes.

The following are the outcomes of diagnostic investigations carried out on left-handed children employing this method. Additionally, we provide the findings from an attention assessment involving the analysis of Riesz's 'tangled lines'.

Table 2. Diagnosis of attention in left-handed children.

Full name	The level of development of attention (stability and concentration)				
	Very low	Low	Average	High	Very high
Rashid A.				7,6	
Magzum N.		3,6			
Zhanbol A.				7,2	
Narym Zh.		4			
Sagdat O.			5,6		

During the examination of children with right hemisphere dominance, we observed heightened levels of concentration and stability in task completion. These children exhibited a remarkable ability to maintain focus on tasks, even when faced with challenges. Notably,

they prioritized accuracy over speed when completing tasks. It's worth highlighting their strict adherence to the prohibition on using their hands or a pencil for assistance.

Two children exhibited diminished proficiency levels and experienced rapid fatigue. Their task performance declined, and they encountered challenges in maintaining focus on a singular objective. During the task execution, they became disoriented, attempted to restart but became further perplexed. Remarkably, they disregarded the prohibition against using their hands and a pencil and sought assistance using their fingers instead. Their primary emphasis was on speed, rather than precision, and they did not verify the accuracy of their actions.

One child displayed a moderate level of proficiency in task completion. Despite encountering certain challenges, this child exhibited persistence in attempting to finish the task, even when the correct solution proved elusive. Repeatedly, the child verified the correctness of their actions and attempted to assist themselves using their fingers, despite the prohibition. Prioritizing accuracy over speed was a significant aspect of their approach.

We didn't identify noteworthy distinctions between extremely low and exceedingly high levels. This implies that children with left-hand dominance face challenges not only in sustaining their focus on a single object for an extended period but also in maintaining concentration while accomplishing tasks.

Memory assessments conducted through A.R. Luria's «10 words» method yielded intriguing outcomes. A visual depiction of the memory study results in left-handed children is depicted in Figure 1. Based on this data, we can infer that long-term memory capacity is diminished in children with left-handed dominance.

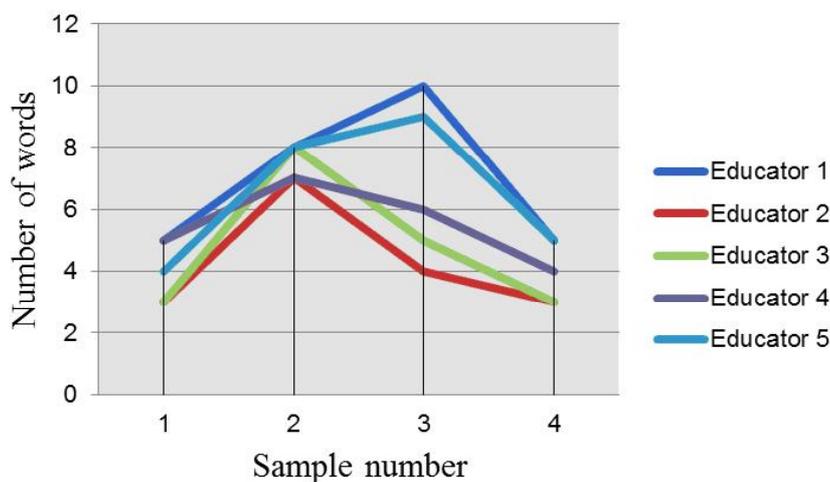


Figure 1-the result of diagnosing the memory of left-handed children

During the initial assessment, the children faced challenges in deciphering the words, requiring multiple attempts to comprehend them accurately. In the second evaluation, where the words were repeated before being spoken, all children demonstrated an improved ability to correctly recall words as they received additional trials. However, in the third assessment, results declined because the words were no longer reiterated, and the children had to rely on their own memory. Notably, it was observed that half of the children employed visual imagery as a mnemonic aid, and their performance did not deteriorate as significantly. In contrast, the other half struggled to recall words they had known just 5 minutes earlier.

Additionally, in the third assessment, a subset of children had additional words, suggesting their disorientation. Typically, in the third repetition, children with typical memory capabilities can accurately recall 8 to 10 words. However, among left-handed children, only two managed to meet this standard. In both instances, the memory patterns exhibited reduced attentiveness, heightened fatigue, absentmindedness, and forgetfulness. Their memory capacity dwindled with each subsequent attempt instead of improving. When we conducted the fourth evaluation after a 30-minute interval, we observed that students with right-brain dominance lacked sufficient long-term memory.

These findings suggest that adequate short-term memory development is typically observed in only two of the left-handed children, with the rest exhibiting inadequately developed short-term memory. This implies that left-handed individuals may be more susceptible to forgetfulness and experience challenges in maintaining focus.

We present the outcomes of the assessment of cognitive abilities in left-handed children through the method of «Identifying concepts, identifying causes, and recognizing similarities and differences among objects.» These results are presented in the table.

Table 3. Diagnostics of the thinking of left-handed children

Participants	Level of development of thinking
Educator 1	High
Educator 2	Low
Educator 3	Average
Educator 4	Average
Educator 5	Average

While examining children with left-hand dominance, a range of thinking development levels was observed. Among these, three children demonstrated an intermediate level of thinking development and displayed significant attentiveness to questions, although some encountered challenges in responding, necessitating repeated clarifications. They found

questions pertaining to visual-figurative thinking more manageable than those related to verbal-logical thinking, such as identifying similarities and differences among objects.

A particular child exhibited strong critical thinking skills and approached the test with diligence, finding the questions relatively easy. Nevertheless, when confronted with questions that required identifying underlying reasons, the child repeatedly double-checked their answers and harbored uncertainty.

Within the group of study participants, there was a child with limited cognitive abilities. This child frequently sought clarification by asking numerous questions, demonstrating a lack of comprehension of the task, and requesting extra assistance. The child's responses were documented in imprecise terms, and there was no subsequent verification or revision of their answers.

A commonly noted observation is that left-handed children typically do not exhibit extreme levels of cognitive abilities, either very high or very low. Instead, their visual and figurative thinking tends to be notably well-developed.

Table 4. Comparative table of the results of all methods of attention, thinking and memory in left-handed children

Participants	Attention development level «Riess's tangled lines»	The volume of long and short-term memory according to the technique «10 words» by A. R. Luria		The level of development of thinking according to the methodology «definition of concepts, clarification of causes, identification of similarities in objects»
		Short-term memory	Long-term memory	
Educator 1	High	According to the norm	Not up to the norm	High
Educator 2	Low	Not up to the norm	Not up to the norm	Average
Educator 3	Low	Not up to the norm	Not up to the norm	Low
Educator 4	Average	Not up to the norm	Not up to the norm	Average
Educator 5	High	According to the norm	Not up to the norm	Average

An experimental investigation into the cognitive processes and their developmental levels in left-handed children enables us to derive the following conclusions:

1. Left-handed children tend to exhibit reduced attention stability and consistency, leading to challenges in maintaining focus on the teacher's instructional material. They may struggle with transitioning their attention from one task to another, making it difficult for them to fully concentrate on the teacher's explanations. Caregivers may misinterpret this as disorganization or a lack of interest in learning, potentially increasing the child's anxiety.

2. Children who are left-handed often undergo an uneven development of memory processes. Specifically, they tend to have less developed long-term memory, leading to less dynamic memory functioning. These children may require multiple repetitions of information to effectively remember it, and at times, visual aids may be necessary to enhance their comprehension and retention of the material.

3. The cognitive development among left-handed children is not uniform; it can be characterized as an irregular shaping of their thinking abilities. Those with a high level of cognitive development tend to grasp the teacher's material and perform tasks with greater accuracy, while others may encounter challenges in comprehending the tasks, leading to difficulties in their completion.

In summary, the research reveals that cognitive processes in children with a dominant left hand exhibit varying levels of development and differ qualitatively from those in children with a dominant right hand.

Children perform a variety of tasks to determine which of their hands is dominant. These tasks involve activities that children can perform on a daily basis and allow them to diagnose which hand they prefer. Below is a list of typical tasks that children perform within the framework of I. A. Razin's quantitative assessment method:

1. Strike a musical instrument using a stick, such as a metallophone or a drum.
2. Use one of your hands to create a specific pattern by placing colored sticks, like drawing a house, fence, and so on.
3. Sketch a circle, square, and triangle with both your right and left hands.
4. Identify which hand was responsible for drawing the shapes or lines on the paper and provide an evaluation.
5. Employ one of your hands to unlock a small box, jar, or bottle. Build a tower from children's cubes, also taking into account the leading hand.
6. Throw a small ball and hold it with one hand.
7. Cut out the curly pattern along the contour using one of your hands.
8. Untie knots on shoelaces.
9. Collect words from letters using a specific hand.
10. Assemble a pyramid of rings, taking into account the leading hand.
11. Disassemble and assemble the constructor.
12. Assemble and disassemble the nesting doll.
13. Place the figures in a box, on the lid of which there will be slits corresponding in shape to the bases of the geometric figures.
14. Arrange cards with images of various objects into groups using a specific hand.
15. Draw the outline of this object, evaluating the lines in the drawing, the drawing method and the convenience for the child.

Advanced tasks:

- Lay out letters from grains (beans, wheat, rice).
- Spread the letter from the lace (braid).
- Exercise «Cinderella» (sort the mixture of cereals, sort by type).

This description emphasizes the importance of taking into account the individual characteristics of left-handed children in the educational process. Because left-handers have a dominant left hemisphere of the brain, their abilities and preferences may differ from children with a dominant right hemisphere.

According to the description, children with a left dominant tend to have a tendency toward imaginative thinking and better perceive information presented in the form of vivid images. Therefore, in the educational process, it may be more effective for them to use methods that ensure clarity, imagery and intonation aspects of speech. This may include the use of illustrations, graphics, demonstrations, and active discussion of the material with an emphasis on expressive language.

An individualized and differentiated approach to the learning process can help left-handed children learn and develop effectively, taking into account their unique cognitive characteristics.

Based on this, we have developed pedagogical recommendations for the organization of educational activities for left-handed preschool children.

Conclusion

It is important to highlight that instructing left-handed children demands extra care and patience. Successful engagement with this group of children, as well as ensuring their education is safe, should prioritize addressing each child's unique traits or, at the very least, consider their highly personalized learning needs.

In groups consisting of approximately 25–30 children, a left-handed child may not immediately appear distinct or readily noticeable. Sometimes identifying them can be challenging. Educators need to be aware that left-handed people may have significantly different perceptions of material and that understanding the information presented may be a challenge for them.

The pedagogical process must be adapted to the individual needs of left-handed children, taking into account their characteristics in the perception and interpretation of information. This is important, because otherwise a left-handed child may experience difficulties in mastering the material and in mastering the educational program.

In conclusion, at the beginning of our work, we defined the purpose of the study, outlined the scientific theoretical foundations of working with left-handed children of preschool age and gave the concept of working with left-handed children in the educational

process of kindergarten. By the end of the work, we have fully achieved this goal. Many methodologies have been used and concepts have been derived from the study.

To achieve this goal:

1. We considered the concept of left-handedness and the reasons for its occurrence, considered the psychological aspects of left-handedness;
2. We analyzed the psychological and pedagogical literature on this issue;
3. We studied the features of the organization of the process of teaching left-handed children of preschool age;
4. We have selected and described diagnostic methods for determining left-handedness in preschool children;
5. We made a general conclusion about the results of the survey and research among educators on the level of education for working with left-handed children.

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Мектеп жасына дейінгі солақай балалармен жұмыс істеудің ғылыми негіздері

Аннотация. Берілген мақалада мектеп жасына дейінгі солақай балалармен жұмыс жасаудың ғылыми-теориялық негіздері ұсынылған. Мақалада солақайлық түсінігін ашып, солақайлықтың пайда болатыны жайлы ғалымдардың теорияларын қарастырдық. Солақай бала деген қандай екенін көрсеттік. Теориялық мәліметтер атақты зерттеушілер, солақайлық терминіне, түсінігіне көптеген зерттеулер жүргізіп, көптеген кітаптар, еңбектер жазған қазақтардың, шетел елінің орыс елдерінің зерттеушілері жұмыстары негізге алынған.

Осы жұмыстың ең басты қағидаларына – солақай балалардың психофизиологиялық ерекшеліктерін зерттей келе, олардың танымдық, есте сақтау, зейін қабілеттерін зерттеу арқылы тиісті әдіс-тәсілдерін қолдану жақсы нәтиже береді. Мақалада бірнеше тиімді әдіс-тәсілдерді зерттеп, іс-жүзінде іске асырдық. Зерттеу жұмысына 5 солақай балалар қатысты. Зерттеу барысында олардың ерекшеліктерін ескере отырып, жұмыс жоспарын құрастырдық.

Солақайлық мәселелерін зерттеу көптеген әдебиеттерде теория ретінде жазылған, бірақ іс жүзінде сирек жүзеге асырылған. Барлық деректерге сүйене отырып, біз мектеп жасына дейінгі балалардың солақайлығы туралы ақпарат бердік және солақайлардың танымдық қабілеттерін анықтау үшін әртүрлі әдістерді қолдандық.

Кілтті сөздер: солақай балалар, танымдық қабілеттер, есте сақтау, зейін, психофизиологиялық ерекшеліктер.

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Научные основы работы с детьми-левшами дошкольного возраста

Аннотация. В данной статье представлены научно-теоретические основы работы с детьми-левшами дошкольного возраста. В статье мы раскрыли понятие леворукости и рассмотрели теории ученых о возникновении леворукости. Мы показали, как проявляет себя леворукий ребенок. За основу теоретических данных были взяты работы известных исследователей: казахов, русских, стран зарубежья, которые провели многочисленные исследования термина, понятия леворукости, написали множество книг, трудов.

Наилучшие результаты дает применение соответствующих методик и приемов к самым главным принципам данной работы – изучению психофизиологических особенностей левшей детей, изучению их познавательных, запоминающих, внимательных способностей. В статье мы изучили и реализовали на практике несколько эффективных методов. В исследовании приняли участие 5 детей-левшей. В ходе исследования мы составили план работы с учетом их особенностей.

Изучение проблем леворукости была зафиксирована во многих источниках как теория, но редко была реализована на практике. Исходя из всех данных, мы дали информацию о леворукости детей дошкольного возраста и использовали различные методы для определения познавательных способностей левшей.

Ключевые слова: левша, познавательные способности, память, внимание, психофизиологические особенности.