

# Results of Verification of the Methods of Speech Activity Formation in Children with Autistic Disorders

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**Abstract:** *The speech activity formation is a pretty complex multifaceted long-term process, particularly, formation of speech activity in children with autistic disorders. According to the research objectives, we have designed corrective-developmental methods of formation of speech activity in pre-school children with autistic disorders. Working on the corrective-developmental methods, we have considered the research results, program requirements to the speech development of elder pre-schoolers, level of speech capabilities of every child, law regularities of the speech function development in ontogenesis and scientific-methodical principles and aspects of the speech development correction for children with speech disorders. As per the principles that we have substantiated, the research-diagnostic, correction-activity and function-speech stages of our methods show their outer and inner bounds. Moreover, the identified stages of the corrective-developmental methods are closely interrelated and characterised with their combination as a continuous pedagogical process; and the knowledge, skills and habits obtained by elder pre-schoolers with autistic disorders are considered as an integral system. We have included initiative as capability to speak in a monologue, motivation as capability to speak in a dialogue, content-richness as saturation of the active oral speech with language units clear to a child with autistic disorders (words, word combinations, phrases, sentences) as well as sound imitations, sound complexes and vocalisation to the main components of speech activity. Thus, after entrenching our methods we have processed and generalised the results of identifying levels of formed speech activity as capability to speak in a monologue and dialogue and use of particular language units according to the quantitative indices.*

**Keywords:** *Communication-speech environment, senior preschool age, monologue speech, motivation to speak in a dialogue, oral speech, formation levels.*

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## Introduction

The speech activity formation is a pretty complex multifaceted long-term process, particularly, formation of speech activity in children with autistic disorders. Providing a normal development, this process can cover an early and preschool age. Observing the dynamics of research and developments and studies of the subject area outlined, analysing the specialised literature, studying the organisation and content of the educational and nurturing process as a whole give an occasion to define the senior preschool age as one of the crucial stages of the child's speech function development. Scholars studying the preschool child's personal development state that the alalia may cause a worse temper, as this factor affects the evolvement of the whole motivation-volitional sphere of a child's personality (Konopliasta, 2014; Martynenko, 2013; Pakhomova, 2006; Sobotovych, 1989; Demchenko, 2021; Melnyk, 2021; Komogorova, 2021; Sheremet, 2019; Behas, 2019 and others).

As defined by Ye. Sobotovych (1989), the verbal communication entails an individual's implementing the system of practical knowledge about the vocal, lexical and grammatical speech aspect. L. Trofymenko (2004) defines the communicative component of the speech activity as aggregation of actions and operations that provide for the language use in apprehending or generating oral and written utterances. According to the studies of N. Pakhomova (2006), improving the communicative competency requires to form a motive of the speech activity, to develop initiatives in communications, to stimulate nonverbal and verbal communication means, to be able to keep a conversation going on various topics. Hence, it is requisite to organise the development of psychophysiological mechanisms of the speech activity in such areas of focus as formation of a motive in arranging verbal situations and stimulation to communicate.

The methods of formation of speech activity call for establishing a communicative-verbal environment penetrating to different levels of life of a senior preschool child with autistic disorders, which arranges the stepwise speech activity formation and progress. Completing a series of tasks suggested makes it possible to assess successfulness in acquiring the communicative competency, to identify the development level of motivation, initiative, pregnancy (lexical scope) of independent speech as components of speech activity in that form fitting a child (children's speech activity at a low level is to be assessed according to the mimics and social gestures, imitative movements with a verbal accompaniment (exclamations,

easy words or word fragments) and without any speech following. Taking into account the specifics of autistic children's mental development results in the absence of strict time frames for shifting from one stage to another stage of methods (research-diagnostic stage, correction-activity stage, function-speech stage) and causes the need to be able to vary the exercises suggested depending on subjective particulars of every individual child.

### **Modelling of corrective-logopedic activities**

The procedure for modelling the corrective-logopedic activities, process of formation of speech activity in preschool children with autistic disorders was carried out on the basis of the speech development diagnostics for children of the aforementioned category in view of regularities and peculiarities of autistic disorders. According to the forecast and research results, the process of formation of speech activity is to be facilitated through: speech development diagnostics for children of this nosologic group; special educational and correctional environment; methods of formation of speech activity in senior preschool children with autistic disorders.

Designing the experimental methods of formation of speech activity in senior preschool children with autistic disorders, we were abiding to the general pedagogical principles: principles of scientificity and simplicity consisting in the selection of scientifically substantiated tasks to be comprehensible for children with autistic disorders at this age; principles of consistency, sequence, system and order in education that manifest as necessity for selecting games, exercises and tasks in view of speech capabilities of children and the closest development zone; principle of interrelation with life requiring exercises that are based on a child's background and are targeted at acquiring some knowledge, skills and habits to be exercised in everyday life; principle of visibility prescribing a sufficient number of visual aids through the special organization principles; principle of formation of motivation to master speech as the most useful method of communication (creating a problem that can be resolved by several methods), principle of formation of speech as linguistic capability (development of linguistic knowledge, skills and habits), principle of stimulation of the spontaneous speech as a marker of its general progress (a need to speak spontaneously is forming), principle of sensory-linguistic development (learning words through the sensory experience, creating special micro-situations by using different activities: drawing, construction, paper

crafting etc.), principle of speech development complex approach (solving few speech tasks in terms of one lesson or one task: for example, working on the vocabulary size correlates to the development of a phonematic, grammatical aspects of speech), principle of complex influence on all the analysers preserved for correcting the disordered function, principle of speech formation in view of modern concepts about the processes of apprehension and producing of an utterance; psychophysiological principles: principle of defect classification, principle of prevention of difficulties in education, principle of reliance upon preserving analyser systems and others (Sheremet, 2013; Tarasun, 2004; Fitsula, 2000).

When proposing exercises and games, it is requisite to consider the principle of simplicity and sequence in an increasing order of complexity of tasks and in accordance with a level of speech capabilities of children with autistic disorders. The principle of system and phased approaches depending on regularities of organisation and structure of the educational process and its content provides for establishing methods based on the achievements of contemporary psycho-pedagogical science, on the principles of personality-oriented upbringing and education. A child is a core of the modern pedagogical process focused on developing his or her activity, independence and creativity in a special organised process. The models of upbringing and education based on integrity and integration call for unity of biological, social, pedagogical, psychological influences to be constantly realised in the process of a continuous and consistent preparation and cause personal changes and a better speech quality. This caused the selection of particular provisions favourable for contemplating other methods of formation of speech activity in senior preschool children with autistic disorders. They include, in particular, assurance that the purport of corrective-logopedic activities is to ensure the physical, psychological and social development, maximum individualisation in view of psychological and age peculiarities of a child and his/her main activities. The aforementioned makes it possible to figuratively determine the second stage of the process as correction-activity stage.

The corrective-developmental methods have three substructures that provide together an integral understanding about the purport of the stages of corrective-pedagogical activities on speech activity formation: research-diagnostic, correction-activity and function-speech. Each stage is distinguished with its own aim and objectives, has own trends, methods and procedures, includes common aspects of the phased formation of speech

activity subordinated to a common goal and centred on particular corrective tasks to be solved. Herewith, they do not compete and mutually exclude one another, but mutually complement themselves and correct common actions. The given stages have outer and inner relationships stipulated by the substantiated principles of system and phased approaches consistent with the regularities of organisation and establishment of the educational process. This provides for unity and succession of corrective-developmental actions for achieving the goal – to form the speech activity.

The analysis of scientific studies reflects that each next stage of speech function development is impossible without development of the previous one (principle of ontogenetic development of the speech function in general). Considering the versatility and variety of autistic symptoms and taking into account the specifics of the mental and speech development of children with autistic disorders, all the stages have no time limits set. It is understood that the transition of every specific child from one stage to another in every specific case was in view of individual achievements of the child, and not in terms of generally defined common terms.

Setting the initial communication of an adult and a child was that basis that could enable a child with autistic disorders to form some positive experience in interaction, to expand his/her communicative motivation, to form the ability to regulate the communication process as well as to gradually transit to the further stages of communicative development, to expand the communication scopes, to transfer the experience acquired to communicative situations with other participants of communication. The adult arranges the creation of a communicative space as part of a safe developmental environment and context of communication, where he/she and a child have an opportunity to act against each other as communicative partners. The communicative context that appears at this refers to the characteristics of the common activities, which an adult and a child are involved in, and specifics of their interaction, and is determined by the same characteristic that gives sense to the communication (Zh. Glozman, 2009). Hence, a safe psycho-emotional space, awareness of an adult present, indirect unobtrusive form of contact within a favourable sensory-playful context of communication assisted a child with autistic disorders to adapt him/herself on the one hand, but the context selected for communication at the following stages became a pivot point for forming and developing skills in the communicative field and verbal communication on the other hand. The focus of common attention on a subject of communication assisted in

giving a communicative sense to the context of the game prescribing that an adult and a child with autistic disorders should contact with each other. For establishing and consolidating the contact and for developing the capability to imitate, such games were carried out as “Give me a hand!”, “Hello! Goodbye!”, “Who wants?”, “Peekaboo!” and others. The transition to the next took place when a child was aspired to and interested in staying with adults in a common communicative space, when a child at least was taking the initiative in getting in contact, and trying to interact through speech.

The main communication skills (those ones that a child uses most frequently) were identified and further communications skills were developed (those ones that a child does not use or uses selectively but could use more efficiently) in watching children with autistic disorders, staying and getting in contact with them. In addition, a considerable body of information was received from conversations and survey with parents and specialists working with children of this category.

As children with autistic disorders usually have difficulties in imitating both in general and in speech directly, it is suggested that this capability should be increased by means of appropriate games, such as, for example, “Going To the Village”, “Who Speaks How?”, “Large and Small Feet”, “Let`s Play the Guitar!” etc. Furthermore, for forming and developing the speech imitation, we believe that it is requisite to combine the development of the speech and movement coordination and development of the auditory vigilance, formation of skills to reproduce the content of literary works through exclamations or imitations and various movements. Such skills were being formed during the games “Hands”, “Clock”, “Clap! Clap! Chop! Chop!”, “Orchestra”, “Fife” etc. This working stage also included the identification and development of impressive and expressive vocabularies represented by different parts of speech.

For increasing motivation to interact with adults and initiative in communication, we used rewards (sensory, active, social) by aiming to pass to the preferential use of social rewards (praises and social signs). An individual selection of rewards assisted in a child`s interest in their getting in so much that it could stimulate him or her to take the initiative. Furthermore, the content and purport of such games as “Peekaboo!”, “Show Me Where!”, “Find It!”, “Where Is the Ball?” prescribed the variability depending on a child`s preferences and interests, which also increased the motivation to interact with an adult for getting satisfaction (from the interaction with toys or objects first, which was arranged by an

adult, and then directly from the interaction with this adult). Each lesson and each game or exercise as part of one lesson was carried out emotionally. In one respect, it motivated a child to interact; in the other respect, it provoked initiative in the attempts to initiate those activities that could be the most relevant, interesting and desired for a child in the course of communication with an adult. For establishing independence, initiative and motivation to interact with other people, the games that assisted a child in distinguishing and naming himself/herself were arranged. They were such games as “Who Wants?”, “Who Is This?”, “Me!” and others.

Multiple repetitions of the same games with different lexical content, using which was based on the work with peculiarities of children with autistic disorders, besides the didactic purpose, (striving to repeat the same procedure, stereotypy, antipathy towards innovations and changes, etc.), did not just further the vocabulary expansion, but provided an opportunity to drill the same actions.

Shifting from the apprehensible communication skills to the use of verbal means of communication was through such instructions as “Name it!”, “Tell me!” and such questions as “Who is this?”, “What is this?”, “Which?” and others. In the cases when a child did not respond, an adult, after making a pause, answered instead of him/her. If a child at least made the smallest attempt to give himself/herself a verbal answer or reproduce an answer after an adult (even in failed attempts), it was obligatorily encouraged with a praise and a respective incentive. The games “Show and Name It!”, “Name a Part of Body!” etc. can be taken as examples.

The discrepancies found in the inability to the monologue and dialogue speech induce an individual combination, alteration and duration of the use of games and tasks suggested in the methods. Initial dialogue-monologue speech skills were formed individually and variably. If a child used the speech, general logopedic games and exercises were used with reference to abilities and particularities of every individual child. Children, who had low or zero speech activity levels detected during an ascertaining stage of the research (63.1% examined children), required a longer period for the aforesaid conditions to form.

It is known that the learning of the grammatical system of a language means a gradual development of the whole cognitive activity of a child, his/her acquisition of logical operations of generalisation to be performed in using word combinations in a various semantical and notional context. Thus, the course of learning of every part of speech shows a complex and

multifaceted relationship of the children's speech and cognitive activity development. The speech activity formation stipulates the elaboration of a grammatical speech component based on the development of speech (grammatical) skills of a pre-schooler, which can show not only the language laws, specifics of the oral-colloquial speech, but regularities of an individual's thinking progress, his/her exploring the environment (Lalaeva, 2003; Pakhomova, 2006; Sichkarchuk, 2011; Sobotovich, 1989). Hence, the formation of speech activity in children with autistic disorders envisages a practical familiarisation with grammatical forms of words in a native language (morphological composition – parts of speech) and acquisition of the main word formation means; formation of a grammatical apprehension of a native language and fixed associative links. For this purpose, the following games were suggested: "Repetitions", "Do the Same!", "Do As In the Picture!", "A Colour to a Colour", "Shape", "Find the Similar", "Dwarves and Giants", "More-Less" and others.

It was prescribed that some games from the previous stages were to be included, if the previous stages admitted just the reproduction of movements depending on a game situation or the pronunciation of particular words or phrases, this stage then envisaged the direct reproduction of a versed text of a game, e.g. "Hands", "Chop and Clap", "Water", "Pat-a-Cake", "Tree" and others.

One of the abnormalities of speech disorders in autistic children is an unformed phrasal speech, its syntactic structure. Depending on a level of the speech development of senior preschool children with autistic disorders, the complex of sounds, vocalisation, a babbling word or a particular word, phrase and a sentence in certain cases can serve as means of expression of thoughts. Therefore, we have identified such aspects of the phrasal speech formation in children with autistic disorders as matching adjectives to nouns, answering questions, making a simple sentence following the picture.

The created corrective-developmental methods of formation of the speech activity in senior preschool children with autistic disorders present psychological and pedagogical, general didactic and special conditions and interdependence and relationships of structural components and particular individual subjects of the pedagogical process of speech activity formation. They meet the program requirements to the speech development of senior pre-schoolers, regularities of the development of the speech function in ontogenesis and scientific-methodical principles and aspects of the speech development correction in speech disorders.

The means for implementing the methods at different stages were observation of children with autistic disorders, staying with them, surveying parents and specialists working with children of this category, a nearby game, exercises and games for establishing a contact, developing the auditory vigilance, expanding apprehensible communication skills (verbal and nonverbal), developing the capability to imitate, teaching to be initiative and independent in general and in the process of communication in particular, expanding the passive and enriching the active vocabulary, forming skills to answer questions and to independently form elementary phrases, stimulation and cooperation with parents and specialists working with a child.

It should be pointed out that in view of the specifics of the psychological development of children with autistic disorders, there may be the temporary return to the use of methods and means of the previous stage in the cases of lower indices of the speech activity development. Furthermore, short, clear, apprehensible comments were used in relation to everything going on with a child and surrounding a child at the moment of interaction. The purpose of such comments was to improve a child's orientation in the environment, to form links amongst objects, actions and their verbal indication, to signal about the conversation partner's communicative presence, to form and to activate the speech activity.

These methods were introduced in parallel with the planning of the main educational and upbringing process. The experiment comprised 84 senior preschool children with autistic disorders. An experimental group and a control group were established for ensuring the efficiency of implementing the methods designed. The experimental group (EG) involved 46 children in, who a series of tasks from the corrective-developmental methods were proposed to in order to form the speech activity. The control group (CG) comprised 38 children, who were not involved in by the special education, but took part in the final function-speech stage of the forming experiment. Engaging children with autistic disorders in the experimental research, we did not select them according to specific markers (as level of speech activity or speech development, intelligence level, sociability etc.) and were guided only by the parents' consent. Thus, the experiment drew in senior preschool children with autistic disorders who had different speech activity levels.

The corrective-developmental lessons according to the methods and techniques suggested were carried out in an individual form due to different speech capabilities of children and typical autistic particularities. The

corrective-developmental methods of speech activity formation met the program requirements to a senior preschool child's development and principles of organisation of corrective activities with children with autistic disorders. A higher level of speech activity formedness was considered as a dynamic process, characterised with some specifics depending on a mechanism of origin of this speech abnormality, based on regularities of the speech ontogenetic development, and allowing for individual capacities of the motivation-volitional zone and a speech status of a senior preschool child with autistic disorders.

In the course of work, there were initial and final assessments of a child's knowledge and skills, arrangement of mainly individual lessons in the circumstances usual for children in a positive atmosphere relying upon the playing moment of presentation and completion of tasks that made the application of the principle of individual and differentiated approach in view of intellectual capabilities of children significantly efficient, specifics of the emotional-volitional sphere, specifics of communicative manifestations, severity degree of defects requiring different levels of aid to be provided. Controlling assessments for assessing the efficiency of experimental methods and techniques of formation of speech activity in senior pre-schoolers with autistic disorders were carried out at the final stage. Such assessments looked like a series of diagnostic tasks for each speech activity component (motivation, initiative, pregnancy) similar to the summative research stage. In addition, the assessment criteria of completion of diagnostic tasks were the same both for the summative and forming stages of the research.

The designed methods of speech activity formation prescribe several levels of assistance: explaining how to do a task through a few similar examples by actively using visual aids; showing an example action or answer using similar materials so to form skills to answer by analogy; selecting an action or an answer from 2-3 options; giving an example action or answer for its reproduction; an action by imitating or saying an answer representatively; completing a task instead of a child by goading him or her to interact.

The analysis of scientific researches shows that children with autistic disorders have to activate and enrich the sensorium (sensory sphere), apart from the abovementioned aspects of corrective activities. It is known that the education of pre-schoolers is based on particular conceptions that are directly perceived by a child. The sensory processes are organically

incorporated in all the types and forms of a child's interaction with the outside world, and they are an integral part of any valuable activities of a preschooler. It means, we suggest stimulating the children's sensorium in every possible way in order to increase the emotional relevance of activities by using various sensory irritants; pictures, cards, illustrations, bright toys and items, books, torches etc. (visual tools), musical accompaniment, musical instruments, applause etc. (audial tools), running, jumps, marching, swinging, hugs, strokes, tickling etc. (tactile-vestibular means). However, it is obligatory though to take into account features of the sensory perception of children so to avoid any possible origin of auto-stimulations.

Hence, we believe that the speech activity forming during a simple emotionally significant activity can influence the progress of communicative activities and speech activity formation. The methods and techniques presented are a pedagogical system, every component of which can be considered as a particular system providing numerous interrelated typological and individual elements and subsystems. Due to this, the stage-by-stage approach in building the educational-corrective process is based on attracting relatively independent components in a chronological order in line with the ontogenetic development of speech. Therefore, the designed methods and techniques represent all the requisite psychological-pedagogical conditions of the corrective-developmental activities with children with autistic disorders, which, in our opinion, ensure their due efficiency.

### **Results of completion of diagnostic tasks obtained by the children with autistic disorders**

Analysing the control and experimental groups formed for entrenching the model of corrective-developmental methods and techniques of speech activity formation, some positive changes were found. They had an influence on the general characteristics of the state of formedness of speech activity for this category of children.

At the final stage of entrenchment of the corrective-developmental methods and techniques of speech activity formation in senior pre-schoolers with autistic disorders, it was proposed to perform tasks of the methods and techniques for identifying a level of speech activity in senior preschool children with autistic disorders, which were used at the summative stage of the research.

Studying how senior preschool children with autistic disorders are able to readily and easy get into a contact with adults after the corrective-

developmental activities by following the methods of speech activity formation, we have found out that 13% children in the EG easily got into a contact with adults and showed their interest and activeness in communicating (a high level), close to 7.9% the CG children. 23.9% EG children and 15.8% CG children were getting into a contact with adults selectively (an adequate level). Not always successful interaction and selected contacts (an average level) were noted in 26.1% EG children and 13.2% CG children. Lack of initiative and a passive position in interaction (a low level) were detected in 26.1% EG children and 23.6% CG children. Lack of activeness, neglect of adults and evasion of interaction with them (a zero level) were observed in 10.9% EG children and 39.5% CG children. It should be pointed out that certain children (Maryna L., Oksana M.) got into a contact by using the skills learned at the lessons when completing the tasks of the methods suggested. Further, activeness was noted when children extended their hands to an adult, usually not showing any interest in interaction. It was considered as sign of their capability to interact. The data received are provided in Table 1.

**Table.1.** Indices of the capability to interact with adults, in %.

Levels	CG		EG	
	Number of children	%	Number of children	%
High	3	7.9	6	13
Adequate	6	15.8	11	23.9
Average	5	13.2	12	26.1
Low	9	23.6	12	26.1
Zero	15	39.5	5	10.9

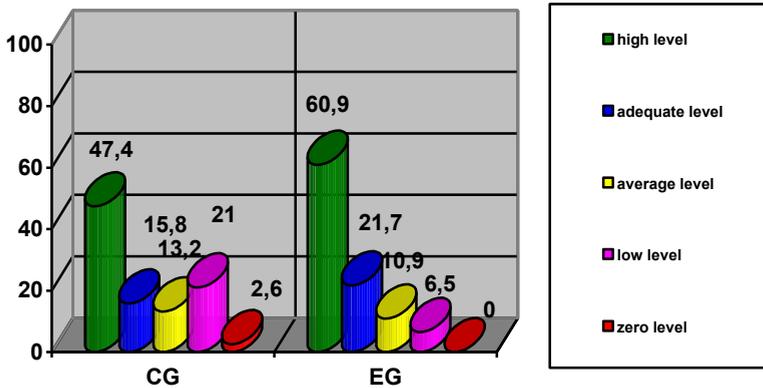
Testing the capability of senior preschool children with autistic disorders to answer questions gave the following results: 21.7% EG children and 13.2% CG children answered questions asked by the adults (a high level); 21.7% EG children and 18.4% CG children turned out to be selectively capable to answer the questions verbally and non-verbally depending on a case (an adequate level); 26.1% EG children and 23.7% CG children were able to answer questions but required answers to be repeated or some additional motivation to answer and some assistance from an adult and preferred nonverbal responses (an average level); 19.6% EG children and 26.3% CG children were almost unable to answer questions (a low level);

10.9% EG children and 18.4% CG children did not give any response to an adult's question at all (a zero level). The meaningful fact was that some children were waiting for a praise or treat after answering questions. The comparative characteristics is provided in Table 2.

**Table.2.** Indices of the capability to answer questions, in %.

Levels	CG		EG	
	Number of children	%	Number of children	%
High	5	13.2	10	21.7
Adequate	7	18.4	10	21.7
Average	9	23.7	12	26.1
Low	10	26.3	9	19.6
Zero	7	18.4	5	10.9

Regarding the study of the presence of a response of senior preschool children with autistic disorders to their names, children were addressed by their names with one of the forms preferred in child care facilities and at home, which was chosen for constant use. After completing the study, it was found out that 60.9% EG children and 47.4% CG children had a response to their names (a high level), 19.6% EG children and 15.8% CG children responded almost always (an adequate level), 10.9% EG children and 13.2% CG children did not always respond to their names (a moderate level), 6.5% EG children and 21% CG children hardly ever responded to their names (a low level). Beyond that, the EG children did not include such ones who did not react on their names (a zero level), whereas the CG made 2.6%. The data received is shown as a diagram (Fig.1).



\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level

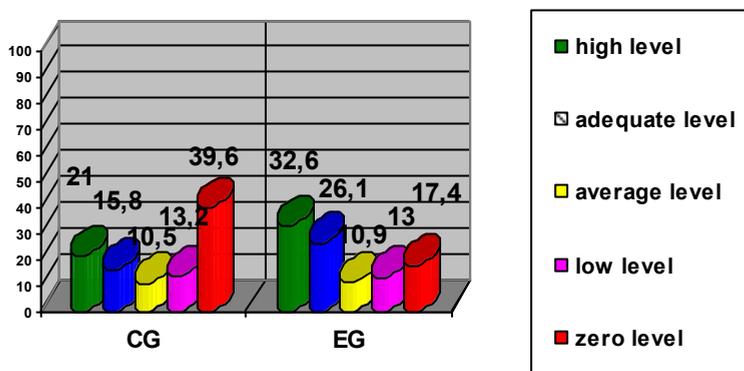
**Fig.1.** Indices of the present response to an own name, in %.

It turned out, the correct use of the pronoun “I” (a high level) was present in 10.9% EG children and 5.3% CG children. 43.5% EG children and 23.6% CG children tended to use personal pronouns correctly, including the pronoun “I” (an adequate level), 13% EG children and 7.9% CG children spoke about themselves mainly in the third person singular or called themselves by name, rarely using the pronoun “I” (a moderate level), 15.2 % EG children and 15.8% CG children did not have a pronoun “I” but tried to name themselves (a low level). Furthermore, 17.4% EG children and 47.4% CG children did not use the pronoun “I” and were not willing to present themselves and their needs (a zero level). The data received are presented in Table 3.

**Table.3.** Indices of the use of the pronoun “I”, in %.

Levels	CG		EG	
	Number of children	%	Number of children	%
High	2	5.3	5	10.9
Adequate	9	23.6	20	43.5
Moderate	3	7.9	6	13
Low	6	15.8	7	15.2
Zero	18	47.4	8	17.4

The study results about the use of “Yes” and “No” in speech showed that 32.6% EG and 21% CG children actively used the words “Yes” and “No” (a high level), 26.1% EG children and 15.8% CG children selectively used these words in speech (an adequate level), the presence of the words “Yes” and “No” in speech only in some cases (a moderate level) was present in 10.9% EG children and 10.5% CG children, 13% EG children and 13.2% CG children did not use the said speech almost at all (a low level), and 17.4% EG children and 39.5% CG children did not use the words “Yes” and “No” at all (a zero level). The quantitative indices are provided as a diagram (Fig.2):



*\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level*

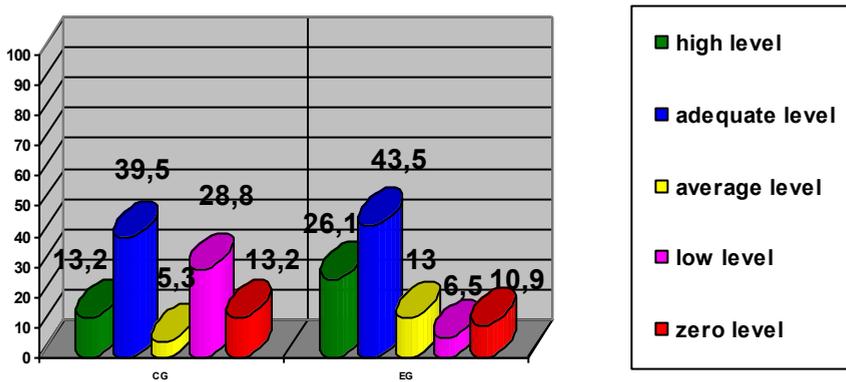
**Fig.2.** Indices of the use of the words “Yes” and “No” in speech, in %.

Certain children (David T., Maria Ya., Polina T.) did not use the pronoun “I” and words “Yes” and “No” just in using the said words in the exercises and games of the methods suggested and situations with a similar context.

The capability of children with autistic disorders to follow the situational instructions in a correct way expressing interest in following them (a high level) was shown by 26.1% EG children and 13.2 CG children. 43.5% EG children and 39.5% CG children selectively followed the situational instructions (an adequate level). 13% EG children and 5.3% CG children demonstrated their capability to follow the situational instructions with the help of an adult (an average level). 6.5% EG children and 28.8% CG children were not willing to follow the situational instructions and

expressed their negative attitude when asked again to follow the instructions (a low level). 10.9% EG children and 13.2% CG children did not respond to the instructions, ignored the experimenter (a zero level).

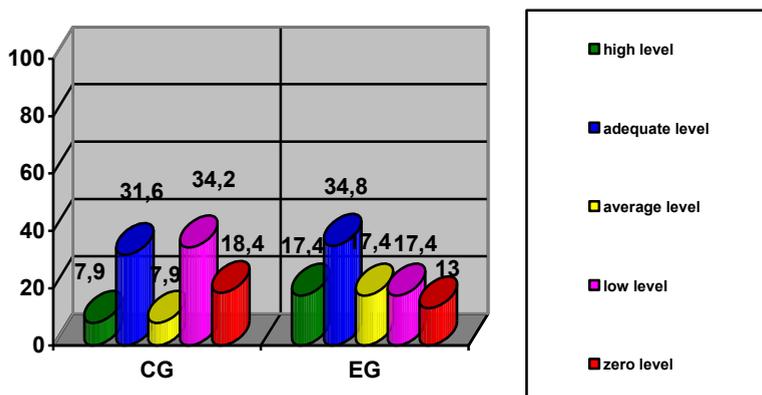
It was observed that children, who selectively followed instructions (an adequate level, an average level), were usually willing to follow those instructions taking priority of changing an activity to a more interesting one. The quantitative indices can be unravelled according to the diagram (Fig.3).



*\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level*

**Fig. 3.** Indices of the implementation of instructions in a situation, in %.

17.4% EG children and 7.9% CG children showed their capability to follow non-situational instructions calling for a child to stop an activity or to change it (a high level). 34.8% EG children and 31.6% CG children followed non-situational instructions selectively or incompletely (an adequate level). 17.4% EG children and 7.9% CG children appeared to be able to follow non-situational instructions only with the help and under the guidance of an adult (a moderate level). 17.4% EG children and 34.2% CG children had no desire to follow non-situational instructions and expressed their negative attitude (a low level). 13% EG children and 18.4% CG children did not respond to instructions, ignored the experimenter (a zero level). It should be mentioned that instructions requiring to stop or to change an activity were substantiated with the stimuli important for a child and implemented more frequently and more willingly. The quantitative indices are provided as a diagram (Fig.4).



\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level

**Fig. 4.** Indices of the implementation of instructions beyond a situation, in %.

Regarding the level of expressive speech development after studying under the corrective-developmental methods of speech activity formation, particularly, the presence of personal expressions in interacting with adults, the examination results appeared to be as follows: 26.1% EG children and 18.4% CG children used certain expressions in interaction (a high level); 19.6% EG children and 7.9% CG children speak rarely on their own (an adequate level); it was noted that expressions were present in 26.1% EG children and 5.3% CG children only in response to questions (a moderate level); 15.2% EG children and 31.6% CG children had expressions as clichés or echolalias, sound imitations and vocalisations (a low level); 13% EG children and 34.2% CG children were not willing to communicate, but used expressions in the course of interaction (a zero level). In particular, speech anxiety was typical for Nadia K. when the girl spoke quite a lot, and her speech was pretty grammatical and stylistic, but the communicative orientation was not noted that often. The quantitative indices are provided in Table 4.

**Table.4.** Indices of the presence of personal expressions in interaction, in %.

Levels	CG		EG	
	Number of children	%	Number of children	%
High	7	18.4	12	26.1
Adequate	3	7.9	9	19.6
Moderate	2	5.3	12	26.1

Low	12	31.6	7	15.2
Zero	14	36.8	6	13

After the corrective-developmental methods had been entrenched, 19.6% EG children and 13.2% CG children of all the children with autistic disorders expressed a desire both verbally and non-verbally depending on situations (a high level), 23.9% EG children and 18.4% CG children could express a desire both verbally and non-verbally, but the non-verbal expression of desires was noted that more often (an adequate level), 32.6% EG children and 31.6% CG children expressed a desire mainly in a non-verbal manner (a moderate level), 15.2% EG children and 26.3% CG children hardly ever expressed a desire and mainly non-verbally (a low level), and 8.7% EG children and 10.5% CG children almost did not express a desire (a zero level). The results of the study are presented in Table 5.

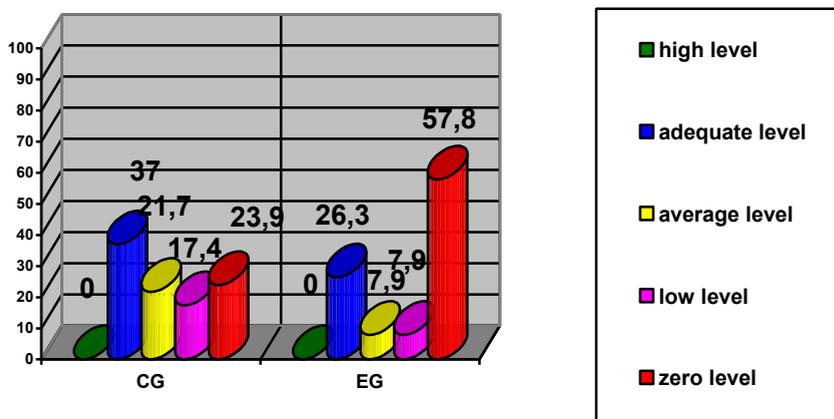
**Table. 5.** Indices of the ways to express a desire, in %.

Levels	CG		EG	
	Number of children	%	Number of children	%
High	5	13.2	9	19.6
Adequate	7	18.4	11	23.9
Moderate	12	31.6	15	32.6
Low	10	26.3	7	15.2
Zero	4	10.5	4	8.7

The description of the quantitative and qualitative analysis of testing the vocabulary of senior preschool children with autistic disorders after studying under the corrective-developmental methods of speech activity formation is provided in the annex !!!!!

Studying the monologue speech capability produces the following results: no child showed a high level of monologue speech at the final stage. The analysis of the data received in the study defined that the capability to speak in a monologue on an interesting topic (an adequate level) was present in 37% EG children and 26.3% CG children. Monologue expressions in the form of phrases, clichés and echolalias as a communicative method (a moderate level) were detected in 21.7% EG children and 7.9% CG children. The communication in the form of sound imitations, sound complexes and vocalisations (a low level) was present in 17.4% EG children and 7.9% CG

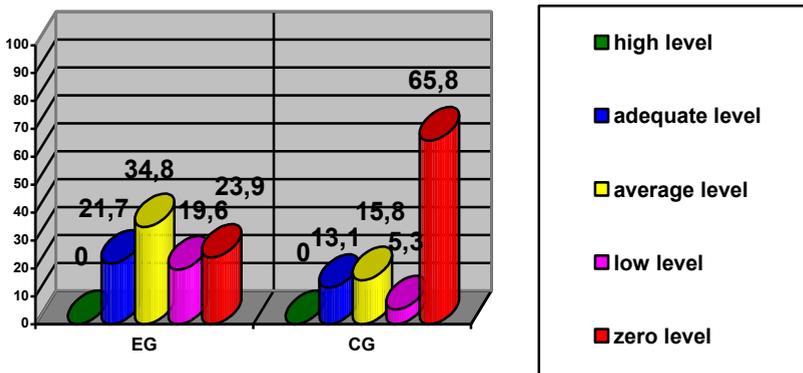
children. 23.9% EG children and 57.8% CG children appeared to be unable to speak in a monologue. The quantitative indices are provided as a diagram (Fig.5):



*\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level*

**Fig.5.** Monologue speech capability indices, in %.

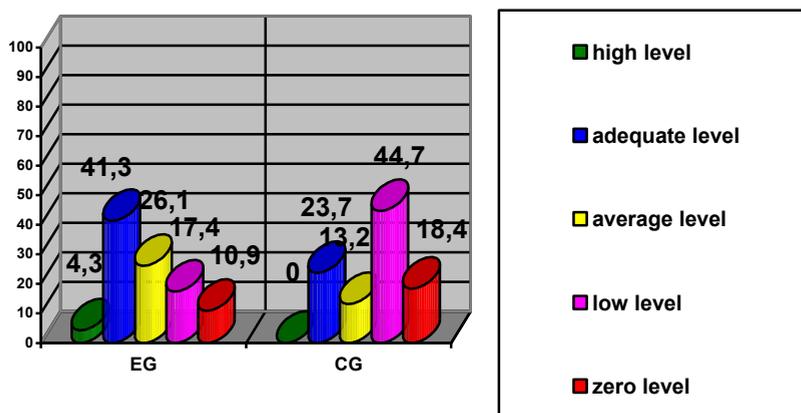
As observed, the children with autistic disorders, who took part in the educational experiment, did not include any children with a high level of dialogue speech. The skill to conduct a dialogue only on apprehensible and interesting topics (an adequate level) was natural for 21.7% EG children and 13.1% CG children. The capability to answer questions on easy topics (a moderate level) was developed in 34.8% EG children and 15.8% CG children. 19.6% EG children and 5.3% CG children appeared to be able to answer questions by using clichés or echolalias, or sound complexes, sound imitations and vocalisations in the answer (a low level). 23.9% EG children and 65.8% CG children appeared to be unable to conduct a dialogue (a zero level). The quantitative indices are provided in the form of diagram (Fig.6):



*\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level*

**Fig.6.** Indices of the dialogue speech capability, in %.

4.3% children in the experimental group were identified amongst the children with autistic disorders as those who used extended sentences in the active speech, whereas the control group had no such children. The children, who mainly used non-extended sentences, phrases in the active speech made 41.3% in the experimental group and 23.7% in the control group. The children, who were noted for their predominant use of word combinations, words, phrases, made 26.1% in the experimental group and 13.2% in the control group. The children, who preferred to use sound imitations, sound complexes and vocalisations, made 17.4% in the experimental group and 44.7% in the control group. Mute children meaning those who did not show any speech activity at all were 10.9% of all the children in the experimental group and 18.4% in the control group. The quantitative indices are shown on the diagram (Fig.7):



*\*green – high level; blue – adequate level; yellow – average level; pink – low level; red – zero level*

**Fig.7.** Indices of the use of corresponding language units according to the results of the final summative experiment, in %.

The active diagnosing was applied in specific cases for correcting the individual approach and content of corrective influence, which had a significant impact on the experiment results. To review the potency of research and experimental activities, we had a control comparative experiment based on the data of the summative experiment carried out before and after the forming experiment.

According to the data of the control assessment (under the set criteria and indices of formedness of speech activity), it was found that the children in the experimental group had significant positive changes influencing the general characteristics of speech activity formedness. According to the results of the contrastive-comparative analysis, the data received proved our predictions about the lowest level of speech activity in senior preschool children with autistic disorders in comparison with the normal level, which could slightly increase in the course of respective corrective-developmental activities according to the suggested methods of speech activity formation.

## Conclusions

According to the research tasks, we have designed the corrective-developmental methods of formation of speech activity in senior preschool children with autistic disorders, determined their didactic content and main

stages of entrenchment: research-diagnostic, correction-activity and function-speech.

Working on the corrective-developmental methods, we have taken into consideration the results of the summative stage of the research, program requirements to speech development of senior pre-schoolers, level of speech capabilities of every child, regularities of the speech function development in ontogenesis and scientific-methodical principles and trends of correction of speech development in children with speech disorders.

As per the principles substantiated, the research-diagnostic, correction-activity and function-speech stages of our methods have outer and inner relationships observed. Furthermore, the determined stages of the corrective-developmental methods are closely interrelated and characterised as being united in a continuous pedagogical process, and the skills, knowledge and habits acquired by senior pre-schoolers with autistic disorders are considered as an integral system.

We have assigned initiative as capability to speak in a monologue, motivation as capability to speak in a dialogue, content-richness as fullness of the active oral speech with language units as well as sound imitations, sound complexes and vocalisations comprehensible for a child with autistic disorders (words, word combinations, phrases, sentences) to the main components of speech activity. Thus, we have processed and generalised the results of identification of levels of speech activity formedness as capability to speak in a monologue and dialogue and use of particular language units according to the quantitative indices after entrenching our methods and techniques.

The versatility of the contingent of children with autistic disorders determined the necessity to design special methods of speech activity formation in accordance with the specifics of their defect structure and in view of a level of speech and intellectual development.

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