INNOVATIONS AND PROBLEMS OF DEVELOPMENT OF MODERN EDUCATION

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NEURODIDACTICS AS A TECHNOLOGY FOR THE DEVELOPMENT OF MENTAL ACTIVITY OF PRIMARY SCHOOL STUDENTS

Abstract

The article is devoted to the development of the mental activity of primary school students through the development of neurodidactic content in the primary education system. Based on the study of scientific literature, an analysis of the current state of neuro pedagogy, and neurodidactics was made, and the experience of using neurodidactic content in the world and domestic educational programs and educational process was considered. Using neuro didactic content such as neuro-exercises, and neuro-tasks in the educational process of the primary school, the relevance of the problem of developing the mental activity of primary school students was determined. The results of the survey conducted with primary school teachers working in different regions of the republic showed that teachers' attitudes and attitudes towards neurodidactics are positive. According to them, neurodidactic content and brain-based teaching strategies and methods create an opportunity to increase the development and activity of students' mental activity.

Keywords: neuro pedagogy, neuro didactics, primary school teacher, primary school student, mental activity.

Introduction. According to the results of the PISA "National Project of Quality Education" educated nation of the state of the Republic of Kazakhstan, the ideas of reducing the gap in the results of Kazakhstani students in international studies are guided (Bilimdi ult, 2021). Based on these documents, in connection with the rapid growth of technogenic information civilization in modern primary education, the question "How to teach?" there is a need to find a solution to the question: "What?"

It is known that in the educational process, a decrease in the health of children, an increase in the amount of information learned from year to year, and a complication of the content of textbooks negatively affect the psychological and physiological development of primary school students. In addition, it can be noted that among primary school students, there are often cases of inability to fully fulfil the requirements set by the teacher, incorrectly developed psychomotor area, incorrectly formed motor and writing skills, and other learning difficulties arising from the peculiarities of the students' thinking System (Bezrukih, 2009).

To identify and study the causes and consequences of such identified important problems in the proposed article, we take as a basis «Neurodidactics», a branch of neuroscience that allows us to understand the ways of organizing the learning process in primary school as optimally as possible.

Conceptual background. Currently, in world practice, there are such interdisciplinary fields of science as neurosurgery, neurophysiology, neurobiology, neuropsychology, neurochemistry, neurodesign, etc., which study changes in the central nervous system and the entire body of people in connection with the functional activity of the brain.

Neurodidactics, originating from medical research and studying the human brain and nervous system (in particular, brain activity), originated at the intersection of such branches of science as didactics, pedagogy, and psychology, is also an interdisciplinary field of Science (Shirshov, 2017; Ligozat et al., 2023).

Neurodidactics is often used in English and German-speaking environments as Neuroeducation and brain-based learning. The goal of brain–based learning is to create a classroom environment that allows development for each student.

According to the Global Digital Humanity

Foundation, from the 1990s to the present day, scientists have conducted several studies on the brain, proving that brain-based learning methods improve students 'knowledge, academic performance and increase motivation, and help develop a reliable memory system (OECD, 2002).

At the same time, scientists are trying to understand to what extent pedagogical and didactic knowledge and principles are supported by modern data in the field of brain research. The ten-year conclusion of an international study called the Brain Decade, published in the United States at the turn of the XXI century, allowed scientists to take a new look at the mechanisms of the brain and ways to increase its performance. At the same time, the international project "Brain and Learning" tried to make the achievements of Neuroscience accessible to teachers. The project brought together scientists from many countries of the world and made it possible to exchange the latest new information about the neural connection of learning (OECD, 2007).

Work in this direction was studied in authoritative Russian scientific organizations (at the Russian Academy of Education (RAE), at the N. P. Bekhtereva Institute of the Human Brain (St. Petersburg), at the Institute of Higher Nervous Activity and Neurophysiology of the Russian Academy of Sciences, at the Institute of Cognitive Neuroscience at the modern humanitarian Academy (ICN), etc.) (Karpenko et al., 2019).

Through neurodidactics, it is possible to obtain answers to various questions that interest teachers, that is, contribute to a better understanding of the development of the brain, and consciousness, in studies in this area, the problem of using the cognitive functions of the brain and nerves in training and education, thereby increasing the cognitive (cognitive) and social activity of the student was considered.

Today, neuro didactics is considered a relatively young, interdisciplinary field of science that uses the results of studying the human brain and the laws of its functioning in organizing the educational process. Neurodidactics is a branch of Applied Science that consists of the fusion of three main areas about the human being, such as neurophysiology, cognitive science, and learning theory (Álvaro et al., 2022; Pérez Sánchez et al., 2022).

The following guidelines are recommended for the development of the mental activity of Primary School students through neuro experience:

Physical movement. Physical movements help train the student. Physical exercises and movements saturate the blood with oxygen, which "feeds" the brain. Students who move during learning learn to read easily and quickly.

Retail training. Primary school students perceive a certain amount of information as a whole, but if there is no connection between the two hemispheres of the brain, the student will not fully understand the information that has reached the brain. Therefore, educational materials must constantly consist of the interconnection of the whole and the part. The frequent use of methods of analysis and compilation, breaking down educational tasks into parts, makes learning easier.

Development of emotional connections. Emotional communication helps consolidate concepts in students ' brains. Emotional intelligence (EQ) plays an important role in the process of teaching primary school students. Emotions are based on different needs. The processing of impulses through the central nervous system leads to changes in the internal body from the organs of movement, that is, emotions arise. The information received by emotion is easily and for a long time stored in the student's memory.

The author of the book "Hormones of Happiness", a professor at the University of California, Breuning (2019) proved that hormones in humans affect the mechanisms of emotion formation and the action of various neurochemicals, as a result of which they help to form stable habits. Proposes to revise behavior patterns and learn how to activate the effects of serotonin, dopamine, endorphins, and oxytocin in the brain.

Teach stress management. Some stressors that motivate you to complete a task or perform an exam well are helpful. However, negative stress can disturb the student's mood and impair learning. The teacher needs to know what stress students are experiencing, so they need to be taught stress management (Hafeez et al., 2022). Stress partially or completely inhibits a person's mental activity, which, as a result, destroys neurons in the brain (Jeremy & Gregory 2021; Fynes-Clinton et al., 2022).

Brain development research. The teacher needs to know about the functioning of the brain, how it assimilates knowledge, and how to use neuroeducational strategies. Through the use of neurodidactics strategies, teachers help the intellectual development of students.

Literature review. In the field of science, such as neuro pedagogy, and neurodidactics, which uses new data on brain activity in the process of school education and creates technologies for the upbringing and development of the younger generation, there are quite a few domestic studies in Kazakhstan, only a few articles. In an article by teachers Mambetalina & Zhumagaliyeva (2019), they showed the importance of neuro pedagogic Science in the process of training and education, the possibilities of tasks for the development of the left and right hemispheres of the brain in the development of cognitive and broad-spectrum skills of the student.

In general, the theoretical foundations of neurodidactics are comprehensively considered in the work of Vygotsky (2019), and Luria (2013). The methodological basis of neurodidactics is guided by the theory of developmental learning in the studies of Vygotsky (2019) and the theories of Luria (2013) regarding mental functions. Vygotsky (2019) distinguished mental functions as "elementary" (natural) and "higher functions" (logical memory, logical thinking, voluntary attention, speech, etc.). It is believed that the coordinated and algorithmically organized work of the brain, which is provided with higher mental functions, contributes to the high-quality assimilation and processing of educational information, and intellectual development for primary school students (Vygotski, 2019).

Luria (2013) explains that complex types of mental activity (memory, perception, thinking, understanding, forecasting, etc.) in reflecting the essence of higher mental functions are regulated by signs and symbols (primarily speech). The two hemispheres of the human brain are closely interconnected and work together to process information in different ways (Luria, 2013; Reddy et al., 2022).

Russian scientist, Doctor of psychological sciences, and researcher in the field of neuropsychology Akhutina (2017) in the study "Method of neuropsychological care for children 6-9 years" found out that the learning difficulties of primary school students relate to neural connections in the brain and wrote several methodological manuals for children. The work of the scientist states that in a newborn, both hemispheres of the brain develop equally and use them in full, gradually one of the hemispheres develops more actively than the other, and the opposite side of the body is responsible for the work of the hemisphere for the development of two hemispherical connections of the brain (Akhutina, 2017).

By the middle of the 19th century, it became clear that the function of the hemispheres was not the same. The French physician, anthropologist P. Broca found that speech disorders and aphasia occur in patients with lesions of the left hemisphere of a person. P. Broca believes that what distinguishes humans from animals, some races from others, is the left hemisphere of the brain (Berker et al, 1986).

It turns out that the Viena Vadini School in Singrauli, Madhya Pradesh, India, teaches its students to write with two hands (ambidextrous) from the 1st grade. This unique school also aroused the interest of scientists around the world. Researchers from South Korea, Germany, and the United States conducted a study on the functional balance of the hemispheres to explain the phenomenon of duality (ambidextrous) in this school. It turns out that the students of this school are taught to write in six different languages: Hindi, English, Urdu, Sanskrit, Arabic, and Latin. At the same time, many students can write in two different languages at high speed. Yoga and physical education included in the school curriculum have been shown to help improve memory and concentration skills (Maheshwari, 2023).

If so, if we try to have the child perform movements with both hands at the same time, we can develop hemispherical connections. The «hemispherical board» allows it to be carried out. You can also perform simple exercises that activate the functional function of the brain by acting on reflex points. Because of the use of kinesiological and neuro-exercises, the child will be able to stay focused longer, concentrate, observe objects and phenomena, and draw conclusions. Thus, neuroexperience for the brain enhances the interaction between the right and left hemispheres, reduces emotional stress, improves perception, and, as a result, expands the intellectual capabilities of the student.

Japanese researchers conducted a study in the 1980s using the National counting tool "Soroban". The advantage of this account is

that during its use it leads to lateralization of the right hemisphere of the child's brain. As a result, the formation of brain systems according to the type of learning is influenced, and the parietal and premotor cortex of the right hemisphere work. Today, in elementary schools in Japan, the National counting tool "sorobon" is used to teach counting.

The synaptic connections between neurons are strengthened as a result of neuroexpersions and physical activity performed regularly and as a result of internal or external stimuli. As a result, by training the sensory perception of the brain, the child will be able to understand the observed phenomena and abstract concepts in the environment and gain experience.

It is known that the brain and body of primary school students develop very quickly, especially more susceptible to external influences. Therefore, a primary school teacher needs to know not only what a child can do at a certain age, but what is needed for further harmonious development.

Preschool and primary school age is the most favourable period for the development of brain structures, and therefore Intelligence, Inter – hemispherical connections, and mental processes (Kaluzeviciute et al., 2021).

Neurodidactics primarily provides personalization of the student's educational activities and is aimed at developing students ' personal qualities. The student's learning activity is focused on meta-subject results: social competence, the development of subject competencies (soft skills), and meta-skills (responsibility, reflexivity, communicativeness, etc.).

Low-achieving students are usually considered by teachers to be negligent children who are not able to perform certain actions correctly. Such children often experience difficulties in reading and counting, solving mathematical problems, and making minor mistakes. This indicates that the child does not develop attention, balance (balance). The reason for this usually lies not in laziness or unwillingness to learn but in the peculiarities of the structure and functioning of the brain. This negatively affects the development of logical thinking, speech, and writing (Fossa & Cortés-Rivera 2023).

Neurotraining is aimed at developing the child's spatial perception, small and large motor skills, coordination, attention, and perseverance. They also allow the interaction of the two hemispheres to be enhanced since doing exercises with both hands at the same time allows them to achieve synchronous work. This increases the work of the entire brain, thereby activating the learning process.

Turkish scientist Bilal Duman studied the impact of brain-based learning on students ' academic success in his article and proposed and tested an integrated learning model (Duman, 2010). The model shows three conditions for brain-based learning:

The first condition is to create a safe environment – the teacher must have confidence in the student, understand the specifics of the cognitive and intellectual level of each student, and create an opportunity for the student to perceive himself positively.

The second condition is that it is necessary to organize a planned educational activity on the personal experience of the student and a specific educational goal.

In our case, it is necessary to fill the student's learning environment with interesting didactic materials necessary for neurofeedback.

The third condition is the need to use active learning approaches. By actively acting among themselves, the student helps each other, performs the task together, evaluates the other and his actions, and reflects.

One of the scientists who studied the formation of the mind of children of preschool and primary school age, Russian psychologist Glozman (2014), believes that the mental activity of a student, like any other type of activity, is carried out through the neurodynamic activity of all mental functions.

The intelligence of a student is primarily determined by the high level of logical thinking, and not by the amount of knowledge that he has accumulated in his memory. In this regard, when working with children of preschool and primary school age, the teacher sets the task of teaching children to analyze, compare, and generalize information (Nakayama & Shimizu 2021).

The purpose of neurodidactics is to activate cognitive processes (perception, attention, memory, thinking) and provide emotional–volitional regulation of educational activities (Calzadilla-Pérez & Carvajal Donari 2022).

Purpose of study. The purpose of the research article is to determine the level of relevance of neurodidactics in the development of students 'mental activity in the process of primary education and to determine the general concepts of primary school teachers in the context of this problem.

Materials and methods.

Participants. The survey was conducted among primary school teachers working in general education primary schools in different regions of the Republic. Thirty-one (31) primary school teachers took part in the survey.

Data Collection Tools: A questionnaire was developed to determine the general understanding of primary school teachers about neurodidactics, and the level of relevance of this problem. Through the questionnaire, information was collected about the opinions of primary school teachers about the importance of neurodidactics and their views on it.

After verifying the validity and reliability of the data obtained in the study, the data that was distributed and collected among the subjects analysed using the SPSS software.

As a research methodology, we used quantitative and qualitative methods. In the quantitative part, the research survey approach was used, and in the qualitative part, the phenomenological approach was used.

Data Analysis: Data was analysed using statistical methods. Descriptive statistics were taken, and a chart was used to present the results.

The content of the questionnaire contains 8 important questions.

Results. The survey involved 31 primary school teachers aged 22-30 (16.1%), 31-40 (54.8%), 41-50 (6.5%), and over 50 (22.6%). Their work experience ranges from 1-38 years.

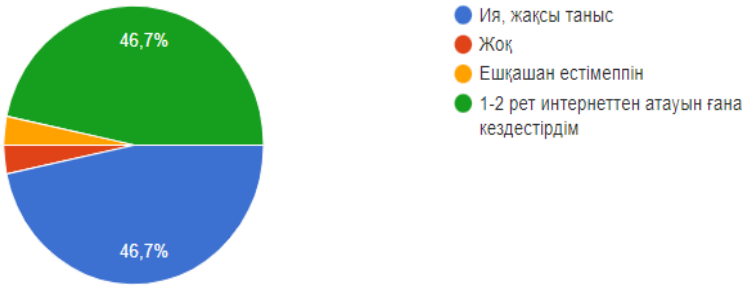

Figure 1. **Result on question 1 of the questionnaire**

«Are you familiar with the field of neuropedagogy science?» To question 1, 46.7% of respondents answered, «Yes, a good acquaintance. » This group of respondents is familiar with the scientific field of neuropedagogy and considers it generally known. This suggests that a significant part of the respondents are well aware of neuropedagogy and its relevance in the field of Education. 3.3% of respondents received the answer «no». 3.3% of respondents indicated that they had never heard of this branch of science. This group may not be practically familiar with the term or with the scientific field itself. They say that about half of the 46.7% of respondents who have "only encountered this industry 1-2 times on the internet" have encountered the term «neuropedagogy» on the internet, but may not have a deep understanding of this industry (Figure 1). This suggests that although they know the term, they may not be very familiar with its concepts and meanings.

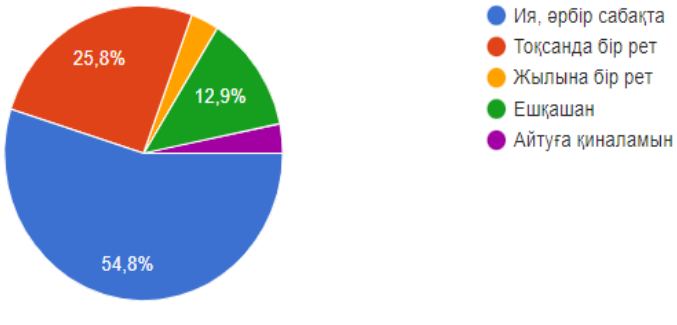

Figure 2. **Result on question 2 of the questionnaire**

«How often do you use neuroscience in class?» The results of question 2 (Figure 2) show that a significant percentage of respondents (54.8%) actively integrate neuroexperience into the learning experience, using it in each lesson. This shows a positive trend in the inclusion of brain function and exercise in the learning process as part of the ongoing learning and learning process. However, a significant part of the respondents (12.9%) reported that they never used neuroexperience in their classes. This highlights a potential area to improve the promotion of brain-based learning strategies and encourages educators to explore the benefits of incorporating neuroexperience into learning methods.

A small percentage of respondents who use neuroscience exercises quarterly or once a year indicate that some teachers recognize the value of such exercises, but may not fully integrate them into conventional training programs. The presence of respondents (3.2%) who are not sure about the use of neuroleptics in the learning process indicates the need for further awareness and training of the concept of neuroleptics, and its benefits for students in the classroom. 12.9% of respondents said they would never use neuroexperts in their classes. This group does not integrate exercises and activities based on brain function into the Learning Methodology. Another 3.2% of respondents are not sure how often they use neuroexperience, which indicates a lack of knowledge about the term or concept.

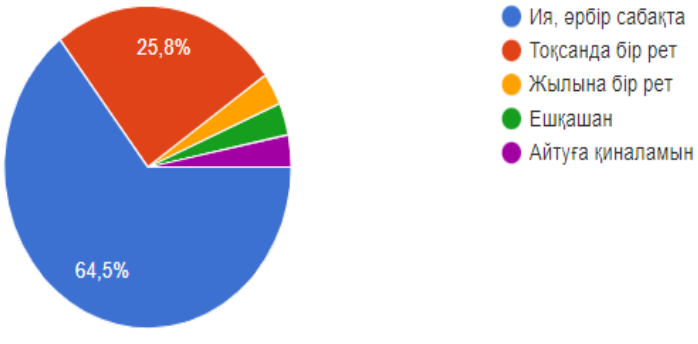

Figure 3. ***Result on question 3 of the questionnaire***

«How often do you use tasks aimed at developing the intellectual abilities of a student in the lesson? » The data obtained on Question 3 (Figure 3) show that the majority of respondents (64.5%) actively use tasks aimed at developing students ‘ intellectual abilities in their classes, including in each lesson. We can say that this is a positive result. Because many teachers prioritize intellectual development and constantly develop critical thinking and problem-solving skills in their students.

However, a significant proportion of respondents (32.4%) do not use the listed tasks in each lesson or use it only once a quarter or a year. This means that there is room for improvement in terms of consistently integrating tasks that contribute to intellectual growth into the daily learning and learning process.

The presence of respondents who never use tasks for intellectual development (3.2%) may indicate a potential opportunity to increase the professional development and knowledge of students about the importance and benefits of such tasks for the development of cognitive abilities.

A percentage of respondents (3.2%) who are not sure how they use tasks for intellectual development indicate that some teachers may need additional guidance or support to understand the concept and perform these tasks effectively.

«How often do you use tasks aimed at developing the intellectual abilities of a student in the lesson? » in Question 4 (Figure 4), the majority of respondents (71%) reported that they use «Yes, in each lesson» tasks aimed at developing students ‘ intellectual abilities.

This suggests that a significant number of respondents actively and consistently introduce tasks that stimulate critical thinking, problem-solving, and intellectual growth into the usual learning practice.

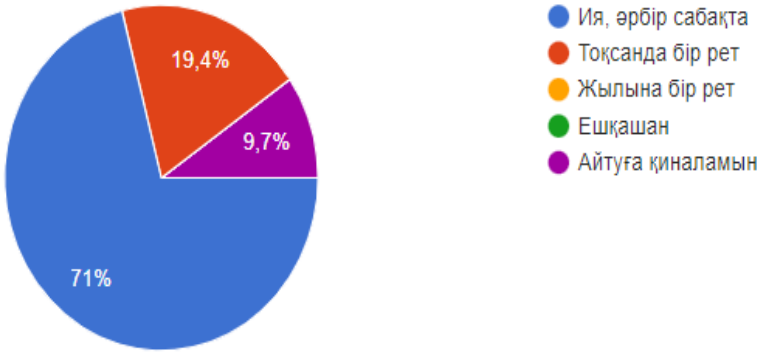

Figure 4. ***Result on question 4 of the questionnaire***

This is a positive result, as it shows that a significant number of teachers prioritize intellectual development and deliberately develop critical thinking and problem-solving skills in their students.

A significant part of the respondents (19.4%) showed that they use such tasks «once a quarter». This group periodically includes intellectual development tasks during the school year, possibly combining them with specific learning goals or evaluation cycles. 9.7% of respondents are not sure how often they use tasks for intellectual development, which indicates insufficient knowledge of the concept.

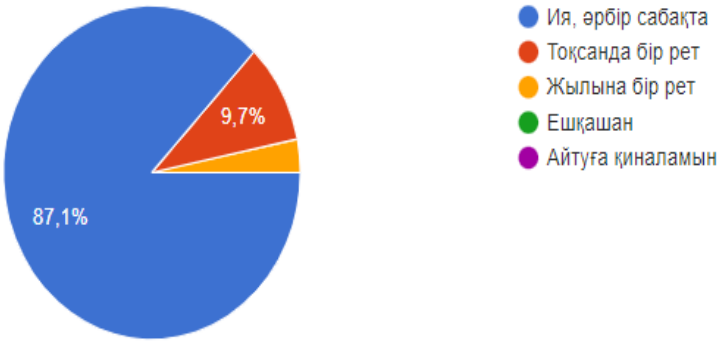

Figure 5. ***Result on Question 5 of the questionnaire***

«How often do you use interesting techniques in the lesson that make the student feel interesting and emotional?» the data obtained on Question 5 (Figure 5) show that the majority of respondents (87.1%) actively use interesting and emotionally stimulating techniques in each lesson. This is a positive result, as it assumes that a significant number of teachers prioritize the activity and well-being of students through the consistent implementation of positive and inspiring teaching methods.

The presence of respondents who use these methods once a quarter (9.7%) indicates that most of them use interesting methods from time to time, although they use them regularly. This suggests that some teachers recognize the value of such methods, but may not fully integrate them into everyday training programs.

The percentage of respondents (3.2%) who use methods that raise their emotional mood once a year indicates that they may not prioritize the regular use of these methods, which may miss the opportunity to create a pleasant and attractive class environment throughout the year.

«What are the obstacles to the intellectual development of students, that is the development of mental abilities? » on Question 6 (Figure 6), 25.8% of respondents thought that «there are few cases of tasks aimed at developing intellectual abilities in academic subjects (most often tasks are intended for memorization) » believe that one of the obstacles to the intellectual development of students is limited tasks aimed at developing high-level thinking, critical thinking, and problem-solving skills.

Figure 6. ***Result on question 6 of the questionnaire***

«What are the obstacles to the intellectual development of students, that is the development of mental abilities? » on Question 6 (Figure 6), 25.8% of respondents thought that «there are few cases of tasks aimed at developing intellectual abilities in academic subjects (most often tasks are intended for memorization) » believe that one of the obstacles to the intellectual development of students is limited tasks aimed at developing high-level thinking, critical thinking, and problem-solving skills.

38.7% indicate that a significant percentage of respondents believe that the large size of the classroom can interfere with the intellectual development of students. Because of the High student-teacher ratio, it can be difficult for teachers to provide personalized attention, personalized feedback, and an interesting learning experience that is important for intellectual growth.

16.1% of respondents believe that the lack of attention to specific goals for mental development within the framework of broader educational goals can be a hindrance. Without clear goals to develop critical thinking, problem-solving skills, and other cognitive abilities, schools may not prioritize these aspects in their learning practices.

A small percentage of 6.5% of respondents pointed to the lack of technical resources and special materials as possible barriers to the intellectual development of students. The recognition of the lack of technical means and specialized resources indicates the need to invest in educational technologies and educational materials that support the development of brain functions.

Some respondents (12.9%) believe that limited time can be an obstacle to the development of students ‘ intellectual abilities. Recognizing time limits in the curriculum implies the need for careful time management to devote enough time to interesting activities and tasks that contribute to intellectual development.

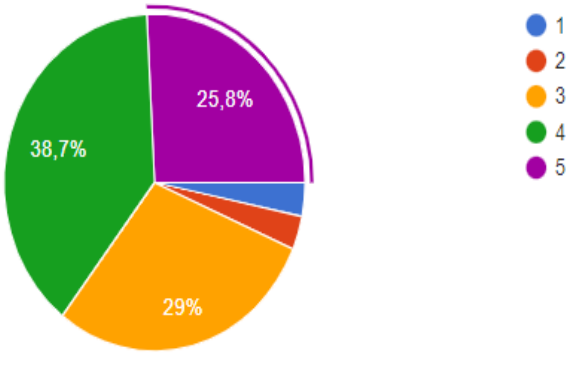

Figure 7. ***Result on question 8 of the questionnaire.***

«Why do you think neuropedagogy is an important branch of Science in teaching a child?» based on the qualitative analysis of Question 7 (Figure 7), we came to the following conclusions. The answers given by the respondents point to various reasons why neuropedagogy is considered important in a child's learning. They are:

Rapid development: several respondents believe that neuro pedagogy is very important because it contributes to the rapid development of the child's cognitive abilities and overall progress in learning.

Positive effects on the brain: many participants claimed that neuro pedagogy has a positive effect on the student's brain, suggesting that brain-based learning strategies can improve learning outcomes.

Development of thinking: respondents noted that neuro pedagogy develops the child's thinking, critical thinking, and problem-solving skills.

Memory and thinking skills: several participants noted that neuro pedagogy improves both the memory and thinking ability of students.

Access to relevant information: some respondents noted that neuropedagogy is important due to the large amount of relevant information, which indicates that brain-based learning is relevant in the modern era.

Participation and interest: several participants noted that neuroexperience and learning methods based on brain function are necessary to maintain the participation, interest, and motivation of students during classes.

Application of knowledge: several respondents said that neuropedagogy contributes to students ' practical application of the knowledge gained, practical application, and understanding of the real world.

Hemisphere development: some participants noted the importance of neuropedagogy for the simultaneous development of two cerebral hemispheres, including practical exercises and cognitive stimulation.

«On what scale do you assess your knowledge of the physiological changes that occur in the student? As a result of the answers given by the respondents on Question 8 « (from 1 to 5) », we made the following conclusions.

A small percentage of respondents (3.2%) rated their level of education on a "1" scale, indicating that they knew very little about the physiological changes that occur in students. Similarly, another 3.2% of respondents rated their knowledge as "2", which indicates students ' limited understanding of physiological changes. The largest group of respondents (29%) rated their level of knowledge as "3", which indicates the average level of knowledge about physiological changes in students. A significant percentage of respondents (38.7%) rated their knowledge as "4", which indicates a relatively high level of understanding of physiological changes in students. The rest of the respondents (25.8%) rated their level of education as "5", which indicates that they have a very high knowledge of the physiological changes that occur in students.

The results show a wide range of respondents 'self-assessment knowledge levels about physiological changes in students:

Low level of education: a small proportion of respondents (6.4% for «1» and «2») showed poor knowledge of physiological changes in students. These respondents can use additional educational resources and professional development opportunities to improve their understanding.

Average education: the largest group of respondents (29%) rated their knowledge as «3», which indicates an average level of understanding. These teachers may be familiar with the topic to some extent but still need to look for more information to deepen their knowledge.

Higher education: a significant percentage of respondents (38.7% on «4») rated their knowledge as high, which indicates that they have a significant understanding of the physiological changes occurring in students. These teachers can better understand how the brain and body work while studying.

Very high education: a significant proportion of respondents (25.8% on «5») rated their knowledge as very high, that is, they have a high level of knowledge in terms of physiological changes in students. These educators may be well informed about the latest research and best practices in teaching and learning based on the use of the brain.

In general, the data show that a significant number of respondents have an average or high level of knowledge about the physiological changes that occur in students. However, there is still a small percentage of teachers who benefit

from additional professional development and resources to improve their understanding of this important aspect of teaching and learning.

Discussion. The results of the survey show that a significant part of the respondents actively use neuroexperience, tasks for intellectual development, and interesting techniques in their classes. This suggests that there is a positive tendency to introduce brain-based learning strategies to enhance the cognitive abilities and activity of students. At the same time, some respondents do not know the field of science of neurodidactics. Only some teachers can use neuroexperience in the classroom at some time, especially during open lessons. Some respondents do not systematically use neurofeeds or tasks for intellectual development, which dictates the need for professional development in this direction.

The respondents also noted shortcomings that hinder the intellectual development of students, such as the lack of clear learning goals for mental development, large classes, limited resources, and time. These barriers highlight the importance of solving pedagogical tasks to promote optimal brain function and cognitive growth of students.

In general, the results of the survey emphasize the importance of using neuropedagogical principles and brain-based learning approaches to improve students 'optimal intellectual development and activity. Solving identified barriers and investing in continuous professional development will further enhance the ability of teachers to create an effective and supportive learning environment that contributes to the cognitive growth of students and overall academic success.

Conclusion. In conclusion, for the development of intellectual thinking and mental activity of a child, it is necessary to set new educational tasks for him, in the process of solving which he learns to use the previously acquired knowledge in connection with new situations. Therefore, we believe that to develop the child's mind and achieve the desired result, special neuro didactic content (neurodidactic exercises, neurodidactic games, learning resources) is needed, which activates mental operations and increases intellectual abilities.

The results of the survey show that in the development of neuro didactic content aimed at developing the intelligence of primary school students, it is necessary to provide the following opportunities:

- Organization of an advanced training course on the topic of research in the direction of training primary school teachers, which is 72 hours.

- Compilation of methodological guidelines «ways to develop the intelligence of primary school students through neuro didactic content» and presentation to teachers for guidance in the educational process;

- development and implementation in the process of primary school education of an elective training program «neurofeedback» for the development of intelligence of primary school students.

- development of a methodological complex for the development of intelligence of primary school students.

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