

# Speech Activity Research Program in Children with Autistic Disorders of Senior Preschool Age

Nataliia BAZYMA<sup>1</sup>,  
Valentyna SERHEIEVA<sup>2</sup>,  
Nataliia IVANOVA<sup>3</sup>,  
Viktoriiia ZVIEKOVA<sup>4</sup>,  
Olena UTOSOVA<sup>5</sup>,  
Oksana SOROCHYNSKA<sup>6</sup>

<sup>1</sup>National Pedagogical Dragomanov University, Ukraine, [bazymanataliia@gmail.com](mailto:bazymanataliia@gmail.com)

<sup>2</sup>Lesya Ukrainka Volyn National University, Ukraine, [valentina.sergeeva@live.com](mailto:valentina.sergeeva@live.com)

<sup>3</sup>Institution of Higher Education "Lutsk Pedagogical College" of Volyn Regional Council, Ukraine, [iva.chumbas@gmail.com](mailto:iva.chumbas@gmail.com)

<sup>4</sup>Izmail State University of Humanities, Ukraine, [vikazvekova19@gmail.com](mailto:vikazvekova19@gmail.com)

<sup>5</sup>Zakarpattia Institute of Postgraduate Pedagogical Education, Ukraine, [elenautiosova88@gmail.com](mailto:elenautiosova88@gmail.com)

<sup>6</sup>Zhytomyr Ivan Franko State University, Ukraine, [ksena21031977@gmail.com](mailto:ksena21031977@gmail.com)

**Abstract:** *One of the recent problems of the formation of speech function, which is studied in pedagogical, psychological, linguistic and psycholinguistic aspects is the formation of speech activity, in particular, in children with autistic disorders. The methodology for determining the level of speech activity in children with autistic disorders of older preschool age included examination of the impressive side of speech (finding out the level of understanding of statements containing affectively significant words, the possibility of executing instructions in the context of a spontaneous situation and following instructions outside the context of the situation (examination in a spontaneous situation). Checking the understanding of the names of objects, the names of actions, the names of the qualities and properties of objects and spatio-temporal relations (examination in specially organized conditions). Checking the expressive side of speech (studying the quality of the use in speech of the corresponding linguistic units (words, phrases, phrases, sentences) and vocalizations, onomatopoeia and sound complexes, methods of verbal or non-verbal expression of desires and the presence or absence of one's own statements without provocations to speech activity on the part of the experimenter (examination in a spontaneous situation). Examination of the lexical stock (examination of the dictionary of nouns, the dictionary of verbs and the dictionary of adjectives), examination of the grammatical side of speech (examination of the skills of inflexion, word formation, combining two simple sentences into a complex one) and examination of the state of development of coherent speech (examination in specially organized conditions).*

**Keywords:** *Neuropsychological and neurolinguistic diagnostics, impressive side of speech, spontaneous situations, expressive side of speech, spatio-temporal relations, lexical stock, development of coherent speech.*

**How to cite:** Bazyma, N., Serheieva, V., Ivanova, N., Zviekova, V., Utosova, O., & Sorochynska, O. (2022). Speech Activity Research Program in Children with Autistic Disorders of Senior Preschool Age. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 13(1Sup1), 51-66. <https://doi.org/10.18662/brain/13.1Sup1/302>

## Introduction

The current stage of the formation of correctional assistance in Ukraine is marked by an increase in the attention of scientists to the improvement of the scientific, theoretical and methodological apparatus of correctional and developmental education of children with various disorders of psychophysical development in order to create effective correctional programs that contribute to the optimization of the personal development of the child. In the special literature devoted to the problem of studying the speech development of children, including those with speech disorders, various approaches to studying the issue of examining and correcting the speech of preschool-age children in all its structural components are presented (Amir, 1999; Attwood, 1998; Baron-Cohen et al., 1996; Behas et al., 2019; Gillingham, 2000; Grandin, 2008; Quill, 2002; Melnyk et al., 2021; Melnyk et al., 2019; Nurieva, 2003; Scambler et al., 2001; Sheremet et al., 2019).

The process of formation of speech function was studied in pedagogical, psychological, linguistic and psycholinguistic aspects. But, despite a wide range of studies, speech development and, in particular, the formation of speech activity in children with autistic disorders of senior preschool age remained out of sight of scientists. All of the above data determine an experimental study of the state of speech activity formation in children with autistic disorders of senior preschool age. We have set a program of psychological and pedagogical experiment in order to implement this task.

Compliance with the principles of an individual and differentiated approach follows from the polymorphic nature of autistic disorders and the variety of presentations of this disorder, it involves taking into account the degree and quality of disturbance or safekeeping of certain functions along with an orientation towards age-related and individual characterological characteristics in combination with the active use of the child's interests and hobbies. Considering the depletion of the nervous system and the rapid overload of impressions, the duration of interaction with the child was about 20-30 minutes a day. The specified time of the examination could vary somewhat or be modified and depended on the child's ability to interact with the experimenter, adapt to the situation, and organize his own spare time. The survey was conducted in a spontaneous situation and in specially organized conditions. In the process of an experimental study of the features of speech activity formation in children with autistic disorders, taking into account their psychological characteristics and capabilities, the following

levels of help were used: individual selection of visual material, focusing on gender, preferences and possible emotional passions of children; clear and concise design of instructions in a simple imperative sentence; re-message the task instruction; asking leading questions to improve the ability to understand and follow instructions; providing a sample of the assignment; completing the task in collaboration (in parallel) with the experimenter.

The results of studies of children speech development with normal and impaired development open up new opportunities for assessment and differentiated approach to verbal techniques, which V.I. Lubovsky (1989) divided into two large groups: 1. methods that do not go beyond the speech material that is contained in the tasks and do not require active transformation of this material; 2. methods involving the transformation of the material that is contained in the tasks or the use of another material or other data (Lubovsky, 1989). To study the state of development of both speech and non-speech processes, (Lubovsky, 1989) proposes not to develop new tests, but to find the principles of adaptation of known techniques and recommends using two well-known methods: 1. the method of a free speaking, which based on a simple plot figure, gives the child the opportunity to use well-solidified, automated speech material and strengthened grammatical connections; 2. first of all, the method of composing a phrase based on key words, which requires the child to establish semantic connections and, in general, does not allow the use of strengthened grammatical stereotypes.

Having analyzed the methods of neuropsychological and neurolinguistic diagnostics (Vizel, 2005), the method "Profile of social development of the child" (Averyanov, 2007), the method of diagnostics and development of simultaneous and successive syntheses (Tarasun, 2001) "Psychological and educational profile" (PEP-R): for diagnosing psychoeducational (psychoeducational) profile of a child (Schopler et al., 1990), CARS methodology (Childhood autism rating scale) - scale for assessing childhood autism (Schopler et al., 1990), card of psychological and pedagogical study of autistic children (Shulzhenko, 2005), CHAT questionnaire (Checklist for Autism in Toddlers) (Baron-Cohen et al., 1996), protocol of primary examination of speech of children with autism (Morozov, 1998), we have developed a questionnaire for the study of communication skills, which consists of five blocks and was offered for filling out to parents, educators, speech therapists, psychologists, correctional teachers – that is, people who often interact with children with autistic disorders and can objectively assess the characteristics of their behavior and the impact of communication skills. With the study of data on

the state of development of communication skills of children, in parallel, a survey was carried out examination of the methodology for determining the level of speech activity of children with autistic disorders of senior preschool age, which took place in two stages: examination of the impressive side of speech, because the perception and understanding of external speaking is a process, turned to the process of language formation, where the central core of the processing of verbal messages is internal speech and examination of the expressive side of speech (Zhinkin, 1998).

### **Methods for determining the impressive side of children speech with autistic disorders of senior preschool age**

The task began with the instructions of the experimenter and completed the child's response or lack of it (due to unwillingness to complete tasks or inability to respond). V.I. Lubovsky (1989) comes to the conclusion that the construction of an independent statement in response to any verbal task can be difficult due to two reasons: the inability to comprehend (understand) the tasks; difficulties in the transition from an internal mental plan to the construction of a direct speech act, despite understanding the task. Instructions were given in a clear, concise and understandable way, with a simple, imperative sentence. Lack of reaction within 3-5 seconds after the teacher's instructions included repeating instructions or providing assistance.

In our opinion, speech activity in the examination of impressive speech may be manifested in the desire to perform the task proposed by the experimenter and verbally (in the form available to a child with autistic disorders of older preschool age) to respond to the interlocutor's reply (in this case - the experimenter). In our opinion, speech activity in the examination of impressive speech may be appeared in the desire to perform the task proposed by the experimenter and verbally (in the form available to a child with autistic disorders of senior preschool age) to respond to the interlocutor's reply (in this case - the experimenter). In specially organized conditions, with the aim of directly checking the understanding of children with autistic disorders of senior preschool age, the examination of the impressive side of speech included four directions of tasks, names of objects, names of actions, names of qualities and properties of objects and spatio-temporal relations.

The reaction to affectively significant words was selected individually for each child based on the indicators of the content of the protocols of the questionnaires of the study of communication skills. The ability to follow situational instructions was found out through passive interaction with the

child in a natural situation. During the examination, the experimenter focused on the child's easy behavior, his activity and desire, adapting the questions and tasks to the child's activity without trying to change the situation in any way. That is, observing the child and his activities, the experimenter proposed to fulfill the instruction, which provided for a slightly modified continuation of the child's activity, watching that the instruction was being performed, and noting the quality of its implementation. The ability to follow non-situational instructions was determined during the proposal to perform tasks that involved the stopping of the child's activities or its change. Attention was drawn to how well the instruction was carried out, "excluded" the child from the situation, and it is performed at all.

The survey of the understanding of the names of objects by a child with autistic disorders was checked using tasks to show real objects and their images according to the instructions of the experimenter. Demonstration of one's own body parts, showing the body parts of another person (for example, an experimenter) and body parts in a picture (of a painted boy or girl) and showing images of objects according to their functional description. The survey provided that, in addition to testing the ability to find and distinguish among other objects or their images and point to the object proposed by the experimenter or its image, named by the appropriate word, also check the possibility of differentiating the concepts of "object", "name of the object" (word) and "image subject "(picture). For this purpose, commonly used words that the child heard and / or used in his own speech, if he uses speech (table, chair, window, door, toy, apple, tree, cube, girl) (boy) were selected.

It is known that people with autism have problems processing and understanding verbal information. Their delayed processing of the received verbal information does not keep pace with the speed of speech, especially in those cases when a large amount of information is given out at one time. They understand short and clear sentences better. Long explanations when gaining new knowledge may not help, but, on the contrary, lead to difficulty in comprehending knowledge, because: first, it requires simultaneous processing on two channels: audio and visual, and, secondly, additional words and phrases can distract from the main (Zyumalla, 2005).

Researchers note that in some cases children with autism are poorly oriented in their own body, do not understand the concept of "right-left", sometimes do not perceive their own body parts as a part of themselves. In addition, they have difficulty in understanding and using personal pronouns, in particular, the pronoun "I" and in the most complex cases, they do not

distinguish themselves from the environment (Nikolskaya, 2005). According to the instructions, in order to test the ability of children of this category to navigate in their own body, know the names of body parts and be able to show them in themselves and in other people, tasks were proposed to demonstrate their own body parts, show body parts to another person (for example, an experimenter) and show parts the body in the figure (in the drawn boy or girl).

It is known that children with certain speech disorders may have difficulty understanding the functional use of certain objects. Knowing the name of an object, they do not always understand its purpose and use. To test the ability of a child with autistic disorders, it is necessary to understand what object is being discussed in his verbal description, so that he is guided by the functional purpose of the object, a task was proposed that provided for the child to show objects according to their functional description.

Children with autistic disorders often use stereotyped speech patterns, echolalia, constant expressions in speech. Their vocabulary is mostly poor, but there are cases when children of senior preschool age are characterized by the so-called "adult speech" (Nikolskaya 2005). A child uses extended sentences when he or she memorizes them while watching TV, listening to fairy tales or stories, or reading (there are cases when children with autism learn to read early). The passion of children with autistic disorders for stability, constancy and balance to some extent predetermines the constancy in the use of speech units (collocations, phrases, sentences). Thus, while testing the understanding of the names of actions by a child with autistic disorders, we proposed a task that required the child with a question to show the performance of the corresponding actions in the pictures. For this purpose, images of animals (a cow, a pig, a frog, a dog) were selected and the child had to indicate in response to the experimenter's question about which of the animals would give a voice.

The next task was to find among the images of people and animals and point to the picture, which was the corresponding action, called the experimenter. Drawings were selected so that they reflect the actions that the child performs every day (sit, play, eat, sleep, read). In addition, according to the experimenter's instructions, the child was asked to perform the appropriate actions. The task was selected in such a way as not to cause difficulties and require a minimum amount of time to complete them.

In order to understand the names of the qualities and properties of objects, they were checked by finding among the images exactly those objects that the experimenter determined, indicating the corresponding quality or property of the object. In particular, to check the understanding of

the names of colors, drawings were selected that depicted objects of different colors. According to the instructions, the child had to find among other images (white dog, red tomato, green cube, etc.) and indicate which object of a particular color was named by the experimenter. In the question, the name of the object was not voiced, but only one color or another was called, the knowledge of the name of which was checked. To test knowledge, understanding and distinguishing the names of geometric shapes, drawings were selected depicting objects of various shapes (square TV, oval rug, etc.). According to the instructions, the child had to find among the drawings the one whose geometric shape was named. The ability to determine and distinguish the size of objects was found out by the child finding large and small, larger and smaller objects in a paired image of identical objects of various sizes. For the accuracy of the obtained data, the child was shown pairs of different drawings (large and small apple, large and small spoon). In order to determine the understanding of the concepts of "large" and "small", "bigger" and "less" (large and small cube, bigger and smaller bucket), pairs of different drawings were shown. The task of determining the material from which the objects were made was that among the proposed images (glass jar, wooden table, etc.), the child, according to the instructions, had to find and show the object and the material of which was voiced by the experimenter.

Since many children with autistic disorders are characterized by excessive enthusiasm for some one object with which they do not want (or cannot) part, because its absence of this object provokes attacks of overwhelming fear, negativism or aggression, we presume that for the children of this category it is difficult to understand the belonging of objects to certain persons. In view of this, we proposed a problem that required the child, among similar plot drawings, to find directly those on which the object belongs to the person about whom the experimenter was asking (mom holds a cat, grandmother holds a cat; dad hammers nails with a hammer, boy hammers nails with a hammer).

O.S. Nikolskaya & D.I. Shulzhenko, 2005 note that a child with autistic disorders is sometimes difficult to understand the development of the situation over time and determine the sequence of events. To determine the understanding of children with autistic disorders of senior preschool age, two series of drawings were selected, which traced the development of plants (bud, flower, apple) and animals (egg, chicken, hen). The child was given the task to dispose in turn the drawings of each series in chronological order with the help of leading questions: "What happened before?", "What happened later?" "What happened after?"

In order to test the children's understanding of spatial relationships, they were given simple one-step instructions, providing for the placement of improvised objects in space according to the experimenter's instructions (notebook, key, book, pencil, pen).

### **Examination of the expressive side of children speech with autistic disorders of senior preschool age**

Examination of the expressive side of speech in children with autistic disorders of older preschool age in a spontaneous situation involved the study of the quality of use of appropriate language units (words, word-combinations, phrases, sentences). Vocalizations, onomatopoeia and sound complexes, methods of verbal or non-verbal expression of desires and the presence or absence of one's own statements without provocations to speech activity on the part of the experimenter. In specially organized conditions included: examination of vocabulary, examination of the grammatical side of speech and examination of the state of development of coherent speech. The survey was carried out while interacting with the child and under observation in natural conditions and without creating an experimental situation.

Testing children to use appropriate language units included an analysis of how they interact with others and which language units are most often used in communication. At the same time, verbal and / or non-verbal ways of expressing desires that arose in the child were ascertained (how the child signaled with which toy or object he wants to play or manipulate, what exactly he wants to do etc.). Particular attention was paid to the presence or absence of their own statements in independent activities and in interaction with the, except for incentives for speech activity on experimenter's part (in the form that is available). That is, the child was not asked questions, but he was allowed to speak a monologue of the experimenter in the form of commenting on what was happening to the child or around the child.

Checking the vocabulary of children with autistic disorders of senior preschool age included examinations of the noun dictionary, the verb dictionary and the adjective dictionary.

It is known that the lexical stock of children with autistic disorders is expressive and mostly poor. Therefore, examining the dictionary of nouns, we aimed to check how children of this age use the basic concepts in such lexical topics ("Family", "Toys", "Clothing", "Tableware", "Furniture", "Animals", etc.). When we selected the material for the survey of the active vocabulary of nouns, we focused on the program requirements for the volume and subject of the dictionary in accordance with age norms. The task



involved the names of the words of the subject drawings and combining them using a generalizing word in accordance with the instructions (for example, a cat, a mouse, a dog, a cow - animals, etc.).

To check the vocabulary of verbs, plot drawings were selected, which contained images of people and animals who performed certain actions that the child knows (the boy runs, the girl reads, the bird flies, etc.). The task involved the answer to the experimenter's question about what the person or animal shown in the figure does.

The vocabulary of adjectives was checked using the description of subject drawings, which were selected in such a way that they could be described by several signs (book - blue, new, interesting; apple - green, large, etc.). In the case when the child had difficulty answering the questions "What?", "What?", "What?", "What?", The experimenter asked auxiliary questions such as "What color?", "What size?" etc..

Scientists (Bashina, 2005) note in children with autistic disorders violations of the grammatical and syntactic aspects of speech, inability to word formation. Therefore, examining the grammatical structure of speech, we assumed the identification in children of the level of formation of the ability of word formation and inflection (morphology) and the level of proficiency in various types of sentence structure (syntax).

We tested the level of proficiency in grammatical categories such as numeral flexions of nouns, numeral flexions of verbs, numeral flexions of adjectives, numeral flexions of nouns and adjectives when we conducted research on the ability of children with autistic disorders in inflexion. To study the use of numeral flexions of nouns, paired drawings were proposed containing images of one object and many objects (pencil - pencils, cube - cubes, etc.). The experimenter asked the child to look at the pictures and name what is depicted on them. The correctness of the use of numeral flexions of nouns was noted. The use of numeral flexions of verbs was clarified through the definition and naming of the action that people and animals perform in the plot drawings. The child was shown paired drawings depicting the performance of the corresponding action by one person or animal or a group of people (animals), and was asked to tell what people and animals do (a dog runs - dogs run; a boy laughs - boys laugh, etc.). Attention was paid to the correct use of numeral flexions of verbs. The use of generic flexions of adjectives was recorded as a result of the description of subject drawings, selected so that they can be described by several common features: color, taste, shape (lemon - yellow, sour, oval; apple - green, sweet, round, etc.). In order to study the understanding of children by the categories of gender and number, attention was paid to the fact that when selecting the

material, images of objects denoted by the words male, female and middle genders (lemon, plum, apple), as well as plural (berries). In the case when the child had difficulty answering the questions "What?", "What?", "What?", "What?", The experimenter asked auxiliary questions such as "What color?", "What taste?" etc.

In the scientific literature, it is noted that children with autistic disorders who can speech sometimes use words in the root form, ignoring the cases and numbers of inflexion (Lebedinskaya, 2001; Nikolskaya, 2005; Shulzhenko, 2005). Testing the ability of children of this category to inflect, a number of questions were selected, the answers to which included the use of nouns and adjectives in different cases. The child was presented with object drawings (boy or girl, flower) and asked to answer the experimenter's question, moreover, answers in the form of phrases were encouraged (smart boy, good girl, beautiful flower).

Scientists have noted such a characteristic feature of some children with autistic disorders as the widespread use of neologisms, that is, independently invented words next to the inability to word formation (Arshatskaya, 2005; Bayenskaya, 2001; Lebedinskaya, 2001; Nikolska 2005). We examined the ability to do words formation, checking whether diminutive-hypocoristic suffixes, prefixed ways of verbs formation are used in speech (if available), and whether children are able to form adjectives from nouns.

The use of diminutive-hypocoristic suffixes was clarified with the help of matched pairs of different patterns (a large apple and a small bull's-eye, a large spoon and a small scoop, etc.). The experimenter suggested that the child select and name only the small objects depicted in the figures, paying attention to the accuracy of the use of suffixes. The ability for the prefixed way of creating verbs was investigated through tasks, which consisted of naming actions based on plot drawings. The pictures show a puppy jumping, jumping over; a bird that flies in, flies out. The experimenter noted how accurately and straight the child chose words. Images of berries and fruits were suggested to test the ability to form adjectives from nouns. It was proposed to imagine that a delicious compote would be prepared from berries and fruits and asked what kind of stewed fruit would be obtained (cherry, grape, etc.).

In order to study the level of proficiency in various types of sentence structure, two types of tasks were developed: to identify the use of complex sentences using the conjunctive conjunctions "a", "and" and complex sentences using the hypotactic conjunctions "because", "when".

To examine the use of compound sentences, plot drawings depicting children performing certain actions were proposed. The experimenter proposed to first voice what is depicted in the picture "What are the children doing?", And then, combining the pictures in pairs, create one complex out of two simple sentences, using the conjunctions "and" ("A girl draws and a boy draws"), "and" ("Girls dance and boys sing"). The study of the use of complex sentences took place using a drawing where children were depicted playing. After that, voiced by the child, the children play in the picture, it was suggested to continue the sentence with the words "because", "when" ("Children play because they have new toys", "Children play when they have fun", etc.).

Determination of the level of development of coherent speech and the ability to express by himself was tested at the stage of examining the expressive side of speech in a spontaneous situation and when interacting with a child with autistic disorders of senior preschool age at each stage of a specially organized experiment.

As the studies of many scientists show, for children with autistic disorders, who even have a monologue speech, characteristic difficulties in dialoging (Nikolskaya, 2005; Shulzhenko 2005; Simashkova, 2006). We assume that the development of dialogical speech is significantly complicated by a general decrease in speech activity. As well as insufficiently formed motivation to interact through verbal communication with people around and the inability to build social relations. Thus, we see the need to examine the state of development of coherent speech in children with autistic disorders of older preschool age through tasks such as: conversation on plot drawing; drawing up a story based on a series of plot drawings; drawing up a story based on a plot drawing; drawing up a description according to a drawing (by the experimenter's questions or independently).

The study of the child's ability to maintain a dialogue took place in the form of a conversation based on a plot drawing. The plot drawings depicted everyday household activities (a boy does exercise, a girl plays with a doll, a woman prepares lunch, a man reads a newspaper). The experimenter suggested answering questions such as: Who is depicted in the picture? What is he (she) like? What is he (she) doing? Why is he (she) doing this? etc.

The ability to compose a story based on a series of plot drawings was tested on the basis of anticipation that children of this category would feel difficulties in completing this task. Therefore, we have selected a series of six drawings reflecting the daily routine. The child was asked to look at the pictures and write a story about what the depicted hero was doing. In case

the child could not complete the task, the experimenter suggested answering questions such as: What was in the beginning? What happened next? What happened next?

To investigate the ability to compose a story based on a plot drawing, a drawing was proposed, which depicted a boy (girl) in the forest. The child had to look carefully at the picture and tell a short story about how the boy (girl) got into the woods and what they were doing there. If the child could not complete the task, the experimenter suggested asking her leading questions, encouraging to tell the story.

It is believed that writing a description is one of the most difficult tasks for children with severe speech disorders. Therefore, testing the ability to compose a description of the drawing, we offered the image of a teddy bear. If the child felt difficulties in describing, the experimenter asked the same type of questions like: "What are the bear eyes?"

## **Conclusions**

It is impossible to overestimate the importance of forming in children with autistic disorders of communicative function in general and speech activity in particular. Both specialists, such as (correctional teachers, special psychologists, rehabilitation therapists, speech therapists, educators, medical workers, etc.), and parents should work closely, since the development of speech and speech functions in the process of correctional educational activities will contribute to the consolidation of the acquired skills in everyday life. Using any opportunity for the development of speech and the upbringing of the desire to communicate with people around, it can speed up the process of forming the communication activity of children with autistic disorders.

The communication skills questionnaire consisted of five blocks: features of interaction with adults, features of interaction with peers, features of independent activity, features of communicative behavior and features of speech activity.

The methodology for determining the level of speech activity in children with autistic disorders of older preschool age included examination of the impressive side of speech (finding out the level of understanding of statements containing affectively significant words, the possibility of executing instructions in the context of a spontaneous situation and following instructions outside the context of the situation (examination in a spontaneous situation). Checking the understanding of the names of objects, the names of actions, the names of the qualities and properties of objects and spatio-temporal relations (examination in specially organized conditions)

and the expressive side of speech (the study of the quality of use in speech of the corresponding linguistic units (words, collocations, phrases, sentences). Vocalizations, onomatopoeia and sound complexes, ways of verbal or non-verbal expression of desires and the presence or absence of one's own speaking without provocations to speech activity on the part of the experimenter (examination in a spontaneous situation). Determination of the lexical stock (examination of the dictionary of nouns, the dictionary of verbs and the dictionary of adjectives), examination of the grammatical side of speech (examination of the skills of inflection, word formation, combining two simple sentences into a complex one) and examination of the state of development of coherent speech (examination in specially organized conditions).

The survey was carried out in a spontaneous situation and in specially organized conditions. The task began with the instructions of the experimenter and ended with the appropriate reaction of the child or his absence (due to reluctance or inability to respond). Instructions were given in a clear, concise and understandable way, with a simple, compelling sentence. Lack of reaction within 3-5 seconds after the teacher's instructions included repeating instructions or providing assistance. The duration of interaction with the child was about 20-30 minutes a day. The specified time of the examination could vary somewhat or be modified and depended on the child's ability to interact with the experimenter, adapt to the situation, and organize his own spare time. Much attention was paid to adherence to the principles of an individual and differentiated approach.

---

## References

---

- Amir, R. T., Van den Veyver, B. I., Wan, M., Tran, C. Q., Francke, U., & Zoghbi, H. Y. (1999). Rett syndrome is caused by mutation in X-linked MECP2, encoding methylCpG-binding protein 2. *Nature Genetics Journal*, 23(2), 185-188. <https://doi.org/10.1038/13810>
- Arshatskaya, O. S. (2005). Psikhologicheskaya pomoshch' rebonku rannego vozrasta pri formiruyushchemsya detskom autizme [Psychological assistance to a young child with developing child autism]. *Defectology*, 2, 46-56. <https://www.dissercat.com/content/psikhologicheskaya-pomoshch-rebenku-rannego-vozrasta-pri-formiruyushchemsya-sindrome-detskog>
- Attwood, T. (1998). *Asperger's Syndrome: A Guide for Parents and Professionals*. Jessica Kingsley Publishers.
- Averyanov, V. P. (2007) *Diagnostyka gotovnosti ditey do shkoly* [Diagnostics of children's readiness for school]. Kviv.

- Baron-Cohen, S., Cox, A., Baird, G., Swettenham, J., Nightingale, N., Morgan, K., Drew, A., & Charman, T. (1996). Psychological markers in the detection of autism in infancy in a large population. *The British journal of psychiatry: the journal of mental science*, 168(2), 158–163.  
<https://doi.org/10.1192/bjp.168.2.158>
- Bashina, V. M. (2005). Sovremennyye podkhody k ponimaniyu autizma v detstve. Obshchiye voprosy nevrologi i psikiatrii [General disorders of mental development. Atypical autistic disorders]. *Center for Psychological, Medical and Social Support for Children and Adolescents*, 8, 4–13.  
[https://psyjournals.ru/child\\_autism/issue/bashina.shtml](https://psyjournals.ru/child_autism/issue/bashina.shtml)
- Bayenskaya, E. R. (2001). Pomoshch' v vospitanii detey s osobym emotsional'nym razvitiyem. Mladshiy doshkol'nyy vozrast [Help in raising children with special emotional development. Younger preschool age]. Almanac of the Institute of Correctional Pedagogy.
- Behas, L., Maksymchuk, B., Babii, I., Tsymbal-Slatvinska, S., Golub, N., Golub, V., Chepka, O., Lemeshchuk, M., Dychok, T., Nikitenko, A., Sarancha, I., & Maksymchuk, I. (2019). The influence of tempo rhythmic organization of speech during gaming and theatrical activities on correction of stammering in children. *Journal of Physical Education and Sport*, 19(4), 1333–1340.  
<https://doi.org/10.7752/jpes.2019.s4193>
- Gillingham, G. (2000). *Autism: A New Understanding!*. Tacit Publishing Inc.
- Grandin, T. (2008). *The Way I See It: A Personal Look at Autism and Asperger's*. Future Horizons.
- Lebedinskaya, K. S. (2001). Diagnosticheskaya karta [Diagnostic card]. In K. S., Lebedinskaya & O. S. Nikolskaya (Eds.), *Psychodiagnosics and correction of children with developmental disabilities* (pp. 256). Piter.
- Lubovsky, V. I. (1989). *Psikhologicheskkiye problemy diagnostiki anomal'nogo razvitiya detey* [Psychological problems of diagnosing abnormal development of children]. Pedagogika.
- Melnyk, N., Bidiuk, N., Kalenskyi, A., Maksymchuk, B., Bakhmat, N., Matviienko, O., Matviichuk, T., Solovyov, V., Golub, N., & Maksymchuk, I. (2019). Modely y orhanyzatsiyone osobyne profesionalne obuke vaspytacha u pojedynym zemlyama Evropske Unije y u Ukrainy [Models and organizational characteristics of preschool teachers' professional training in some EU countries and Ukraine]. *Zbornik Instituta za pedagoska istrazhivanja*, 51(1), 46–93. <https://doi.org/10.2298/ZIPI1901046M>
- Melnyk, N., Maksymchuk, B., Gurevych, R., Kalenskyi, A., Dovbnaya, S., Groshovenko, O., & Filonenko, L. (2021). The Establishment and Development of Professional Training for Preschool Teachers in Western European Countries. *Revista Romaneasca Pentru Educatie Multidimensionala*, 13(1), 208 – 233. <https://doi.org/10.18662/rrem/13.1/369>

- Morozov, V. P. (1998). *Neverbal'naya kommunikatsiya v sisteme rechevogo obshcheniya. Psikhofiziologicheskiye i psikhooakusticheskiye osnovy* [Non-verbal communication in the system of verbal communication. Psychophysiological and psychoacoustic foundations]. Publishing house Institute of Psychology of the Russian Academy of Sciences.
- Nikolskaya, O. S. (2005) *Deti i podrostki s autizmom. Psikhologicheskoye soprovozhdeniye* [Children and adolescents with autism. Psychological support]. Terevinf.
- Nurieva, L. G. (2003). *Razvitiye rechi u autichnykh detey: Metodicheskkiye razrabotki* [Speech development in autistic children: Methodological developments]. Terevinf.
- Quill, K. A. (2002). *DO-WATCH-LISTEN-SAY. Social and communication intervention for children with autism*. Paul H. Brookes Publishing Co.
- Scambler, D., Rogers, S. J., & Wehner, E. A. (2000). Can the Checklist for Autism in Toddlers Differentiate Young Children With Autism From Those With Developmental Delays?. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(12), 1457 – 1463.  
<https://doi.org/10.1097/00004583-200112000-00017>
- Schopler, E., Reichler, R.J., Bashford, A., Lansing, M., & Marcus, L. (1990). *Individualized Assessment and Treatment for Autistic and Developmentally Disabled Children (Vol. 1). Psychoeducational Profile-Revised*. Pro-Ed, Austin.
- Sheremet, M., Leniv, Z., Loboda, V., & Maksymchuk, B. (2019). The development level of smart information criterion for specialists' readiness for inclusion implementation in education. *Information Technologies and Learning Tools*, 72(4), 273-285. <https://doi.org/10.33407/itlt.v72i4.2561>
- Shulzhenko, D. I. (2005). Pidhotovka vchyteliv zahal'noosvitnikh zakladiv do konstruyuvannya roboty z autychnymy dit'my. Dydaktychni ta sotsial'no-psychologichni aspekty kolektsiyanoi roboty u spetsial'niy shkoli [Preparation of secondary school teachers for designing work with autistic children. Didactic and socio-psychological aspects of collection work in a special school]. *Scientific and methodical collection*, 6, 228-231. Naukovyy svit.
- Simashkova, N. V. (2006). Klinicheskiye i neyrofiziologicheskiye aspekty tyazhelykh form autizma u detey [Clinical and neurophysiological aspects of severe forms of autism in children]. *Journal of Neurology and Psychiatry named after S. S. Korsakov*, 7.  
<http://www.psychiatry.ru/cond/0/diss/2006/12>
- Tarasun, V. V. (2001). Bazovi invariantni diyi ta operatsiyi yak komponent navchal'noyi diyal'nosti ditey z porushennyamy movlennyevoho rozvytku [Basic invariant actions and operations as a component of educational activity of children with speech development disorders]. *Defectology*, 1, 2-4.

- Vizel, T. G. (2005). *Osnovy neyropsikologii: uchebnik dlya studentov vuzov* [Fundamentals of neuropsychology: a textbook for university students]. ASTArel Tranzitkniga.
- Zhinkin, N. I. (1998). *O kodovykh perekhodakh vo vnutrenney rechi* [On code transitions in internal speech]. Creativity.
- Zyumalla, R. (2005). *Obucheniyе i soprovozhdeniye lyudey s autizmom po programme TEACCH* [Teaching and accompanying people with autism under the TEACCH]. Public Association "Belarusian Association for Assistance to Disabled Children and Young People with Disabilities.