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SOME ASPECTS OF A MODERN LESSON

Abstract. Analysis of new trends in the optimization of the educational process in the primary school allows us to talk about changing the general educational paradigm. The school becomes not so much a source of information as it teaches us to learn; and the teacher is not an informer or a conductor of knowledge, but a person who creates conditions for mastering the ways of creative activity aimed at independent acquisition and assimilation of new knowledge. The tendencies of the modern educational process actualize certain forms of behavior and methods of the teacher that used to be desirable, but not mandatory. The lesson is a part of the life of the child and the teacher, and the living of this life must be accomplished at the level of a high universal culture, ensuring the formation of value orientations. The modern teacher functions at the lesson as an organizer, so he is characterized by such actions as the search for ways to involve each child in the work, predicting the actions of each student. A modern lesson is characterized by increased speech activity of students, but not teachers. The teacher should formulate questions in a salient manner and demand full, exhaustive answers. In modern textbooks, there are enough tasks, on the basis of which it is possible to initiate a dialogue that brings children to the analysis of the text with a problematic task and to the subsequent formulation of the topic of the lesson. The level-based approach to teaching and evaluating the educational achievements of schoolchildren presupposes the presence at the lesson of tasks of increased complexity and problem-search character. Currently, new types of lessons are actively being developed, at which the systemic activity-based approach, required by the standard, is implemented. The most common form of cooperation at the modern lesson is pair work.

To enhance the wide use of forms of group collaboration in the classroom, children need to acquire this experience in after-hours activities.

Keywords: school lessons; lesson requirements; primary school; primary school children; primary school teachers; professional competences; universal learning actions; business communication.

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New requirements to the system of education, built into the standard of the second generation, set the primary school teacher a challenge to rethink their pedagogical activity and to look for an answer to the question: "How should I teach in view of the new requirements?" The most difficult task is to reconsider one's experience with reference to design and conduct of the lesson as the basic organizational form of teaching. It is also difficult to set aside the conventional regular lesson with its rigorous order, well-tested arrangement, and use of discipline and compliance of the pupils.

Analysis of the new tendencies in the field of optimization of the primary school education process makes it possible to speak, first of all, about the change of the general educational paradigm which orients the pedagogues towards the achievement of the goal which presupposes:

– alongside academic outcomes, obtaining personal and meta-subject results;

– transition to the strategy of purposive formation of the learning activity of the pupil;

– realization of the "ecological paradigm" including the learning content into the context of life problem solution;

– understanding of the education process as meaning-centered learning and life activity generating comprehension of reality, etc.

The school becomes not so much a source of information as it teaches us to learn; and the teacher is not an informer or a conductor of knowledge, but a person who creates conditions for mastering the ways of creative activity aimed at independent acquisition and assimilation of new knowledge [7].

In view of the modern tendencies in education, it is possible to single out a number of principles of the education process organization directly determining the typical features of the modern lesson [7].

Activity-based approach as the basis of the new learning paradigm – knowledge is not given to the pupils ready-made but is obtained by them independently or in the process of research activity.

Meta-subject principle – development of the pupils' universal abilities trough the formation of ULA (universal learning actions) in all subjects and in all kinds of activity.

Reflexivity – the pupil is put in the situation in which they have to keep analyzing their own activity and that of their classmates.

Communicativity of the process of learning presupposing interaction between the pupils at the lesson, exchange of information, and learning from each other.

Subjectivization of the process of learning – the pupil is looked upon not as an object of education but as an equal participator of the process, and the effectiveness of learning depends on the joint effort of both the teacher and the pupil.

The tendencies of the modern education process mentioned above actualize certain forms of behavior and techniques of the teacher that used to be desirable, but not as mandatory as they are now. Thus, for example, subjectivization of the process of learning presupposes that the pupil, being an equal participator of the process of learning, is trusted with certain functions of the teacher, namely:

- definition and formulation of the topic and aims of the lesson;
- determination of the boundaries of their own knowledge and figuring out what knowledge is lacking for the solution of the problem defined;
- independent search for the missing information;
- definition and formulation of the aims of the learning material to be offered by the teacher; planning the process of task completion;
- participation in the evaluation of their own knowledge and the achievements of the peers;
- explanation of their own mistakes and choice of remedial tasks;
- substantiation of their own actions in the process of task completion and observation of the actions of the classmates.

It is only natural that the teacher should create the necessary condi-

tions and should lead the pupils to participation in such important elements of the lesson as aim setting, control and evaluation, explanation, information presentation, etc.

As we know, the teacher is a role model for the primary school pupil, and the organization of the lesson functions as a model of life organization in society [13]. This notorious truth is a most important means of achievement of significant results in personal development. In this connection, it would be good to repeat that the lesson is a part of the life of the child and the teacher, and the living of this life must be accomplished at the level of a high universal culture, ensuring the formation of value orientations. Well organized business communication among peers allows reinforcement of the *knowledge* of moral standards and the ability to follow them in life (mutual help, sincerity, responsibility); skills to match one's own actions to the ethical feelings (guilt, conscience, shame); wish and ability to see the moral aspect of one's own actions and to understand the importance and meaning of certain knowledge for the pupil [6].

The modern teacher functions at the lesson as an organizer, but not as an informer or manager, so they are characterized by such actions as the search for ways to involve each child in the work, the provision of individual help in overcoming difficulties, the initiation of a trial action of the child (object-oriented, evaluative, control), a demonstration of the cultural models of such actions, and the prediction of the actions of each student. The latter is especially urgent under the conditions when it is necessary to build up a dialogue leading the children to the formulation of the aim of their activity and planning it, when it is required to involve them in evaluation work and only direct their activity on the whole without performing a number of functions for them, which used to be the teacher's exclusive responsibility [2].

A modern lesson is characterized by increased speech activity of students, but not teachers. The teacher should not be too active and use too many words. It is much more important to formulate questions in a salient manner and demand full, exhaustive answers, to make the pupil perform the roles of the teacher or trainer, not to repeat the pupil's answer after them, but to involve the classmates in the evaluation of the pupil's answer.

Developing the planning and regulatory functions of speech, it is necessary to listen to all points of view on the solution of the learning task, to construct a dialogue aimed at finding the correct solution, to stimulate substantiation of the pupil's point of view with the help of theory and practical rules, to teach to come to compromise, to take the

point of view of another person, to defend one's own opinion, etc.

We may single out a number of productive tasks stimulating the cognitive activity of pupils and in fact determining them as the subjects of their own activity. These tasks include those aimed at formulation of questions on the topic of the lesson, making up tasks for independent work on the topic or tasks for the next lesson, and selection of exercises from the suggested list to practice the skills or habits under development. Such learning tasks have not found wide application in pedagogical practice, but they radically stimulate the cognitive activity of the pupils and are easy enough even for second grade pupils.

The textbook of a new type is of great use in choosing the material for the lesson, creating problem situations while learning new material, enhancing the pupils' cognitive motivation, and helping in the choice of the forms of organization of the cognitive activity of the pupils at the lesson [17].

In modern textbooks, there are enough tasks, on the basis of which it is possible to initiate a dialogue that brings children to the analysis of the text with a problematic task and to the subsequent formulation of the topic of the lesson. The textbook tasks are well coordinated with the stages of the lesson containing new material and give an opportunity to organize independent work of the pupils taking into account the level of their training. Many tasks are oriented towards their use in practical experience, presuppose purposive application of the logical thinking techniques and have a complex character, i.e. include skills and habits or activity across several areas of the subject. The level-based approach to teaching and evaluating the educational achievements of schoolchildren presupposes the presence at the lesson of tasks of increased complexity and problem-search character. And such tasks are presented in modern textbooks. But the increased complexity of the tasks should be accompanied by their level-based presentation, presuppose a certain amount of help with their completion and a differentiated character of evaluation.

Currently, new types of lessons are being actively developed, at which the systemic activity-based approach, required by the standard, is implemented [9]. The construction of the lesson within the logic of the systemic activity-based approach radically differs from the classical idea about the typology and structure of the lesson.

The lessons of a new type are characterized by the following structural components:

- Problem-based presentation of learning material, i.e. learning through discovery.

● The presence of moments when the child realizes the inadequacy of their knowledge in order to begin independent search for knowledge.

● Aim setting – the pupils formulate the aims of the lesson and each task by themselves according to the formula: *recollect → get to know → learn*.

● Modeling the processes, actions and concepts under study.

● Communication – joining the efforts of several children to solve the problem which they could not solve independently. Communication stimulates verbal activity of the pupils and acts as manifestation and realization of the communicative principle.

● Mutual checking and mutual control as means of realization of the communicative principle at the lesson and as a stage of formation of the actions of control and evaluation.

It should be noted that formation of the actions of control and evaluation at the modern lesson are attached particular importance to. This may be attributed to the fact that within the activity-based approach, the essence of development of the child's personality is regarded as a qualitative change of activity in which the child is the subject. This change takes place due to the increased complexity of the aims, tasks, actions with objects, operations and motivation of the child, as well as a result of the change of the child's position in activity who becomes more and more active and independent. At the same time, the change of the child's position in activity is possible only provided their actions of control and evaluation have been properly developed. The actions of control executed at all stages of activity – planning, performance and summing up – kind of sanction the action performance and, if necessary, stimulate its correction, which makes it possible to regard these actions as basic means of the forming self-regulation of the child.

The pupils' reflection at the lesson, which should be facilitated at all stages of the lesson, at the end of the lesson becomes obligatory and is aimed at the child's comprehension and verbal reproduction of everything new they have learned at the lesson, in what skills they have made progress, and what else they would like to know.

Organization of independent work is a typical feature of the modern lesson at all its stages. For the teacher, the independence of the pupil in learning activity in the context of the modern requirements becomes both the goal and the means of formation and development of the universal learning actions of the pupils. On the one hand, the child's independence cannot be formed without acquisition of the general learning skills and methods of activity; on the other hand, the

process of skill acquisition itself is possible only in case the child uses the skills in independent practice. Thus, the success of the primary school pupil in the process of learning is predetermined by the quality of the teacher's work at the lesson on inclusion of the child in the process of self-education via the development of their learning independence [8].

The development of learning independence depends, to a great extent, on what significance the teacher gives to various forms of cooperation in the joint activity of the children, what content it is based on, and what methods of interaction are actively used.

The most common form of cooperation at the modern lesson is pair work. The forms of group collaboration are more typical of project activity and other forms of after-hours activities. The process of teaching truly content-based cooperation is complex enough, and it is rather difficult to realize it at the lesson.

Truly content-based cooperation needs such mutual activities, the subjects of which are oriented towards the essential features of the object studied, and towards identification of the ties between object-related and semiotical-symbolic methods of activity, are ready to divide and reassign individual actions, and realize the need to carry out meaningful communication between themselves and with adults [6]. To enhance the wide use of forms of group collaboration in the classroom, children need to acquire this experience in after-hours activities. Above all, it is necessary to design a whole complex of special exercises which may facilitate true cooperation presupposing the realization by each partner of the sequence of their actions and the actions of the classmate, and the presence of the ability to identify and use the techniques of results application acquired by one of the partners through the work of the other.

By way of summing up our speculations about identification of the typical features of the modern lesson, it should be noted that the lesson in the modern interpretation is a search for the new, both in content and in new methods of its cognition. It is independent discovery of the new material, its comprehension and application. The whole process is performed in the mutual activity of the children and the teacher, which gives the child a chance to try out moral behavior and independent intellectual activity in the group, and provides valueless experience of self-determination, choice and self-realization.

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TESTING ACADEMIC ACHIEVEMENTS: EXPERIENCE OF COMBINATION OF PEDAGOGICAL, PSYCHOLOGICAL AND LOGOPEDIC CRITERIA OF ASSESSMENT OF LEARNING SKILLS AND HIGHER PSYCHOLOGICAL FUNCTIONS OF CHILDREN WITH ONCOLOGICAL DISEASES

Abstract. The article deals with the problem of investigation of learning skills and higher psychological functions of children with oncological diseases. The authors suggest an idea to integrate different diagnostic approaches (neuropsychological, pedagogical and logopedic ones) in a single diagnostic instrument. The test, which was called "Test of Academic Achievements", is based on a principally new approach to diagnostics due to its orientation towards the specificity of children with oncological diseases. Presupposing hierarchical organization of assessment of the state of learning skills, the test allows the pedagogue to follow the dynamics of the real level of achievements in more detail and to plan the future work with patients with reference to the results obtained. The test consists of a number of assessment scales in mathematics, Russian, reading and development of speech, each of which includes some test assignments. The state of the visual, spatial and auditory perception, the volume of short-term memory, switching over and concentrating attention, and the functions of programming and control are used as the main neuropsychological criteria. The basic logopedic criteria include the state of phonemic awareness, the volume of the active and passive vocabulary, the skills of grammatical structuring and speech programming, etc. The state of fine motor skills and the synchronization of movements in the eye-hand system are also taken into account.

Keywords: learning skills; schoolchildren; learning activity; neuropsychology; higher psychological functions; logopedics; psycho-diagnostics; psychological tests; academic failure; academic achievements; oncology; oncological diseases.

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Programs of assessment of the quality and level of acquisition of school knowledge are being developed both in Russia and abroad nowadays. Diagnostic programs may be provisionally divided into final and processual. The first reflect the level of acquisition of knowledge, skills and habits at the moment of completion of a course of study; the second are held in the process of learning and are expected to show how well the pupil copes with the program and whether the program is effective enough. The first kind of programs includes, for example, the model program of the National Survey of the Quality of Education for the study of the quality of education in separate academic subjects [3]. Similar programs abroad include, for example, the US National Assessment of Educational Progress (NAEP) and international programs like the *Programme for International Student Assessment* (*PISA*), Trends in International Mathematics and Science Study (TIMSS), and others. The processual programs of assessment of school skills possess higher sensitivity to minimal changes and dynamic specificity of education.

The Curriculum-Based Measurement (CBM) [*see:* 14; 16; 9; 18] is a method of monitoring the pupil's progress through direct and systematic evaluation of the basic skills (reading, writing and math).

Nevertheless, both final and processual tools are aimed at the educational constituent and cannot answer the question about the causes of the pupil's learning difficulties.

The question about the assessment of school skills in patients with oncological diseases (the main ideas of the Test of Academic

Achievements (TAA) were reflected in the project of the modern hospital schools (Project "LearnKnow") and were published in the Russian Journal of Children Oncology and Hematology [4]), undergoing a long course of inpatient treatment or rehabilitation, stands apart. In this case, the main problems are caused by the presence of cognitive and speech deficiencies due to the specificity of the condition and treatment. The traditional methods of school skills assessment cannot be used in this case as they absolutely ignore the state of the patients' higher psychological functions. Neuro-psychological and logopedic sections of the test, in their turn, due to the initial focus on the state of higher psychological functions but not on the level of acquisition of concrete school skills, are unable to solve this problem too. And the work at hospital schools is based, as a rule, on the approved methods and theories of diagnostics and rehabilitation which cannot always be used for children with oncological diseases or undergoing rehabilitation due to excessively individualized peculiarities of each patient.

In spite of the examples of active cooperation between the pedagogue and the psychologist/neuropsychologist in assessment of school skills, such collaboration has not been implemented yet at the level of diagnostic method which would regard the real pedagogical material of an educational program through the prism of the psychological functions involved in the solution of concrete learning problems. Analysis of the school program and concrete knowledge, skills and habits, and assessment of the degree of formation of the corresponding psychological functions and design of the rehabilitation program can allow determining the targets of intervention and optimizing the process of diagnostics and rehabilitation of the basic school skills (reading, writing and counting) in children with oncological diseases, as well as in typical "underachievers" of a general education school.

The diagnostic tool worked out by the team of authors has received the name of the **Test of Academic Achievements** (TAA). It integrates the data of the pedagogical, psychological, neuro-psychological, defectological, and logopedic diagnostics. The given interdisciplinary tool is based on dialogue between specialists in the areas which focus, both in research and practice, on the problem of assessment of school skills and the state of higher psychological functions.

The Test of Academic Achievements (TAA) is aimed at assessing the level of the learning skills acquisition of primary school pupils in mathematics, Russian, reading and speech development. The test consists of a number of assessment scales in mathematics, Russian,

reading and development of speech, each of which includes some test assignments.

The scales have been defined on the basis of the Codifier of expected outcomes of acquisition of the basic educational program of primary general education in mathematics, Russian and reading for conducting the procedures of assessment of the pupils' learning achievements, worked out by the Moscow Center for the Quality of Education of the Moscow Department of Education on the basis of the Federal State Educational Standard of primary general education (Order of the Ministry of Education and Science of the Russian Federation of October 6, 2009) and taking into account the Expected outcomes of primary general education in mathematics, Russian and reading and the model Program of primary general education in mathematics, Russian and reading. For the purposes of data procession optimization and ensuring further correlation with the criteria of psychological and logopedic diagnostics, the Codifier has been modified.

The choice of test questions and tasks is done on the basis of neuropsychological and logopedic criteria the deficiency of which was revealed while providing practical support for children with irregular psychological development, delays of speech and psychological development, and focal lesions of the brain. The state of the visual, spatial and auditory perception, the volume of short-term memory, switching over and concentrating attention, and the functions of programming and control are used as the main neuropsychological criteria. The basic logopedic criteria include the state of phonemic awareness, the volume of the active and passive vocabulary, the skills of grammatical structuring and speech programming, etc. The state of fine motor skills and the synchronization of movements in the eye-hand system are also taken into account.

The table of results is filled in on the basis of the TAA questionnaire answers. The questionnaire peculiarity consists in its level-sensitive organization: the child is offered a task matching the program of the current grade. If the task is too difficult to cope with, it is replaced by a simpler task one level down, corresponding to the same skill but on the material of the previous grade. Thus, testing within one topic presupposes identification of the real level of acquisition of the given topic or its section. As a result of the questionnaire approbation, we plan to correlate the acquisition of a concrete topic (or topic cluster) with the deficiency of certain psychological functions diagnosed separately within the framework of generally used or approbated procedures.

Thus, the TAA method in its final variant contains an album with the stimulus material for each grade (currently, there are 4 albums – one for each primary school grade); teacher's guide (including an instruction, answers and decoding criteria); table of correspondence between psychological functions and separate topics and their sections; training materials aimed at restoration and rehabilitation within the framework of separate topics and their sections, as well as the correspondence table between the test assignments and the primary school general education programs.

According to the authors' intention, the Test of Academic Achievements can be first of all recommended for:

– hospital school teachers who need to compare the school skills of the pupils with the state of higher psychological functions;

– primary general education school teachers to conduct testing at the end and beginning of the school year to identify the pupils' achievements and failures, and to reveal both the mistakes connected with inadequate acquisition of the topic and the unspecified mistakes showing the need to send the child to a specialist: doctor, psychologist (including the neuropsychologist), or logopedist;

– secondary school teachers to test the pupils' acquisition of the basic knowledge in Russian and math;

– training the pupils to pass intermediate and final graduate examinations.

The data obtained via testing can be also used by the specialists of psycho-medico-pedagogical commissions to support the diagnoses "dysgraphia", "dyslexia", "dyscalculia", "school skills formation disorder", etc., to make a decision about the forms of training and the conduct of the procedures of assessment and examination in the corresponding subjects. In addition, the test is addressed to psychologists (neuropsychologists), rehabilitation pedagogues (logopedists) to reveal the at-risk children and to provide special help and special education. It may be also useful for the parents who will be able to treat their child's problems objectively and consult psychologists and logopedist in good time.

The test approbation is being carried out at the Therapeutic-Rehabilitation Scientific Center "Russkoe pole" of the Dmitry Rogachev National Medical Research Centre of Pediatric Hematology, Oncology and Immunology (Chekhov District, Village of Grishenki) and in the course of the project "LearKnow" realization on the base of the Dmitry Rogachev National Medical Research Centre of Pediatric Hematology, Oncology and Immunology (Moscow) and the Federal State Budgetary Institution Russian Children's Clinical Hospi-

tal of the Ministry of Healthcare of the Russian Federation (Moscow).

The team of authors of the Test of Academic Achievements includes: V.N. Kasatkin, Doctor of Medicine, Professor; O.D. Larina, neuro-rehabilitator, logopedist of the highest professional category, Associate Professor of Department of Logopedics, Institute of Childhood, MSPU; M.E. Baulina, Candidate of Psychology, neuropsychologist; M.B. Ivanov, linguist, pedagogue-psychologist.

The diagnostic tool described above needs a long approbation. At the same time, it is necessary to stress that the solution of the concrete applied task towards the design and approbation of the diagnostic tools for identification of pedagogical and neuropsychological deficiencies in children with oncological diseases is an urgent constituent of interdisciplinary integration aimed at meeting the educational needs of such children.

Supplement 1. A sample of a filled in table of results

PHONETICS				
Grade 4	**Grade 3**	**Grade 2**	**Grade 1**	**Entry score**
Ф. 4.1.	Ф. 3.1.	Ф. 2.1.	Ф. 1.1.	**2**
Ф. 4.2.	Ф. 3.2.	Ф. 2.2.	Ф. 1.2.	**2**
Ф. 4.3.	Ф. 3.3.	Ф. 2.3.	Ф. 1.3.	
Ф. 4.4.	Ф. 3.4.	Ф. 2.4.	Ф. 1.4.	**1**
Ф. 4.5.	Ф. 3.5.	Ф. 2.5.	Ф. 1.5.	
Ф. 4.6.	Ф. 3.6.	Ф. 2.6.	Ф. 1.6.	
Ф. 4.7.	Ф. 3.7.	Ф. 2.7.	Ф. 1.7.	
Ф. 4.8.	Ф. 3.8.	Ф. 2.8.		
Ф. 4.9.	Ф. 3.9.	Ф. 2.9.		
Ф. 4.10.				
				Total score:
Grade score				

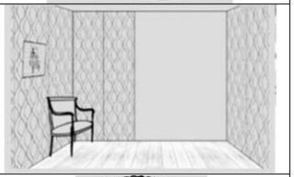
Notes to Supplement 1. The sample shows that the pupil coped with task Ф. 4.1 and scored 2 points. He did not complete task Ф. 4.2 and, consequently, was given task Ф. 3.2 (which corresponds in its content to the level of the preceding grade), which he completed and received 2 scores. He did not manage to complete tasks Ф. 4.3, Ф. 3.3, Ф. 2.3 and Ф. 1.3 and received no scores for them. The pupil tested coped with task Ф. 4.4 but made some mistakes and scored 1 point. Thus, we can figure out the real level of achievement of the pupil in each topic.

Supplement 2. Sample task in Russian

PHONETICS	
Ф.4.3. 0 1 2	Insert the missing letters in the following words: Idi d( )l'she — uchi d( )l'she. Ulitsa opust( )la — pust( )t' vniz. Osel ne glu( ) — glukhar' ne glu( ).
Ф.3.3. 0 1 2	Insert the missing letters in the following words: Siamskaya k( )shka — grechnevaya k( )shka. Berezovyy ( )uchok — svyazannyy v ( )uchok. Pis'mennyy sto( ) — dozhdevoy sto( ), sto( ) sena, znak «sto( )». Redkiy ( )ort — morskoy ( )ort. Repchatyy l( )k — otkrytyy l( )k.
Ф.2.3. 0 1 2	Insert the missing vowels in the following words: Sela, pos( )dela, i opyat' poshla. Pos( )dil ded repku. U zelenoy eli vetki pos( )deli. Znachit, na dvore zima.
Ф.1.3. 0 1 2	Look and say: 1. Gde DOM? Gde DYM? 2. Gde SOSKA? Gde SOSNA? 3. Gde DOChKA? Gde TOChKA? 

Note. The sample illustrates that the tasks differ in complexity depending on the grade. If the person tested does not cope with the task of his grade, he is offered a task at the level of the preceding grade.

Supplement 3. Sample task in Mathematics

ЧИСЛА И ВЕЛИЧИНЫ		
ЧиВ.4.3. 0 1 2	Water has been poured from a full jar into a glass. As a result there was less water left in the jar. How many glasses, do you think, could be filled with the water left in the jar? ☐	
ЧиВ.3.3. 0 1 2	Only two pieces of wallpaper have been hung on one of the wall of the room. How many more pieces of wallpaper of the same size will be needed, do you think, to cover the remaining part of the wall? ☐	
ЧиВ.2.3. 0 1 2	Three pieces of the cake have been cut. How many pieces can the remaining part of the cake be cut into? ☐	
ЧиВ.1.3. 0 1 2	Count the beads and write down the answer.  ☐	

Note. Tasks in mathematics are treated in a similar way: the person tested is offered tasks of the corresponding grade. If problems arise, a task from the preceding grade is given. The answer markers placed beyond the red line allow checking up right during testing.

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COLLECTIVE IDEAS OF SENIOR PUPILS WITH INTELLECTUAL DISABILITY ABOUT ADULTHOOD

Abstract. The article reflects the structure and content of collective ideas of adolescents with intellectual disabilities about adulthood. The article shows the ideological diversity of the corresponding collective ideas formed by a unity of individual concepts of *adulthood*. The authors single out the ideas of the kernel zone including the activity-based and behavioral definitions of adulthood. The peripheral zone embraces the mental characteristics of an adult and the concepts about temper and responsibility. The conclusions and generalizations presented in the article, and the fragments of the judgments of respondents with intellectual disabilities characterizing their specific categories and concepts outline the zone of real and proximal development of ideas of senior pupils of an adaptive school about adulthood. Specification of the structure and content of ideas of pupils with intellectual disability about adulthood may allow improving the education and rehabilitation activity of adaptive school aimed at the formation of biographical concepts of the pupils of this category. The data obtained can be used as a basis for optional courses, extra-curricular educational activities aimed at the formation of ideas about adulthood in the context of the person's life, about responsibility, etc. in pupils with intellectual disabilities. The information on the content of the variable peripheral zone of the concepts of adolescents with intellectual disabilities about adulthood presented in the article may be useful for the development of the basic learning actions of pupils in their social cognition, including the design of problem situations and other learning assignments.

Keywords: ideas about maturity; senior pupils; collective ideas; oligophrenopedagogy; intellectual disability.

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It is generally known that the ideas of pupils with intellectual disability about the future and adulthood are immature, fragmentary and controversial [1; 3; 5; 6; 7; 9; 10; 12; 13; 14]. Rehabilitation practice needs programs forming the ideas about the person's life and the methods of organization of the course of human life in order to help pupils with intellectual disability to form more mature cognitions about the adult and adulthood as their future, and in order to develop their skills to systematize social concepts in time, interpret life experience and make a conscious choice in life [11]. Specification of the structure and content of ideas of pupils with intellectual disability about adulthood and maturity may allow improving the education and rehabilitation activity of adaptive school aimed at the formation of biographical concepts of the pupils of this category, and may facilitate the creation of the corresponding psycho-pedagogical discourse and the design of an optional course based on it. [4; 12].

The article focuses on revealing the structure and content of collective ideas of adolescents with intellectual disabilities about adulthood. The article emphasizes the ideological diversity of the corresponding collective ideas formed by a unity of individual concepts of *adulthood*. [8, p. 231].

A modified procedure of M. A. Kholodnaya "Provisional Interlocutor" has been used in our study. The instruction stimulated those tested to make up micro-texts consisting of coherent utterances rather than seperate words like it is in the original variant [15, p. 111]. At the beginning of the interview, the respondents were offered the following instruction: *Imagine you are talking with a person who has never heard the word "adulthood" before. He asks you to explain the meaning of this word. How would you explain the essence of "adulthood"?* The task was not limited in time, and the respondent stopped talking himself if he considered that he had explained the meaning well enough. After that, some questions were discussed with the respondent: *What kind of temper is typical of an adult? What behavior has he got? How old is he? What is the difference between an adult and a child?* , etc.

36 adolescents aged 14-18 years, learning in grades 7-10 of an adaptive school, took part in the experiment (27 males and 9 females).

The technique of inductive identification of categories and coding was used for the interview data analysis [2, p. 194]. Then we calculated the frequency of occurrence of each category in the respondents' text database and the percentage of the answers of this category among the total number of answers obtained.

Results

In the course of content analysis, we have singled out 170 utterances about adulthood, including 10.5% cases of tautology and 1.2% of senseless utterances.

The analysis of the rest of the utterance database allowed us to identify the following categories:

1. Characteristics of occupation and kinds of activity (35.3 %).
2. Characteristics of behavior, relationships and temper (24.1 %).
3. Mental (cognitive) characteristics of an adult (11.8 %).
4. Characteristics through correlation with age (7 %).
5. Characteristics of the factors determining the behavior and temper of an adult (4 %).
6. Characteristics of adulthood in terms of age-based periodization (3 %).
7. Bodily characteristics of adulthood (3 %).

The predominance of activity-based and behavioral definitions makes us refer them to the kernel zone of collective ideas of the respondents with intellectual disability about adulthood.

The respondents with intellectual disability characterized the following *occupations and kinds of activity* of an adult: work, employment (8.8%); starting a family, being a married person and a parent (5.9 %); housework (4.7 %); getting education (3.5 %); spending money (2.9 %); travelling and entertainment (2.3 %); driving a car (1.7 %); getting well-off, buying a flat, going in for sports, doing business, possessing firearms; socially useful activity; serving in the army; communication with the family of the parents (1.1% each).

Now let us pass on to the discussion of the utterances about *behavior, relationships and temper* of an adult.

The respondents with intellectual disability described the *behavior* of an adult as that of a person *who knows what to do; who is an experienced, skilled person, behaving well like an adult, i.e. not as a minor or adolescent – the adult person does not swear, does not use bad language, does not fool around, does not fight, does not play noogies, does not play with toys, does not break anything, does not stay out till late at night, eats much, goes to*

bed on time, etc. The abundance of negative definitions in this list demonstrates formal opposition of an adult's behavior to the derogatory behavior of a schoolchild. The characteristic of the new features of adulthood connected with arbitrary regulation of behavior in accordance with conscious value-based orientations is represented in only one supposition: *An adult is well-behaved. … To say nice words. [What new traits appear in the person?] To talk with adults, to appreciate one's relationships, to make friends, sense means thinking. An adult is looking for sense in everything. [Have you ever tried to look for the sense of something?] Yes. [Did you find it?] One has to do the things one is to do, to do homework*. The cited supposition mentions the search for sense, value-oriented relation, reflective process (thinking), and communicative actions.

Those tested rarely mention the scope of experienced *relationships* and the corresponding *behavior*, for example: *He begins to behave himself like an adult. [What do you mean?] It's as if you were a different person. Sometimes you smile, sometimes not. Sometimes you are happy, and sometimes you quarrel. [And what is typical?] You begin to behave well with other people around. / He keeps shouting, is often startled. When he grows old he does not behave like he used to, he becomes kind. / The behavior might change; you may become either bad or good, or a decent person. It depends on your own behavior.* These utterances reflect the forming understanding of the diversity of relationships and behavior. And the predicted range of diversity is limited by stereotyped evaluations like *kind – wicked, good – bad, joyful – angry (swears)*. The predicted affective instability and conflict behavior (*shouts, swears, is startled*) should be paid attention to.

The image of an adult became more definite due to the characteristics of *responsibility* and *independence* (13), for example: *A grown up – he can do what he likes. You try not to ask your parents too often. / You are responsible for yourself. Kids chatter, but are not taken seriously, they will be punished for what they do by their parents. An adult is like a law abiding citizen.* Independence is manifested in attempts to earn money, separate residence, refusal from the parents' help, and caring for oneself.

The collective idea of respondents with intellectual disability about responsibility includes the following understanding of the forms of activity for which an adult is responsible: *words, deeds, actions*; *things* one *has messed up*; *good things* one *has done*. Responsibility is more often interpreted as readiness to take responsibility for one's actions, and less frequently – for the actions of children and close

people, for example: *Choice of responsibility. [What is responsibility reflected in? What or who can one be responsible for?] Many things. Be responsible for one's words, for oneself, for relatives, for children. Wedding.* Let us give examples of utterances representing a more detailed understanding of responsibility enumerating its spheres, and naming the actions which reflect it (*decide, help, stand up for*): *This is responsibility, to be responsible to somebody: law, family, at work. No one will let you off. You are responsible for yourself. When we are children, our parents are responsible for us. [Who are we responsible for?] We are responsible for whom we have tamed. For example, a relative asks to stand up for him, and you wonder whether to help him or not. There are people who are responsible for any person, for example, judges.*

But such extended discourse of responsibility is hardly characteristic of respondents with intellectual disability. Simple utterances are more common: *It's time to be responsible for one's actions. He may be sent to prison. / If you are taken by the police, you will be punished, not your parents.* The understanding of responsibility in the given examples is narrowed to legal responsibility for wrongdoing which incurs punishment. In other words, the discovered concept *to be responsible* is semantically close to the concept *to be punished*. This means that responsibility in the conceptosphere of respondents with intellectual disability is actualized where and when there is external control of life activity.

The respondents with intellectual disability named such *personal traits* of an adult as *kind (3), clever (2), beautiful (2), cultured, well-mannered, amiable, experienced, law abiding citizen, elegant, slim, with good figure, well-off, caring, nice, angry* (1 for each). Discussing temper or disposition, the respondents with intellectual disability note changeability of the temper with ages, underline the sharpness of possible changes – both for the better and for the worse, for example: *[Does anything change in the person's disposition?] It does. If he was soft and kind, he may become tough. He may change for the better; it depends on the way he behaves. I am prone to being rude … I am. / He's getting bad habits, brings harm to the whole society (steals different things). Such things do happen, if he has such temper. He may be rude to others, play pranks, and may lose his friends. In a word, he may be a real hooligan, an urchin, a hobo. There are many of them. 50 to 50. The rest are normal. I am not like this, and never will be. / [May be] kind. May shout everyone down*. The same tendency was found in the prediction of behavior.

Sparsely registered *mental (cognitive) characteristics* of an adult deserve to be mentioned separately.

The ideas about *understanding one's own self and life experience* express the opinion that an adult *knows all, knows what he wants; realizes what he is doing; is clever and realizes that he is doing something in the wrong way;* that he has had a *rich life experience*. Some utterances consider lines of reflection: *[Share opinions about] where to study, what temper he has got, what people are closer to him. / Adulthood is the realization of what mistakes you have made … I grew older and did not learn. I had bad marks at school, I simply sat and did not think about the future, about what was going to happen. Then I grew up and became older. I realized I was wrong. I came to realize it due to this school. First thing – easy program, I knew I was capable to achieve much more, but the fat was in the fire. / You see through what you are doing. … understand that you are in for it, and no one is going to save or help you.* The cited excerpts contain implicit motivation of an adult towards self-knowledge (*what kind of temper he has*), professional self-determination (*where to study*), social perception (*what people are closer to him*), ability to learn on one's mistakes (*realization of what mistakes you have made*), prediction of the future (*think about the future*), change of beliefs (*realizes that he is doing something in the wrong way*), change of attitude to one's own potential (*I knew I was capable to achieve much more*), conscious awareness of one's behavior (*see through what you are doing*). The understanding of irrevocability of the time lost and its opportunities has been expressed in the discourse of the respondents with intellectual disability only once.

Perseverance, purposefulness, sense of planning and obligation of an adult are expressed in the following utterances: *He wanted and did it. / It's time to plan what you are going to do, what occupation to choose, and how much you will earn. / He will do what he has said. / Then he makes plans. He plans by himself, and does not wait for his parents to do it for him. / One should get something quite different from life. At work, he thinks about what's going to happen tomorrow. How long he should work, when it is time to go to work again, when are the holidays. / Has achieved something, has realized his dream* (3.5%).

The ability of an adult *to make* independent *decisions and to solve problems* is expressed in the following way: *You solve your problems yourself. / But you can also consult your parents. Children often turn to their parents for advice. Orphans consult nurses and … / You can decide for yourself about your fu-*

ture. / You don't have to ask your parents' permission if you want to go anywhere (2.4%). These rare utterances of the respondents with intellectual disability characterize the specter of problems urgent for the given period rather vaguely.

Characterizing adulthood via correlation with age (7%), the respondents with intellectual disability either simply stated the age as an indicator of adulthood, or drew the boundaries of adulthood in terms of ages: *On his birthday – he's gonna be 18.* A number of definitions demonstrate vague interpretation of age-related features of adulthood (*big, elder, you're a man*) and inclusion of elderly and old ages into the period of adulthood (*getting old*). The respondents with intellectual disability also named the *factors influencing the behavior and temper of an adult*: height and organism development; parental upbringing; imitating parents; congenital factors (4 %). Implicit ideas about age-based periodization of human life oppose adulthood to youth, childhood, adolescence and old age (3 %). *Bodily characteristics of adulthood* are the most infrequent (2.9 %).

By way of discussion of the outcomes we shall note that the studies of ideas of adolescents with intellectual disability aged 12-15 years (n = 30) about adulthood are the closest in the topics under investigation [5]. The content analysis of associations of the adolescents with intellectual disability based on the stimulus "adulthood / adult" has revealed the themes of family, children; profession, occupation; responsibility, duties; independence, material sphere, appearance, age, friends, entertainment, absence of prohibitions. The associates "had a form of enumeration of various professions or descriptions of an adult's appearance, were concrete and had narrow sense", oriented towards "external signs of 'pseudo-adulthood' associated with drinking alcohol, smoking, and using bad language" [5, p. 52—53].

The abovementioned topics, with the exception of appearance and absence of prohibitions, have been discovered by our research too. Our results allow us to state that utterances about developing bad habits are utterly rare, and suppositions about the absence of prohibitions in adulthood have not been encountered at all. On the contrary, the respondents with intellectual disability often formulated critical comments and prohibitions relating to drinking, smoking and using bad language, for example: *Not to use dirty language, not to swear* (an utterance from the category "Behavior") / *He's getting bad habits, brings harm to the whole society (steals different things). Such things do happen, if he has such temper. He may be rude to others, play pranks, and may lose his friends. In*

a word, he may be a real hooligan, an urchin, a hobo. According to our data, the peripheral zone of collective ideas of the respondents with intellectual disability about adulthood, being variable according to its nature, contains information about some adults' developing bad habits, but the respondents with intellectual disability interpret these facts not as signs of adulthood but as bad behavior, i.e. adequately. Practically the same may be said about the characteristics of appearance as a sign of adulthood – references to bodily characteristics of adulthood are rare (2.9 %).

In view of the fact that the ideas about adulthood undergo active change in adolescence, the given comparison may reflect the preceding stage of development of the collective ideas under consideration, and our findings – the stage of proximal development after 2-3 years.

Thus, the kernel zone of collective ideas of the respondents with intellectual disability about adulthood includes characteristics of occupations and kinds of activity of an adult, and characteristics of communication, behavior and temper. Within the sphere of collective ideas of the respondents with intellectual disability an adult concentrates on their job, family and household duties, getting professional education, but the ideas about the forms of leisure activities are non-typical. The behavior of an adult is described through negative definitions formally opposing their behavior to the derogatory behavior of a pupil. References to the scope of experienced relationships of an adult and the kind of behavior caused by them are rare.

The concept *to be responsible* is semantically close to the concept *to be punished*, and the responsibility discourse has no references to the causes of responsibility free of external control; to the responsibility for the consequences of the decision taken or the choice made. The latter forms of activity and agentivity have not been found in the discourse of the respondents with intellectual disability. Specifically, mental and cognitive characteristics of an adult are rare in the adulthood discourse of the respondents with intellectual disability and make up the peripheral zone of collective ideas of respondents with intellectual disability about adulthood. Characteristics of adulthood in terms of age-based periodization and salient chronological boundaries of the period are included in the peripheral zone of collective ideas.

The data obtained can be used as a basis for constructing pedagogical discourse of maturity, including the design of problem situations and other learning assignments constituting the zone of proximal development of the pupils with intellectual disabilities. The contexts of

application of certain categories, concepts or expressions of semantic positions may be useful for the development of the basic learning actions allowing the pupils with intellectual disabilities to specify the meaning of these units and translate the understanding achieved by the minority to other pupils.

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TECHNOLOGY OF LOGOPEDIC EXAMINATION OF INFANTS DURING AN OUTPATIENT CONSULTATION

Abstract. The article presents a retrospective psycho-pedagogical study of infants, dwells on home and foreign methods and techniques of investigation of infants' development, and describes an original screening technology of logopedic examination of infants with congenital cleft lip and palate via observation of their psychomotor development. The study of infants is carried out throughout the first year of life divided into 4 age periods — 3, 6, 9, 12 months. The test tasks for each period are based on the age-related norms of psychological development of the child described in scientific-methodological literature. Specially created communicative situations allow the logopedists to take into account visual, auditory, tactile, articulatory and behavioral responses of the child; facilitate qualitative and quantitative assessment; the authors suggest variants of pedagogical conclusions and compile a list of the necessary diagnostic equipment. The originality of the diagnostic technology is determined by the long-term nature of pedagogical observation, standardization of the procedures of logopedic examination and the universal nature of the method to identify children at risk. The given technology can be used at health care institutions (hospitals and outpatient clinics), education, and specialized centers for early intervention.

Keywords: rhinolalia; preschool logopedics; speech disorders; infants; children with congenital cleft lip and palate; maxillofacial pathology; congenital cleft lip and palate; screening technology.

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The significance of early upbringing and education for the subsequent psychological and speech development of the child is evident, and the timely detection of the children with disabilities and early assistance to this category of children become especially widespread. Today, primary logopedic diagnostics and rehabilitation are held at children's policlinics and specialized centers. The infant stays at these institutions for a consultation lasting 3-4 hours and is examined by five or more specialists. A long stay away from home is uncomfortable both for the parents and for the infant due to their age-related, physiological and psycho-neurological peculiarities. Fast and high-quality pedagogical diagnostics which would allow assessing the level of development, revealing the problem and suggesting the solution, is rather urgent. In real practice, pedagogical diagnostics of the infant is limited to a talk with the parents about the peculiarities of the child's development and, at best, to a questionnaire. The results obtained are interpreted on the basis of the knowledge of the main regularities and norms of psychological development of infants.

The very first and most widespread norms of infant development in the world were obtained by A. Gesell. A. Gesell singled out the norms of infant psychological development using the following methods:

– prolonged observation (of the same children during a long stretch of time, more often from birth to adolescence);

– test experiment;

– twin method to analyze the developmental relations and social learning (comparative analysis of psychological development of monozygotic twins).

The author studied the behavioral manifestations of children in such areas as motor activity, language, and adaptive and social contacts; the facts were systematized and the regularities of psychological development were figured out. All findings were systematized in the "Tables of Development".

On the basis of the data obtained by A. Gesell, psychologists have actively worked on designing various development scales beginning with the 30s-40s of the 19th century up to now. The best known scales are the *Brunet-Lézine* Scale, the Bayley Scale, the *Uzgiris-Hunt Scale*, Ch. Bühler and H. Hetzer scale, «KID Scale», and «Kent Infant Development Scale». All of them contain a large number of questions (from 160 to 250 and more) in several areas of development (motor skills, visual-motor coordination, speech, social development, etc.). As a rule, the scales are filled out by parents, which

leads to subjectivism and distortion of real facts. Assessment of the child's achievements is made via the comparison of results in areas of development and the calculation of the summary indicator – "development coefficient".

Thus, due to its high-quality and complete translation into Russian, the Carolina Curriculum for Infants and Toddlers with Special Needs (by Nancy M. Johnson-Martin, Susan M. Attermeier, Bonnie J. Hacker) [7] has become widely known in our country. This diagnostic scale totals 529 indicators in 26 developmental domains.

The *Griffith* Mental Development Scales (GMDS) (translated by E. S. Keshishyan) are also oriented towards monthly assessment in 5 areas of psycho-motor development: motor skills, social adaptation, hearing and speech, eyes and hands, and playing skills, but presuppose three-level evaluation in each parameter. The diagnostic tests are simple, varied (though some of them can hardly be done in a policlinic, for example, it is difficult to assess "child's joy while bathing") and are aimed at identifying the "high-risk group".

In his book "Development in Infancy" (1985) [5], T. Bower describes numerous laboratory experiments carried out with infants and newborns in the 1960s. These experiments are complicated technically and are not meant for ample use.

D. Lashley [12] describes the "method of limited time test" as a technique of working with infants resembling programmed observation. The method suggests using special cards or charts to register the infant's behavioral responses at certain intervals of time, for example 30 seconds, according to the following criteria: physical development, communication and speech development, social contacts and playing, self-sufficiency and independence and behavior. The results of the programmed observation of the infant are compared with the average statistical norm or with the earlier results of the same infant.

In Russia, N. M. Shchelovanov (1920) used the method of continuous systematic observation recording all infant's responses emerging under the influence of external and internal stimuli and worked out diagnostic criteria and norms of infant psychological development. The phenomena indicating the level of psychological development are looked upon by him with reference to the stages of the nervous system maturity. I. L. Figurin and M. P. Denisova first published their co-authored work "A Brief Diagnostic Scheme of Infant Development" in 1926. The publication has practical focus and is recommended for use in crèches and children's homes.

G. V. Gridneva, M. Yu. Kistyakova and E. L. Frukht made a considerable contribution to elaboration

of the diagnostics of neuro-psychological development of one year old infants. N. M. Askarina (1969) [3] presented a diagnostics of neuro-psychological development of infants in the form of achievement test. Visual and auditory orientation responses, emotions and social behavior, hand movements and actions with objects, preliminary stages of speech development and skills were chosen as the main parameters of neuro-psychological development of infants. Testing is held in the form of an experiment. The significance of results is achieved through the use of a standardized procedure, uniformity of the test materials and instructions, time limits, and properly elaborated evaluation criteria. Such assessment of the psycho-motor development of infants corresponding to the behavioral manifestations and age-related norms was worked out by L. T. Zhukova and E. M. Mastyukova [8].

In the 1960s, M. I. Lisina [13] carries out a series of laboratory experiments (using the method of cross-sectional study) aimed at investigation of the processes of communication and cognitive activity in infants. The application of this method allows the researcher to process data for different age-related periods; to precisely express the value of the change in development between periods, both in relation to separate individuals and the whole group; to analyze the relationships and ties between separate components of development and development factors.

The method of O. V. Bazhenova "Diagnostics of Psychological Development of Infants" (1986) presupposed implementation of infant observation into wide practical activity of specialists. This method focuses on the interaction between the infant and the environment and on the formation of various kinds of activity (actions with objects and communication); the author singles out the features of the infant's active behavior in relation to the object and the adult. During infancy, diagnostics is performed at seven ages (2.0; 3.5; 4.5; 6.0; 8.0; 10.0; 12.0 months). Various groups of responses are assessed: motor, sensory, emotional, vocal, actions with objects and kinds of interaction with the adult. Four levels are identified within each response: absence of response, weak response, inadequate response, adequate response, – and three degrees of disorder: mild, moderate and severe. Unfortunately, the complex structure of observation encumbers its practical application [14].

E. I. Isenina [9] suggests a new diagnostic method – a specially created communicative situation. G. N. Lavrova (2004) [11] describes several diagnostic situations for infants differing in the degree of communicative activity of the adult,

and figures out the assessment criteria: initiative, sensitivity to the adult's intervention, means of communication – and variants of psychological conclusions: normal development, delayed development or severely delayed development.

The "GNOM" method of detection of the level of psychological development of children at an early age (by M. A. Kalinina, A. V. Goryunova, G. V. Kozlovskaya [10]) is designed to diagnose children between the ages of 1 month and 3 years and allows identifying three groups of children:

– typical children with the coefficient of psychological development (CPD) 90—110 points;

– risk-group children, CPD = 80—89 and higher than 110;

– children with pathology, CPD = 79 and lower.

The authors describe the observation procedure: the specialist examines the infant on a changing table, and the infant can see the mother or a close adult. Diagnostic tests cover 5 domains of psychological activity: sensory perception, motor skills, emotions, cognitive sphere, and biological and social behavior. Tests for 12 age groups consisting of 20 questions have been worked out for the infants, which means that testing can be held monthly and can embrace large groups of people.

Over recent decades, such authors as E. A. Akimova, V. M. Sklyadneva, A. A. Kuzivanova (2016) [1], E. F. Arkhipova (2005) [2], E. R. Baenskaya, M. M. Libling (2004) [4], E. B. Volosova (1999) [6], L. M. Kobrina, O. A. Denisova, A. V. Kalinina (2011) [10], Yu. A. Lisichkina (2004) [14], E. O. Smirnova, L. N. Galiguzova, G. V. Ermolova, S. Yu. Meshcheryakova (2007) [18], T. V. Pelymskaya, N. D. Shmatko (1995) [23], O. G. Prikhod'ko, O. V. Yugova (2016) [17], L. I. Fil'chikova, M. E. Vernadskaya, O. V. Paramey (2004) [21], have been engaged in working out the basic parameters to be taken into account in infant observation. In practice, the process of infant diagnostics is often chaotic, either compressed or stretched out, and unsystematic partly due to the absence of the ordered activity of the researcher.

We have designed and patented a diagnostic technology of observation of the psycho-motor development of infants with congenital cleft lip and palate via the leading kind of activity – communication. The technology has adapted the M. I. Lisina test "Observation of the Communicative Activity of Infants with Surrounding People" (1966) for a logopedic outpatient examination; the E. L. Frukht "Diagnostics of Neuro-Psychological Development of One Year Old Infants" (1987); and the E. B. Volosova "Infant's Development (Basic Indicators)" (1999). From the method of

M. I. Lisina, we have borrowed the standard situation of observation, from E. L. Frukht – the form of examination conduct, playing equipment and age-related norms, which have been modified by the materials of E. B. Volosova. Thus, the study of the psycho-motor development of infants with congenital cleft lip and palate was conducted under the conditions of an outpatient logopedic consultation, with the parents present, in the form of informal emotional communication between the pedagogue and the child. Taking into account the fact that the infant's state is more labile than at any other age, observation was carried out when the child was in the state of calm wakefulness (S. Miller, 2002 [16]; N. P. Shabalov, 1997 [22]). The parents were admitted to the procedure of assessment, which made it possible to take into account the family character of upbringing (Yu. V. Marchuk, N. V. Obukhova, 2006) [15].

Four blocks of assessment of psycho-motor-development have been worked out: visual, auditory, tactile-motor, and tactile-oral spheres, which allows detection of the local developmental problem. Each block has a standard specially created communicative situation and the expected responses of typically developing infants. The hypothesis poses that the state of the visual and auditory spheres will allow assessing the first phase of the act of movement – the orientative one; the tactile-motor and tactile-oral spheres are expected to reflect mostly the phase of movement performance (according to A. V. Zaporozhets). In cases when perception and transfer of information are impaired, we assume that the infants would be able to invent special, individual forms of communication with the surrounding people and objects, and therefore have included observation of the free activity of the infant in the procedure (fifth block).

The five blocks were used in two series of diagnostic tasks: basic tasks and additional tasks. The basic series of diagnostic tasks was presented in the "infant – adult" sphere of communication and involved direct contact of the infant with the adult. In the additional series of diagnostic tasks, the "infant – adult" sphere of communication was supplemented with an object or toy and accepted the form of "infant – adult – object". The additional series of diagnostic tasks allowed us to corroborate and specify the subjective data of the experimenter about the behavioral responses of the infant at the time of communication.

The series of the basic diagnostic tasks was performed first, and was followed by the series of additional diagnostic tasks.

The psycho-motor development of infants was studied at the ages of 3, 6, 9 and 12 months. For the ex-

perimenter's convenience, the diagnostic material is presented in the form of tables for each age-related period.

Table 1. Series of diagnostic tasks for 3 months old infants *(indicate the infant's position during examination – horizontal, on a changing table; horizontal in the arms of the adult)*

Method of stimulus presentation	Communicative situation and expected response	
	Basic series, *"infant – adult"* communication scheme	Additional series, *"infant – adult – object"* communication scheme
Visual sphere	The adult appears in the infant's field of vision (comes up to the infant and leans to his face)	The adult brings a bright toy in the infant's field of vision, holds it and moves it horizontally
	The infant fixes his eyes on the face of the adult	***The infant fixes his eyes on the object***
Auditory sphere	The adult pronounces the infant's name affectionately and carries on an emotional "talk" with the help of gestures and facial expressions.	The adult stretches their arms on both sides of the infant and shakes a rattle toy.
	The infant gives positive response to the conversation with the adult (is listening)	***The infant gives positive response to the sound of the object***
Tactile-motor sphere	The adult gently strokes the infant on the chest	The adult holds the rattle above the infant's chest in a position easy to catch the toy
	The infant gives positive response to stroking	***The infant catches the toy and holds it in his hand***
Tactile-oral sphere	The adult smiles, clicks his tongue and smacks his lips	The adult places a pacifier against the infant's lips
	The infant smiles in response to the actions of the adult	***The infant makes active movements with the lips and tongue***
Infant's free activity	The adult produces a "complex stimulus": contact look, smile, talk and stroking the infant	The adult shows the rattle toy to the infant and performs the "complex stimulus"
	The infant gives positive response and demonstrates a "liveliness complex"	***The infant watches the object and performs actions directed towards it***

Table 2. Series of diagnostic tasks for 6 months old infants *(indicate the infant's position during examination – horizontal (prone or supine) or vertical: sits independently or with support*

Method of stimulus presentation	Communicative situation and expected response	
	Basic series, *"infant – adult"* communication scheme	Basic series, *"infant – adult"* communication scheme
Visual sphere	The infant lies on a changing table. The adult leans to the infant's face, takes his arms and holds them above his face	The adult places an object within the infant's reach
	The infant holds his hands out to the face of the adult or plays with his fingers above his face	***The infant holds his hands out to the object, catches and looks at it***
Auditory sphere	The adult is at a distance from the infant (1m), emotionally pronounces its name making the vowels long, and produces the syllables A-GU, MU-MU	The adult is at a distance from the infant (1-2m) to the right/left and shakes the rattle
	Vocal response of the infant imitating the intonation of the adult: "A-MU"	**The infant turns his head toward the sounding object (sound localization)**
Tactile-motor sphere	The adult attracts the infant's attention and performs an action (knocks on the table or scratches it). The action is repeated 2-3 times.	The adult holds out a toy (12-15 cm in size) to the infant
	The infant tries to imitate the adult's movement	***The infant takes the object and sways it, placing it from one hand to the other***
Tactile-oral sphere	The adult pulls the infant's hand against his face and releases it. The action is repeated 2-3 times.	The adult puts a teething ring/pacifier into the infant's hand
	The infants puts his hands in the mouth	***The infant puts the objects in his mouth. Mark the following: the lips, tongue, lower jaw are active***
Infant's free activity	The adult talks emotionally to the infant, sings him songs, strokes or rhythmically pats on the arm or leg, calls his name	The adult places one or two bright rattles within the infant's reach
	The infant gives emotional response, carries on communication with the adult, displays initiative	***The infant manipulates the objects (turns them, knocks, places the object from one hand to the other) or hands the object over to the adult***

Table 3. Series of diagnostic tasks for 9 months old infants *(indicate the infant's position during examination – horizontal (prone or supine) or vertical: sits/walks independently, sits/walks with support, crawls typically / in a specific manner)*

Method of stimulus presentation	Expected response	
	In the *"infant – adult"* communication scheme	In the *"infant – adult – object"* communication scheme
Visual sphere	The experimenter appears in the infant's field of vision, greets him and calls his name.	The adult holds out 2-3 toys (up to 15 cm in size) to the infant
	The infant gives negative response to the appearance of an "alien" adult person	***The child manipulates the objects both separately and at the same time***
Auditory sphere	The adult calls the infant's name and pronounces the phrase "Where is mom?"	The child is given two externally similar objects (one sounding and the other mute)
	The infant turns his head towards his mother, hides behind mother or gives another adequate response in her direction	***The child manipulates the objects, singles out one of the – the sounding one, and concentrates his attention on it***
Tactile-motor sphere	The adults gives an emotional stimulus to clap hands	The adult shows the infant an action: to put balls into a toy bucket and pour them out
	The child imitates the adult's playing action	***The child performs two (three) actions with the object one after another (takes, puts, pours out)***
Tactile-oral sphere	The adult emotionally urges the infant to repeat a song "A-A-A", "AM-AM"after him	The adult demonstrates a "kiss"/"lip smack" and urges the infant to repeat the action
	The infant imitates the adult's intonation and rhythm. Phonetical variety should be recorded.	***The infant repeats the articulatory action after the adult ("kiss", "lip smack")***
Infant's free activity	The adult stops emotional communication with the child, but stays by his side	The adult asks the infant to repeat the playing actions with the ball (throw, roll), tumbler (sway), box (open, close)
	The infant urges the adult to communicate or demonstrates a negative response to attract attention to himself	***The infant imitates the adult's actions with the objects. Attention should be paid to the quality of action performance***

Table 4. Series of diagnostic tasks for 12 months old infants *(indicate the infant's position during examination – horizontal or vertical: sits/walks independently, sits/walks with support, crawls typically / in a specific manner, can sit down on a small chair or squat)*

Method of stimulus presentation	Expected response	
	In the *"infant – adult"* communication scheme	In the *"infant – adult – object"* communication scheme
Visual sphere	The adult greets the infant with a gesture	The adult shows an action with a mechanical toy car (press the button)
	The infant fixes, watches and understands the gesture greeting	***The infant imitates the adult's action with the mechanical toy (press the button)***
Auditory sphere	The adult addresses the infant from the distance of 2-3m.	The adult sways a toy cat and sings: "Tra-ta-ta, my vezem s soboy kota"
	The infant understands a simple phrase without a gesture, for example, "come up to me"	***The child performs rhythmic sways to the music***
Tactile-motor sphere	The adult suggests a familiar game: " oroka", "Ladushki", "Mishka kosolapyy"	The adult asks the infant to repeat playing actions with a stacking toy or cubes
	The infant performs 2-3 successive actions: after demonstration or from memory (to be indicated)	***The infant plays with the stacker (takes the rings off and tries to put them in place), builds up a tower of 2 cubes***
Tactile-oral sphere	The adult emotionally urges the infant to repeat the babbling words "MAMA, PAPA, BABA" etc. after him.	Via the parents' questionnaires or through observation of the infant's actions the pedagogue specifies the child's ***ability to drink from the cup, eat thickened cereal, or munch an apple***
	The infant repeats the words after the adult (immediately or after some time)	
Infant's free activity	Emotional communication with the child about family, toys, clothes, food, walks	The adult creates a playing situation; demonstration of actions with the objects is possible
	In communication with the adult, the infant uses gestures and intonationally and rhythmically organized vocalizations, resembling simple words	The infant performs object-oriented and correlative actions (feeds a doll, combs the hair, pulls a toy cart)

In the course of examination, the logopedist observes the process of completion of the diagnostic tasks. These data will constitute a qualitative assessment of the psycho-motor and communicative behavior of the infant in the given situation. The qualitative assessment reflects the specificity of communicative behavior: speed of response, and peculiarities and effectiveness of the contact between the experimenter and the infant. The quantitative assessment of each diagnostic task was carried out separately. A three-point scale was used. If the response to a stimulus corresponded to the age-related norm, the task received 1 point; if the response was immature – it was evaluated at 0.5 points; if the was no response to the stimulus – 0 points were given. An immature response differs from the normal one in its fragmentary or distorted form of expression.

After calculation of sub-total points in the basic and additional diagnostic tasks, the results were compared between themselves, and the psycho-motor development of the infant was evaluated according to the highest score. Thus, if the total score was:

- from 10 to 7.5 points, the infants development was assessed as being within the age-related norm;
- from 7.4 to 5.0 points, the infants development was assessed as delayed (2 epicrises below the developmental norm);
- from 4.9 to 2.5 points, the infants development was assessed as retarded (3 epicrises below the developmental norm);
- lower than 2.4 points, the infants development was assessed as severely retarded (4 epicrises and more below the developmental norm).

The epicrisis during the first year of life is 1 month long (R. V. Tonkova-Yampol'skaya et al., 1989) [20].

One examination of an infant occupied 30 minutes of working time, during which it was necessary to figure out the structure of the infant's communication with the adult, and to detect the behavioral peculiarities of the child during communication.

Examination did not demand bulky or special didactic equipment. At the ages of 3 and 6 months, examination was carried out on a changing table; at 9 and 12 months of age, the infant could be examined in a special children's armchair with a table or on a carpet.

The list of didactic equipment:

- a red rattle toy 7-12 cm in diameter with a convenient handle (for 3 months old infants);
- 3—4 rattle toys, different in color, sound and kind of grip (for 6 months old infants);
- pairs of sounding and mute toys 7-15 cm in diameter (for 9 months old infants);

- a mechanical toy — a car (with buttons to press), a toy cart;
- a stacking toy or an easy-to-open nesting doll / box, nesting toy forms (for 12 months old infants);
- a doll (30—40cm) with a set of toy dishes, comb and a little bed (for 12 months old infants).

Thus, the pedagogical technology of examination of infants includes the content part, the qualitative and quantitative assessment, the conclusion and the diagnostic material.

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PREPAREDNESS OF THE EDUCATION INSTITUTION PEDAGOGUES FOR IMPLEMENTATION OF INCLUSIVE EDUCATION IN KHABAROVSK KRAY

Abstract. The article deals with the problem of preparedness of secondary school teachers for implementation of inclusive education in Khabarovsk Kray. Inclusive education of children with special educational needs is one of the main problems of the modern general education practice. By now, the problem of preparedness of secondary school teachers for implementation of inclusive education in Khabarovsk Kray has turned out to be underinvestigated both in theoretical and experimental aspects. In the period of active development and implementation of inclusive education, the main task is to ensure the formation of personal and professional preparedness of secondary school teachers for implementation of inclusive education and the development of professional competences and skills of designing individual educational programs for children with special needs. Inclusive education as uniform development, education and upbringing of children with special educational needs and typical children can lead to radical changes in the education system as a whole. The article carries the results of the teachers' ideas about children with disabilities in the modern education system, considers personal and professional preparedness of secondary school teachers for implementation of inclusive education, and analyzes the preparedness of education institution teachers for implementation of inclusive education. The specificity of the modern education and the implementation of the new FSES determine the urgency of preparedness of secondary school teachers for implementation of inclusive education. In the course of her future investigation, the author of the article intends to study the ideas of teachers of different education levels about children with special educational needs and to analyze personal and professional preparedness of secondary school teachers for implementation of inclusive education in Khabarovsk Kray.

Keywords: inclusive education; inclusion; personal training; professional preparedness; teachers; training of teachers; general education institutions; children with disabilities.

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Inclusive education of children with special educational needs is one of the main tendencies of development of the modern general education practice. The processes of integration which are developing fast in modern Russia have outrun the theoretical approaches to the given phenomenon in the home defectological science and the experimental research in this field [8; 9; 10].

Among other problems, the problem of professional competence of pedagogues working under the conditions of inclusive education appears to be underinvestigated as well [1; 2; 3; 8; 9].

Organization of efficient inclusive education needs special training of the pedagogical staff. Its purpose is to teach the future pedagogues-defectologists and the teachers of mass schools and kindergartens the foundations of special pedagogy and psychology, to train them in special teaching technologies ensuring the implementation of the individual approach to a non-typical child [4].

The central role in pedagogical practice belongs to the pedagogue, whose activity determines the effectiveness of the reforms under way. Transition from the traditional system of education to a wider range and higher quality of educational services, specifically to the work with children with disabilities, presents new requirements to the pedagogue, because the well-formed preparedness of the pedagogues for new educational challenges, especially in inclusive practice, is a prerequisite for achievement of high outcomes in academic training and upbringing [1; 6; 7; 11].

S. V. Alekhina notes that it is not at once that the pedagogues master the professional roles which are needed for work in the inclusive environment [1; 2; 3].

Thus, the urgency of the given research is determined by the significance of the study of the notion of the pedagogues' preparedness as the basic factor of effectiveness of the process of management of teaching children with disabilities at the

stage of implementation and development of inclusive education.

Within the framework of the project "Preparedness of the pedagogues of education institutions for implementation of inclusive education in Khabarovsk Kray" (Agreement № 146/2017Д of June 5, 2017), we have carried out an investigation of preparedness of teachers of general education institutions of Khabarovsk Kray for implementation of inclusive education.

The research problem presupposes the study of the professional-personal and motivational properties of the pedagogues which influence the optimal implementation of inclusive education in a general education institution.

The sample for the given research included 180 pedagogues of education institutions of the cities of Khabarovsk, Komsomolsk-on-Amur, Nikolayevsk-on-Amur, Amursk and the settlements of Yagodnyy, Novyy Urgal, Snezhnyy, Solnechnyy, Berezovyy, Molodezhnyy, Khurba and other urban localities of Khabarovsk Kray.

Analyzing the *value-oriented motivational* component of the personality of the pedagogue we have found out that the optimal and excessive levels of tolerance are represented evenly (50%). This means that the given group contains even numbers of people who are able to accept another person, to understand him, to feel for him and to demonstrate it in open and trustworthy interaction with pupils and colleague, and of people who, on the contrary, are not always able to accept another person, especially if it is a person with disabilities. 90 persons have demonstrated exaggerated tolerance which breeds intolerance. It means that half of the pedagogues are unable to accept another person, to understand him or have sympathy for him. This may lead to a biased attitude of the pedagogue to children with learning disabilities.

In such parameter as *self-actualization*, high values on the time orientation scale, determining the number of pedagogues capable to live the present-day life in all its complexity and to feel the inseparable connection between the "past", "present" and "future" were obtained by 70% of the sample (126 persons). Low values on the time orientation scale were characteristic of 30% of the pedagogues – they demonstrated discrete perception of the present time, i.e. their "present" is for them either "a fatal consequence of the past" or just a preparation for the future "real life".

Analyzing the data on the support scale we have found out that none of those tested are prone to dependence, conformism, or indecisiveness. The persons under test are not subject to external influence or pressure from the outside.

The data obtained on the scale of value orientation testify to the fact that 70% of the pedagogues share the values of self-actualization. And the pedagogues note that they are at times subject to pressure from the school administration, especially when they are going to give the child a bad mark.

High values on the flexibility of behavior scale are characteristic of 70% of the respondents. Judging from the data obtained, we may come to the conclusion that the pedagogues show a high level of behavior flexibility in realization of their values and interaction with people, and can quickly and adequately respond to the changing situation.

High values on the self-respect scale are present in 50% of the pedagogues under test (90 persons). This shows that only half of the teachers are capable to value their merits, positive traits and respect themselves. The other half of those tested showed low values, i.e. the given category of pedagogues are hardly able to value their merits, positive traits and respect themselves. Such indicators might testify to the fact that the pedagogue directly associates their own merits with the pupils' success. And we can agree here with S. V. Alekhina: a child with special educational needs may become a hindering "factor" for the personal preparedness of a teacher, because such pupil may fail to demonstrate learning achievements for a long time [1; 3].

Studying the results obtained in the course of the data analysis on the self-acceptance scale, we have figured out that the high level of acceptance of oneself as one is, irrespective of assessment of one's merits and flaws, is more characteristic of 40% of the pedagogues working in general education institutions of Khabarovsk Kray. Low values on the given scale have been detected in 108 pedagogues (60%). This means that the given group of pedagogues have a low level of acceptance of themselves as they are, that they are dependent on the assessment of their merits and flaws.

On the scale of ideas about the nature of man, high values were demonstrated by 20% of those tested. These pedagogues showed a tendency to assess the nature of man as basically positive according to the principle "people are usually kind". The low level of the tendency to assess the nature of man as basically positive according to the principle "people are rarely kind" was demonstrated by 80% of the pedagogues, which, to our mind, may have a negative effect on organization and implementation of teaching children with special needs.

On the scale of synergy, high values were singled out in 90 people (50% of the pedagogues). It is

such specialists that are capable of holistic perception of the world and the people, of understanding connections between opposites, such as the good and the evil, the body and the spirit, etc. Nevertheless, it should be noted that pedagogues incapable of holistic perception of the world and the people have not been revealed. Half of those interviewed showed average values on the synergy scale.

Analysis of the data on the attitude to aggression scale showed that 40% of the respondents consider their irritation, anger and aggression as natural manifestations of human nature; the remaining 60% of the pedagogues (108 persons) have low values on this scale, which indicates the ability of the specialists to control their aggressive state, though some of them note that this control needs great effort.

High values on the scale of communicability are characteristic of 30% of the pedagogues. Such people are capable to build fast and strong relationships with other people, to communicate with them; they have no negative responses during communication with children with disabilities.

Analysis of the data on the cognitive needs scale showed that a thirst for knowledge about the surrounding world is not characteristic of any of those tested. Such results may be interpreted as unwillingness to get extensive knowledge about children with disabilities and the specific nature of their learning and reluctance to overcome the notorious stereotype of perception of children with special educational needs and disabilities.

Thus, we have discovered the following properties of personal preparedness of the pedagogues under test:

– ability to live spontaneously feeling the inseparable connection between the "past", "present" and "future", having a philosophical attitude to life making it possible to accept social life and physical reality;

– on average, flexible behavior in the realization of one's values and in the interaction with other people;

– difficulties to address the changing situation quickly and adequately in case of need;

– ability of holistic perception of the world and the people, of understanding connections between opposites;

– ability to build fast and strong relationships with other people to communicate with them; absence of difficulties in cases of interaction with children with disabilities and their parents is characteristic of the minor part of the pedagogues;

– ability to value one's own merits and positive traits and respect oneself is manifested less clearly; on the whole, to accept oneself as one is irrespective of assessment of one's merits and flaws.

Thus, taking into account that the motivational-personal component of the pedagogues of general education institution's preparedness is one of the leading factors, we have worked out programs of short-term courses of professional retraining, including lectures and practical sessions, trainings and variants of psycho-pedagogical support for pedagogues aimed at improvement of the inclusive culture and realization of the corresponding ideology for organization of work with children with special educational needs and disabilities under the conditions of inclusive education [6; 13; 14; 15].

This stems from the fact that it is the ideology of inclusion that changes self-education and makes the pedagogue face the challenges connected with goals, values and meanings. Educational practice changes on the background of the pedagogue's professional search, and it is the pedagogue that is the "heart" of inclusion – the main condition of successful realization of inclusive principles and their implementation in pedagogical practice [1; 2; 6; 10].

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NON-EPILEPTIC PAROXYSMAL EVENTS IN CHILDREN: STRUCTURE AND PHENOMENOLOGY

II. RHYTHMIC MOVEMENT DISORDER

Abstract. Parents, pedagogues and doctors often face ambivalent conditions of children difficult to be diagnosed as normal, adaptive or pathological. Non-Epileptic Paroxysmal Events (NEPE) occupy a special place among them. The given research focuses on the description of the main non-epileptic paroxysmal events in children which are often observed in everyday professional activity of pedagogues, psychologists and pediatricians and may be difficult to interpret. The authors have undertaken an analysis of diagnosability of NEPE at the specialized neurological department of the city children's hospital in 2016. Four out of 78 children with the admission diagnosis of NEPE arrived from children's preschool institutions where their paroxysmal disorders caused special anxiety and worry. The NEPE was diagnosed in 53,8 % of cases; in 46,2 % of cases the disorders failed to be differentiated. The study revealed 8 children with nocturnal NEPE (10.3%; 6 of them – with benign alternating nocturnal hemiplegia, benign sleep myoclonus, masturbation, sleep apnea syndrome; 2 children – with startle and dyspnea with eye adversion). The given article deals with the paroxysmal events observed during sleep which occupy a significant portion of time in the structure of the cycle "sleep – waking up – wakefulness" in infants (up to 2/3 of the day). Alongside movements which are typical of children at various phases of sleep, a number of infants demonstrate paroxysmal events with controversial interpretations. Our research reveals their structure and manifestations. In the overwhelming majority of cases, the prognoses for these conditions are favorable if they are treated adequately by parents, pedagogues and doctors.

Keywords: non-epileptic paroxysmal events; non-epileptic paroxysmal disorders; pediatrics, dreams; motor acts.

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People spend a significant part of their lives sleeping. There are controversial opinions about the age-related norms of duration of sleep every night; sometimes they are unduly prescriptive. Anyway, it seems that we spend about one third of our life asleep. But 20 years of teaching neurology and children's neurology to more than 5,000 post-graduate students-neurologists, pediatricians and neonatologists have shown that none of them studied physiology and pathology of sleep at medical higher education institutions.

E. Bathory et al. [7] argues that during regular examination of children, pediatricians often give inadequate assessment of sleep and its disorders. According to the authors, this is due to the fact that the problems of sleep are paid little attention to at medical universities and during residency.

Table 1. Equivalents of the Russian word "*son*" in different languages

Language	"*Son*" as a process	"*Son*" as a dream
English	sleep, slumber	dream, vision
German	Schlaf	Traum, Traumscheinung
French	sommeil	rêve, songe, on(e)irisme

While looking at the development of the notions about sleep, it is necessary to note the semantic peculiarity of the Russian lexeme "*son*". In Russian, the word "*son*" means both the state of sleeping and a dream. In spite of the fact that the word "*snovidenie*" exists in Russian alongside the word "*son*", it is rarely used in everyday speech and has a somewhat elevated meaning. When we have had a dream, we usually say "*mne snilsya son*". Meanwhile, in many languages "*son*" as a process and "*son*" as a dream are different words (see Table 1).

The given paper deals with sleep mostly as a process or state. There are several definitions of sleep, but the one given below is more widely accepted.

Sleep is a natural, regular periodic state of rest of the body and mind, during which the eyes, as a rule, are closed, consciousness and arbitrary movements are either absent or insignificant, and passing dreams appear from time to time [16].

The question about the time of emergence of sleep as a process or state still remains open. According to the scheme of emergence of the basic neurological functions in the fetus, the most important time of sleep formation begins at about the 20^{th} week of gestation, when rapid eye movements appear, and the 34^{th} week of gestation which marks the period of primary sleep stage (or phase) distinction [12; 17].

Stage 1 is the transition from wakefulness to the onset of sleep. It is characterized by irregular low voltage activity on the electroencephalogram (EEG). Stage 2 is reflected in light, *superficial sleep* showing bursts of 12-14 Hz sinusoidal waves called sleep spindles and high-voltage biphasic waves called K complexes in the EEG. At Stage 3, there are sleep spindles and high-amplitude, slow delta waves in the EEG. At Stage 4, corresponding to deep sleep, slow-wave activity increases and dominates the EEG record. Stages 3 and 4 in humans are sometimes called slow-wave, deep, quiet, synchronized, orthodoxical sleep. Finally, a special fast, active, desynchronized, paradoxical stage of sleep characterized by irregular low voltage EEG activity and rapid movements of the eyes (REM stage) is distinguished.

Different points of view exist about the daily norms of sleep duration. Due to the dependence of the character and quantitative sleep parameters on a number of factors, these norms are always correlated with the contingent under study. In Figure 1, we can see the data obtained for Australian children.

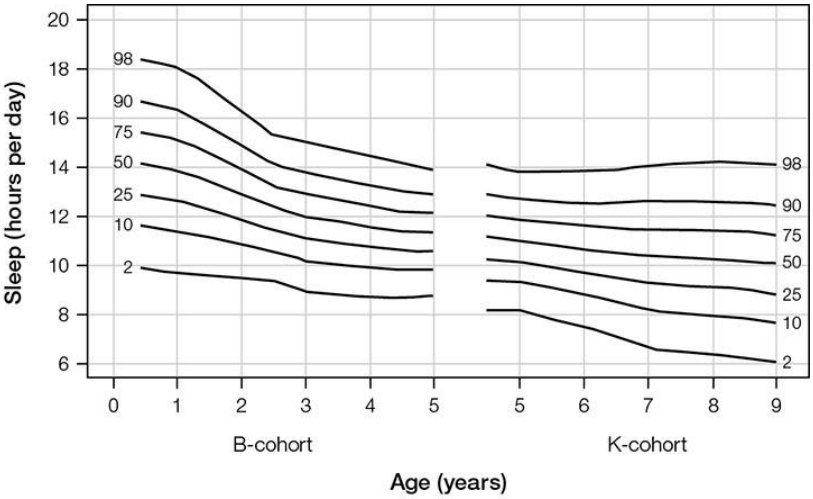

Figure 1. Age-related dynamics of the daily sleep duration for two age groups (cohorts) of Australian children [16].

According to R.H. Adair et al. [4], the healthy full-term newborn infant sleeps from 16 to 18 hours per day in several separate periods throughout the day. The pattern "sleep – wakefulness" is irregular, the longest sleep period is 2.5-4 hours and is connected with feeding. Approximately up to three years of age, the child needs more hours of sleep than wakefulness each day [10].

A. Rechtschaffen et al. [21] singles out the following functions of sleep: conservation of energy, cognition, thermoregulation, neural maturation and mental health. According to the conception of O. Pompeiano, [20], in the course of evolution, sleep emerged with the purpose of limiting motor activity as a kind of animal's rest from movement. Due to the scarcity of behavioral opportunities of the archaic animal which were actually limited to the dichotomy mobility/immobility, the development of sleep facilitated protection of the primitive organism from physical fatigue. Nevertheless, normal sleep is accompanied by motor activity.

A. Z. Golbin [2] refers general movements of body and limbs without changing posture, relatively isolated movements (with the head or limbs), local separate movements (facial expressions, finger and toe movements), separate paroxysmal movements (startle, jitteriness), rhythmic movements (sucking) and isometric muscle tension to com-

paratively simple *motor responses during sleep*.

Covering oneself with a blanket, manipulations with clothes, stretching, and movements aimed at taking a comfortable posture may be referred to motor acts with elements of adaptive behavior.

Somatic-vegetative responses include panting, snoring, noisy exhalations and inhalations, respiratory arrhythmia, coughing, swallowing, hiccupping, activization of intestinal peristalsis, erection, etc.

The phenomena accompanied by activation of the vocal-motor apparatus include moaning, inarticulate muttering, and articulate speech.

The prevailing distribution of various motor phenomena across sleep phases according to I. A. Vakhrameeva [1] is shown in Figure 2.

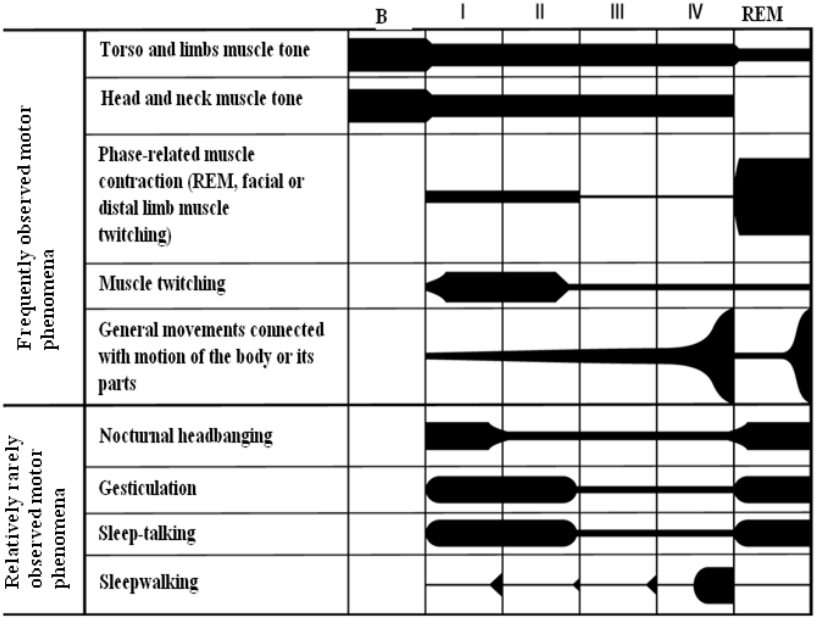

Figure 2. Distribution of motor phenomena across sleep phases (according to I. A. Vakhrameeva [1]).

Note: B — wakefulness

Thus, even in case of typical development, we can observe a significant variety of movements during sleep. Separate motor phenomena have a sub-optimal nature and may be treated as personal specific traits, but given they are stable, total and leading to marked disorders of the cycle *sleep – waking up – wakefulness*, they obtain abnormal and pathological significance.

One third of the population of the planet have problems with sleep brought about by social, economic and medical causes [8].

According to various sources, 20 through 50% of children have sleep disorders [7; 9; 13; 18; 19; 23].

Widespread incidence of sleep disorders in children and numerous ambivalently interpreted cases of sleep impairment have determined the object of the given research.

The aim of our research is to describe non-epileptic paroxysmal events (NEPE) observed in children during sleep which are difficult to interpret by the parents and medical and pedagogical specialists (especially in pre-school and social care institutions).

Over the period from January 1 to December 31, 2016, 78 children up to 4 years of age were admitted to the neurological department of the City Children's Hospital of Saint Olga (Saint Petersburg) with paroxysmal mental disorders. Four of them arrived from children's preschool institutions accompanied by medical personnel or parents in connection with emergence of paroxysmal disorders at crèche or children's home.

The general information about the children under examination is presented in Table 2.

The scope and the nature of examination were described in our previous article [4].

Table 2. Characteristics of children under examination

Parameter		M ($X_{min.}$ — $X_{max.}$)
Sex	boys	39
	girls	39
Gestational age, months		35,5 (29—42)
Postnatal age, months		25,5 (1—50)
Optimality of the course of pregnancy, %		83,5 (70—97)
Optimality of the course of birth, %		80,5 (61—100)
The *Apgar score* 1'		5 (1—9)
..... 5'		6,5 (4—9)

The research results showed that 22 children (28.9 %) among those with paroxysmal disorders typified as NEPE did not have neurological deviations; the other infants demonstrated various causal deviations of the neurological status; 12 children (15.9 %) had multiple deviations. Ultrasonographic examination showed normal brain structure in the majority of children (55.3 %); mild brain ventricular expansion was predominant among the deviations observed (22.4 %).

EEG corresponded to the age-related norm in 73 children (96%); three children (4%) showed delay of bioelectrical activity formation, which served as an additional argument in favor of referring the paroxysms to NEPE.

The structure of the diagnosed NEPE is presented in Table 3.

Таблица 3. Character of paroxysmal consciousness and movement disorders in children under observation

Character of paroxysmal disorders	Number	Percentage, %
NEPE differentiated into:	42	53.8
– breath-holding spells	9	11.5
– benign paroxysmal eye phenomena	6	7.7
– Fejerman syndrome	11	14.1
– benign paroxysmal torticollis (retrocollis)	4	5.1
– *benign* nocturnal *alternating hemiplegia*	2	2.6
– mild hyperekplexia	2	2.6
– masturbation	2	2.6
– benign *sleep myoclonus*	1	1.3
– spasmus nutans	1	1.3
– sleep apnea	1	1.3
– paroxysmal *dystonia attacks*	1	1.3
– jitteriness	1	1.3
– startle response	1	1.3
Undifferentiated NEPE	36	46.2

The present research revealed 8 children (10.3%) with nocturnal NEPE (6 of them were differentiated into: *benign* nocturnal *alternating hemiplegia*, benign *sleep myoclonus*, masturbation, sleep apnea; 2 of them were not differentiated: with startle and dyspnea with eye adversion).

Nocturnal NEPE are specifically systematized and interpreted.

A. Z. Golbin [2] considered them as stereotypies during sleep and singled out rocking, banging, folding, shuttling, sucking fingers at night, masturbation, etc.

Further development of the theory of NEPE allowed the researchers to single out periodical and rhythmic parasomnias and evolutional episodic paroxysmal sleep phenomena [14; 15].

In correspondence with the ICSD-3 [6], these phenomena can be distributed between parasomnias and sleep-related rhythmic movement disorders (RMD).

RMD constitute a group of stereotypical repeated movements involving long muscles such as the head and neck muscles, etc. They include rocking, banging, shuttling, folding, etc. Historically, these movements are called *jactatio nocturna* (from Latin *jactare* — rhythmic rocking).

Some forms of rhythmic activity can be observed in 2/3 of infants up to 9 months of age. Further on, the frequency of manifestation of these events decreases: by the age of 18 months they are demonstrated by less than 50% of toddlers, and by the age of 4 years – less than 8% of children [11]. It was believed over several decades that RMD were exclusively typical of children with intellectual disability or emotional deprivation. The given disorders are revealed more often in orphans. Children with emotional deprivation or brain lesions are characterized not only by stereotypical self-calming and self-stimulating behavior but also by self-harming activity which is practiced during wakefulness as well. However, this point of view is no longer domineering [14].

Rocking consists of rhythmic pendulous head or body movements of different amplitude from side to side with the frequency of 0.5-2 Hz. The length of rocking movements depends on the disorder severity (from several minutes to several hours); rocking becomes asymmetric as the condition grows more severe. As a rule, rocking is observed until the age of 1 year (sometimes *in utero*), demonstrates the peak of manifestation at the age of 6 months, and may disappear at any age. Rocking usually starts in the drowsy state and vanishes during NREM Stage 4. The transitions between sleep phases are more favorable for rocking.

We have not discovered any connection between rocking and certain medical or social factors. Still there are data about possible inherited susceptibility to rocking and about its emergence (as well as disappearance) after an event significant for the child (illness, parting with parents, moving to another location, etc.).

Mild rocking can be described as rhythmic pendulous head or body

movements of different amplitude from side to side with the frequency of 0.5-2 Hz. The movements are smooth, stereotyped and rhythmic, one series of movements lasts 5 through 10 minutes. The nature of rocking movements is individual and stable; the beginning and the end of each episode are soft. The limbs and the torso are either immobile, or slightly move to the rhythm of the head movements. Rocking is observed at the moments of falling asleep or arousal from sleep, and is not typical of wakefulness. Older children and adults feel pleasure and comfort from rocking when they wake up, and they reproduce rocking readily. During wakefulness, such children are active enough.

Moderate rocking involves the limbs and the torso into the action. Torso rockings are sharp and follow the movements of the head. The arms also reproduce the rhythm of the head rocking; the elbows are bent. The episodes become more intensive and form "clusters". The length and intensity of the episodes increases during the night. Rocking passes on to the period of wakefulness when the child is in the state of excitation. The infant no longer relaxes; moreover, he is tense during rocking. The involvement of the upper limbs into the action, and movement asymmetry are typical of mild rocking. The length of each cluster reaches half-hour, and the frequency approaches 60-90 movements per minute. The clusters begin and end sharply, as if they were "switched on" and "switched out". The child's behavior during wakefulness remains normal.

Severe rocking demonstrates movements so intensive that they might be taken for a paroxysm. We observe sharp movements of the head; the arms and the torso are thrown apart. The arms may be spread apart with clenched fists, or may be bent at the elbows and held close to the torso. In this rocking phase, the movements are predominantly asymmetric (and the asymmetry does not depend on the hemispherical dominance of the child). The length of a rocking episode may be several hours and may include up to 2,000 movements without stopping. The EEG changes of the children with severe rocking (dysrhythmia, decrease of the wave amplitude) are recorded, as a rule, only in severe forms of stereotypies. During pauses between strong rocking movements, EEG registers transitory patterns of Stages 2 and 3 of NREM sleep. Severe rocking can cause giddiness and nausea. During wakefulness, the child may experience problems with learning, attention deficit, and drowsiness; later on, the intellectual abilities may develop normally, but there might be problems with behavior [3].

Banging are stereotypies when the child, lying in the prone posi-

tion, bangs his head on the pillow propping himself up on stretched arms. In cases of mild manifestation, and in older children, banging involves only movements of the head. In severe cases, on the contrary, the stereotypy engages the whole upper part of the torso. The movements may increase and decrease in amplitude and frequency. The forehead, cheeks or temple may touch the pillow. At first, banging lasts 5 through 10 minutes continuously, with the frequency of 60-65 movements per minute. Then the frequency increases up to 80-89 movements per minute, forming clusters. Such clusters make up episodes lasting from 1 minute to 2 hours. Night episodes may continue till late in the morning and appear in sleep or drowsy state. Attempts to calm the baby from the outside may stop the movements for some time, but they are soon resumed with increased intensity. Banging ceases as soon as the baby is laid in the supine position. When the infant turns to lie on the stomach, he resumes the prone position and starts rolling his head energetically and asymmetrically back and forth until the head bangs on the pillow. In most cases, banging begins in infants at the age of about 1 year with a period of warning signs; these stereotypies are more saliently connected with organic disorders of the nervous system (specifically, with perinatal ones), and may be attributed to the dyssynchrony of development or lesions of the vestibular system or the cerebellum. EEG detects paroxysmal high amplitude slow wave activity and sharp waves. We have noted instability of Stage 3 of NREM sleep.

The *shuttling phenomenon* consists in the infant's rocking back and forth on hands and knees. In some cases these movements are interpreted by the surrounding people as "masturbation", which is disproved by sleep video monitoring. The movements forward are, as rule, faster than the movements backward. The head is against a wall or pillow. The child turns the head with the pressure on the head growing. The children do not get pleasure from these movements, remember them vaguely, but try to get rid of the accompanying giddiness, anxiety and unpleasant tingling. These movements appear in children aged 1.5-3 years without any evident cause, sometimes after certain somatic diseases. It is supposed that the factor of inheritance may be associated with the development of these stereotypies. The EEG of the children suffering from the given stereotypies, as a rule, corresponds to the age-related norm. The sleep structure shows an increase of the length of drowsing and a shorter phase of REM sleep.

The phenomenon of folding presupposes rhythmic raising the torso and knees simultaneously from the

supine or sitting position, with a tendency to increase the amplitude and frequency of movements. Typically these movements will occur just before sleep begins during Stage 1 and vanish at transition to Stage 4. It is a rare, original stereotypical sleep disorder described by A. Z. Golbin [2] in children suffering from somatic (as a rule, allergic) diseases, hyperactivity, emotional lability and having complicated perinatal anamnesis with phenomena of inhibition and muscular hypotonia during the first months of life.

Among other rhythmic movement phenomena A. Z. Golbin [15; 16] distinguishes arms and legs swinging, hitting movements, excessive sucking of thumb and tongue, chewing, vocalization, hair pulling, etc.

The EEG of rhythmic motor phenomena shows patterns associated with impairment of maturation of bioelectrical activity of the brain, predominantly light and diffuse. These deviations are more often observed in cases of rocking. They demonstrate epileptic activity very rarely.

On the whole, the analysis of development of the persons with *jactatio nocturna* testifies to the fact that they are lively and active people. In their everyday life, they are engaged in kinds of activity associated with rhythm (dances, music, especially jazz). Such children, adolescents and adults sometimes have rare problems of impaired nasal breathing and otitis; their clinical picture includes soft neurological signs, specificity of interhemispheric relations, perception disorders, anxiety, etc. [14].

Thus, rhythmic movements associated with sleep are frequent children's conditions worrying close adults, caregivers and doctors and sometimes leading to unnecessary hospitalization and inadequate intervention. These non-epileptic paroxysmal events need delicate treatment and have absolutely favorable prognosis.

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FORMATION OF CONCEPTS OF TIME AND SPACE IN PHILOSOPHY, PEDAGOGY AND PSYCHOLOGY AT DIFFERENT STAGES OF SOCIAL DEVELOPMENT

Abstract. The article dwells on the formation and development of the concepts of time and space in philosophy, pedagogy and psychology at different stages of social progress. The philosophical science has a long tradition of studying space and time. The problem interested wise men and first scholars because the questions connected with it are versatile and have always aroused interest of researchers in various fields. Pedagogy and psychology have treated this problem from the point of view of revealing the specificity of perception of space and time by preschoolers and the method of orientation in space and time; pedagogical conditions of development of orientation in space and time; and interrelationship between the concepts of space and time and the linguistic nominations of these characteristics. Recent decades have seen growing interest in the works of specialists in the sphere of developmental disorders and the problems of formation of the concepts of space and time in children with disabilities. Currently, the problem of the study of special features of the concepts of space and time in preschoolers with disabilities remains to be urgent and needs further investigation. The article characterizes the works and conceptions of certain authors. In her scientific publications, K. A. Semenova has found out that preschool children with cerebral palsy demonstrate impairments of the structure of sensory cognition as such, which functions as a system of interanalyzer connections. I. Yu. Levchenko writes about the inadequate formation of higher cortical functions causing immaturity of spatial concepts. O. V. Titova points out that the development of spatial concepts is critical for the process of the child's social adaptation and creates the basis for successful acquisition of learning activity.

Keywords: concepts of space; concepts of time; space; time; preschool children; children with motor impairments; orientation in time; cerebral palsy; CP.

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Problems with formation of spatial and temporal concepts represent one of the most general tendencies of non-typical development [15]. Immaturity of orientation in time and space in children with disabilities at various age-related stages of development was emphasized by E. S. Kalizhnyuk, N. V. Simonova, N. Ya. Semago, O. V. Titova, L. I. Solntseva, and others.

Poor formation of spatial-temporal concepts is one of the causes of developmental disorders in reading, writing and counting. In spite of a large number of investigations in this field, the issue of the mechanisms of formation of spatial-temporal concepts in ontogenesis and impaired development remains to be urgent.

Studying the specificity of formation of spatial-temporal concepts in pre-school children we have set out to answer the following questions. How did the scholars of various historical periods understand the role of orientation in space and time in the life of man? What did the specialists in philosophy, pedagogy, psychology and teaching methods write about this issue? How long ago were these problems tackled for the first time?

Having studied the literature on these questions, we have made a conclusion that orientation in space and time lies at the basis of the human cognitive activity.

From the point of view of the philosophical approach, space is a concept of human consciousness that reflects the form of the world's existence and its heterogeneity. Time is a form of the course of psychological and physical processes presupposing changeability.

The first author of the documented reference to time was the ancient Egyptian wise man Ptahhotep. One of his maxims about time ran as follows: "Diminish not the time of following the heart; it is abhorred of the soul" [9].

The philosophers of ancient Greece and ancient Rome, including

Parmenides of Elea and Heraclitus of Ephesus, described the nature of time in their treatises [9].

Thus, the concept of time appears when people perceive the alternation of events, change of objects and processes connected with the whole humanity. The spatial-temporal concepts have gone a long enough way of formation in science.

The first concepts related by the philosophers of Antiquity were associated with the world of solid bodies which occupy certain space.

The ancient Greek philosophers Leucippus and Democritus believed that everything consists of microscopic particles (atoms) which move freely, collide with each other, and combine in space in a kind of vacuum. Leucippus argued that atoms meant being, and emptiness meant non-being; and the atoms and the empty space serve as the beginning of the world. Atoms exist eternally; consequently, there emerges eternal time.

Democritus further developed the ideas of Leucippus and created a theory of structural levels of matter – physical and mathematical, where the physical level includes atoms and empty space (void), and the mathematical level consists of amers (spatial smallest amount of matter). This teaching shows us two kinds of space: continuous physical space as a receptacle, and mathematical space based on amers as scaled units of extension of matter. Thus, Democritus created a theory about the nature of time and motion.

The issues of existence of time and its divisibility were studied by Aristotle. He drew the conclusion that time does not exist without motion, but is not motion in its essence. Time can be measured with the help of any periodical unit of motion; it only requires maximum speed motion. The scientist studied the space which, according to him, represents the relation between objects, an objective category and a property of natural things [9].

Augustine of Hippo put forward a theory about the relationship between the freedom of the human will, the grace of Christ and predestination. In his works, he investigated the forms of existence of the present: “present-past”, “present-present” and “presenr-future”.

G.W. Leibniz expressed a supposition that space is determined by the position of the bodies – “one near another”, that time is the order of alternation of phenomena or body states – “one after another”. Thus, space and time are the properties of the things themselves.

V. I. Vernadskiy singled out and described biological time. In his opinion, all living organisms have biological clocks which are either switched on or off in response to various stimuli. The scholar believed that living organisms live with orientation to the present –

future, and the society organizes its space and time [6].

Working out his theory of relativity, Albert Einstein arrived at the conclusions directly associated with space and time: the theory suggested by the scientist excluded the notions of absolute time and space and emphasized the fallacy of traditional interpretations of time and space; space and time depend on the nature of motion and the interaction between material systems. The Einstein theory refuted the subjectivist and *a priori* interpretations of the essence of space and time which contradicted its conclusions.

The Russian religious philosopher P. A. Florenskiy considers the problems of eschatology within the metaphysics of space and time.

His theory of ostensibility (addressed causality) of space-time dream, theory of geometrical closure of physical space-time, and the arhythmological conception of discontinuity of the world ("cracks" of being testifying to the nearness of the End) became characteristic of his works. The philosopher's theories may be treated as ontognoseological methodologies of detection of the cognitive threshold of human reason (theory of truth antinomy).

Anthposophy (the founder of this theory was R. Steiner) and the Max Heindel theory are variations of theosophy founded by E. P. Blavatskaya. R. Steiner was under the influence of the German philosophical and scientific thinking (Goethe, Fichte; Haeckel). M. Heindel demonstrated good knowledge of the scientific-natural ideas of his time. The philosophers of this school attached great significance to the mission of Jesus Christ. The structure of the human being described by them has much in common with the ideas related by the ancient Greek thinker Aristotle in his treatise "On the Soul". The scientists argued that the human being consists of seven principles, or the so-called "bodies": 1) physical body; 2) ether-body; 3) astral body (Steiner), body of wishes (Heindel); 4) "ego" (Steiner), reason (Heindel); 5) self-spirit (Steiner), human spirit (Heindel); 6) life spirit; 7) man of spirit (Steiner), divine spirit (Heindel).

And the suggested sequence may be interpreted in terms of description of the human evolution, which is presented in theosophy. The word "body", according to theosophists, was chosen to describe higher, supersensitive forms of human existence solely due to the limitations of linguistic means of expression that could be used to describe the processes in the world beyond reality.

Furthermore, it seems promising in the given conception to be able to draw a parallel between the so-called level-based psychological processes (feeling, perception, sup-

position, and thinking) and the evolutionary stages at which the representatives of various natural categories are. Such analysis could lead to the creation of a comprehensive theory which could be spread not only upon the human being but also upon everything that surrounded them, and, in contrast to theosophy, could be free of the mystic halo.

The formation of spatial-temporal concepts and the development of ability to operate the given categories by children require the participation of the visual, auditory, kinesthetical, tactile and olfactory analyzers. The formation and development of the concepts about space and time is an inborn ability; after birth, the level of formation of these concepts is a most important indicator of the development of intellectual and sensory-motor education [7].

Spatial-temporal concepts of preschool children have attracted the interest of many pedagogues of the past.

In his work "The Great Didactic", J.A. Comenius noted the importance of the role of the parents who should teach their children orient in time and space. And the parent should show, explain and name the phenomena of the surrounding world connected with these categories. The great scholar believed that most of the education takes place during the first six years of the life of the child [10].

J. H. Pestalozzi shared the opinion of J.A. Comenius and argued that pre-school children should have a certain amount of knowledge about space and time. This knowledge facilitates the development of communication and further expansion of the concepts about the surrounding world in preschoolers.

In her pedagogical writings, M. Montessori stressed that a preschool child should be taught to understand and use the words associated with space and time. According to her opinion, it is necessary to pay special attention to the words "today", "tomorrow", "yesterday", "in front of", "at the back of", "before", "after", "more often", "less often", etc. She suggested acquainting children with the notions "centimeter" and "meter".

The works of the home pedagogues B. G. Anan'ev, M. I. Vasil'eva, E. I. Vodovozova, L. A. Efimova, A. M. Leushina, T. A. Museyibova, K. V. Nazarenko, V. A. Sukhomlinskiy, T. D. Rikhterman, K. D. Ushinskiy, E. Shcherbakova and others demonstrate considerable interest towards the level of formation and the stages of development of spatial-temporal concepts.

Having singled out two forms of reflection of spatial-temporal concepts – direct and indirect – B. G. Anan'ev believed that they represented the stages of cognition [1; 3]. Both forms are interrelated with each

other, and during the transition from one form into the other, the child perfects himself getting a chance to pass on to the next stage of his development. Mention must be made of the special influence the formation of the children's communication has upon the given processes.

In his works, K. D. Ushinskiy attracted the attention of the readers upon training the preschoolers "to differentiate prepositions of time", as well as to see the difference between the notions of the year, names of the months, days of the week, parts of the day; to recognize the sex and age-related categories: baby, infant, adolescent, teenager, man, woman, old man, old woman. According to the pedagogue's opinion, the corresponding classes should begin at the ages of 6-7 years. The specialists were recommended to keep to the sequence of relating the material and to reinforce it in practical activity [22].

In the book "*Umstvennoe razvitie detey ot pervogo proyavleniya soznaniya do vos'miletnego vozrasta*" E. I. Vodovozova wrote about the requirement for the children to know the sequence of the seasons and days of the week and their qualitative composition. The preschoolers should know such words as "noon", "twilight", "younger", older", etc. and be able to use them. The author advises the teacher to observe the position of the sun together with the children [8].

L. A. Efimova dealt with the question of understanding historical time by the children, in the context of which time is a kind of stimulus. In her research, the pedagogue studies the formation of historical-temporal concepts and works out special methods of teaching.

A conception of formation of quantitative concepts in pre-school children was suggested by A. M. Leushina. She dwells on the regularities of formation of quantitative concepts and the system of development of mathematical concepts in children attending kindergartens. The author also suggested a program of work aimed at the development of counting operations with children aged 3 through 6 years and a system of practical tasks with visual and hand-out support.

In the 1970s, K. V. Nazarenko worked on the development of understanding of the units of time ("day", "night", "seasons"). The author used the method of a talk "about the Earth, the Sun and the planets explaining the two kinds of motion the Earth performs". As a result of research and pedagogical work, the children learned how to observe the alternations of day and night and the change of seasons.

The questions of formation of the spatial-temporal concepts were studied by T. A. Museyibova, who arrived at the following conclusions:

– formation of the spatial-temporal concepts is a long-term process which, as a rule, is over by the end of the pre-school age;

– at the initial stage, the pre-schoolers learn the words which are more frequently used in their communication;

– while they are learning the spatial-temporal concepts, preschoolers mistake, mix up, or sometimes pair different, often antonymous lexemes ("above – beyond", "in front – at the back", "to the right – to the left", "over – under", etc.);

– during further practical acquisition of the given concepts, the children begin to differentiate and recognize the meanings of the words. In the course of their speech development, they learn to use them in utterances.

The work by T. D. Rikhterman is one of the most important investigations of the issues under consideration. The author studied the peculiarities of perception of time and suggested various techniques of work with pre-school children. T. D. Rikhterman recommended working by stages: first stage – acquaintance of the children with the parts of the day, when the teacher should use the materials showing the kinds of activity at various times of the day; at the second stage, the teacher is advised to use landscapes, at the third stage – the pictures allowing to pass on to conventional marking, i.e. to marking the parts of the day with different colors. The scholar suggested introducing the calendar as a system of time measurements [17].

E. Shcherbakova investigated the formation of the concepts "day", "week", and "year", the ideas about the properties of time (one-dimensionalism, flow, irreversibility, cyclicity, etc.), and dealt with the practical orientation of pre-school children in time. The author worked out a model of time in the form of a spiral, and the models "Days of the Week" and "Seasons". These models help the specialists to form spatial-temporal concepts in preschoolers in informal game-based atmosphere.

In their psycho-pedagogical investigation of senior preschoolers, Z. A. Mikhaylova, E. D. Nosova and A. A. Stolyar figured out that the children of this age acquire the verbal system of measuring space. It is based on the sensory system of measuring which is characterized by practical orientation with support of the "scheme" of one's own body, and then – on the body of a toy or another person, which largely refers to the verbal system of measuring spatial units. The verbal system of orientation in space has a practical nature: direction, spatial relationships and location are not only named but also linked to an objective landmark [2; 4; 5; 16].

L. A. Venger and V. S. Mukhina carried out an experiment which

focused on proving the dependence between the ability to differentiate short intervals of time and longer intervals during which the child has had time enough to perform something. It is difficult for the children to understand the meaning of the words denoting temporal relations due to their relative nature. Preschoolers cannot always clearly see the meaning of the words like "now" – "at present", or "today" – "yesterday" – "tomorrow" [2; 5].

Thus, philosophical and psychopedagogical analysis of the works on the issues of formation of spatial-temporal concepts in pre-school children has allowed us to make the following conclusions.

- The characteristics of space and time and the problem of acquisition of these concepts have been actively discussed in literature.
- The concepts "space" and "time" have been treated, as a rule, from the point of view of scientific-natural conceptions and as a physical phenomenon of the real world.
- Pedagogy and psychology have treated this problem from the point of view of revealing the specificity of perception of space and time by preschoolers and the method of orientation in space and time; pedagogical conditions of development of orientation in space and time; and interrelationship between the concepts of space and time and the linguistic nominations of these characteristics.

Recent decades have seen growing interest in the works of specialists in the sphere of developmental disorders and the problems of formation of the concepts of space and time in children with disabilities.

Many authors have noted various forms of impairment of perception of space and time in preschoolers (E. S. Kalizhnyuk, 1975, 1976; I. Yu. Levchenko, 2001; I. I. Mamaychuk, 1976; K. A. Semenova, 1968; N. V. Simonova, 1981; M. B. Eydinova, E. H. Pravdina-Vinarskaya, 1959, etc.).

K. A. Semenova has found out that in her research that irrespective of the form of children's palsy (CP), the patients demonstrate the absence or the inadequacy of the synthesis of separate movements into one whole even if they adequately perceive these movements. Thus, drawing on the law about the central linking function of kinesthesia we can argue that preschool children with cerebral palsy demonstrate impairments of the structure of sensory cognition as such, which functions as a system of interanalyzer connections. [19; 20; 21].

I. Yu. Levchenko writes about the inadequate formation of higher cortical functions causing immaturity of spatial concepts manifested in the body scheme comprehension. Differentiation of the right and left parts of the body is impaired. Many spatial concepts (in front of, behind, between, above, below) are difficult

to acquire. The author notes direct correlation between the severity of the motor pathology and the level of manifestation of spatial disorders [11; 12; 13; 14].

O. V. Titova points out that CP is characterized by motor disorders, speech underdevelopment and a peculiar course of development of psychological functions. The formation of spatial orientation in preschoolers with CP leads to more comprehensive cognition of the outer world by the child. All kinds of children's activity are closely associated with orientation in space and time and with perception of spatial properties and relationships of objects. The development of spatial concepts is critical for the process of the child's social adaptation and creates the basis for successful acquisition of the learning material (counting, reading and writing) [18].

Thus, the problem of the study of special features of the concepts of space and time in preschoolers with disabilities remains to be urgent and needs further investigation.

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ON THE PROFILE OF THE LEVEL OF FORMATION OF LINGUISTIC SKILLS IN CHILDREN WITH MILD, MODERATE AND SEVERE INTELLECTUAL DISABILITY

Abstract. People with intellectual disability (in this paper, the authors use the definition of intellectual disability and the degrees of its manifestation given in the fifth edition of the book "Diagnostic and Statistical Manual of Mental Disorders" [4, p. 33]) make up a significant portion of the general population. Although their functioning has been a subject of interest for researchers in many fields, the matter of communication and its disorders noted in this group remains an interesting area of study. In this work, an attempt was made to determine a profile of language skills in children with intellectual disability to a mild, moderate or severe degree. Samples of independent speech, collected in a group of 240 children with intellectual disability, were used, along with those of 156 pupils of typical public schools and pre-schools. In order to provoke the study subjects to make utterances, the eliciting technique was used. In this manner, samples of dialogue speech, as well as description and story-telling were collected, as these three forms of utterance are the most important for the development of communicative skills and for colloquial social communication. Altogether over 65 hours of recordings were obtained. The collected study material was analysed, due to which a total of 38,283 words were noted as well as 13,250 phrases in the speech of children with intellectual disability, while the speech of the control group contained 31,709 words and 7179 expressions. On the basis of the gathered data, it was possible to determine the number and average use of words, the average length of utterance built by the child, the occurrence of verbal and non-verbal utterances, degree of grammatical complexity of the study subjects' speech, as well as the range of active vo-

cabulary. Data obtained in the study group with intellectual disability were compared with the results of children of typical development. The results of groups with a similar mental age were set against each other. The conducted statistical analysis allowed one to determine which of the differences existing between the compared groups was of particular significance.

Keywords: intellectual disability; children with intellectual disability; oligophrenopedagogy; speech development; linguistic skills; speech activity; lexemes; typical development.

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People with intellectual disability (ID)[1] make up a relatively numerous section of the general population (ca. 1-3%) (Carson, Butcher, Mineka 2003: 766; Marcelli, Cohen, 2013: 234; Hatton 2012: 14). For a long time they were pushed onto the margins of society, restricting their access to education, work and ability to arrange their own life in the environment (Westling, Fox 2008). Over the last few decades, efforts have been made so that such people could meet with greater social acceptance and that their role in social life was enhanced. A departure from segregation and isolation was promoted in favour of social inclusion and integration (Błeszyński 2012: 187).

As a group whose development and level of functioning diverges

[1] For this work we have accepted the definition of intellectual disability contained in the *Diagnostic and Statistical Manual of Mental Disorders. Fifth Edition* (2013: 33) as well as its indicated degrees of disability.

from the norm, it has aroused the interest of many researchers. However, rarely have linguists or speech therapists shown interest; thus the development of speech and the level of linguistic communication among this group remains a matter that has not been well studied, and is significantly less well-known than the acquirement of speech among typically developing children (Ogletree i in. 2011). The results of studies conducted until now require supplementation and verification, especially as they were conducted mainly by educators, psychologist and doctors, making use of a different conceptual apparatus than linguists. It also seems necessary to support many claims functioning in the literature with concrete studies, which would allow verification of the description of linguistic competence and ability of this group of people, as well as empirically and statistically confirm conclusions often made intuitively.

Taking up this issue is also important for its practical aspects. The necessity of better recognising the linguistic competence and abilities of people with intellectual disabilities results from the increasing participation of this group in social life, including the increasingly frequent participation of intellectually disabled children in mass education. Getting to know their developmental difficulties and problems in the area of expression and perception of speech allows better understanding of the educational and therapeutic needs of such children. The research which is the basis of this monograph is thus a part of efforts towards inclusion and full integration of those with intellectual disability.

Research methodology[1]

Since relatively rarely have the independent spoken utterances of intellectually disabled people been described, focussing rather on the written sub-code, in this work spoken phrases formed by the study subjects were analysed, recognising that in these may be found more information on their linguistic competencies. Free, spontaneous utterances of children were studied, which is particular valuable for a description of language competence and abilities.

This article presents an analysis of data extracted from the utterances of 396 children. The study group consisted of 240 children with ID, while the control group was made up of 156 pupils of public schools and pre-schools (from 4 to 10 years old). The study involved 140 children with ID of a mild degree (making up 58% of the study

[1] In the text, charts and tables, for the reader's convenience the following abbreviations are used: *intellectual disabilities* - ID and *typical development* - TD.

group), 70 - moderate (29% of those surveyed) and 30 (13%) – severe. These data are illustrated in chart 1. Among children with declared ID there were 107 girls and 133 boys, making up respectively 45% and 55% of the study group. Children in the ages of 9 to 15 years were studied.

The participation in the study of people with severe ID should be noted, as this group is usually treated together with others, and rarely are the characteristics of their communication subjected to scientific study. The study was preceded by an analysis of psychological-pedagogical documentation. Thus, excluding criteria included an unsupportive home environment, institutional upbringing, as well as genetic defects and diagnosed child cerebral palsy.

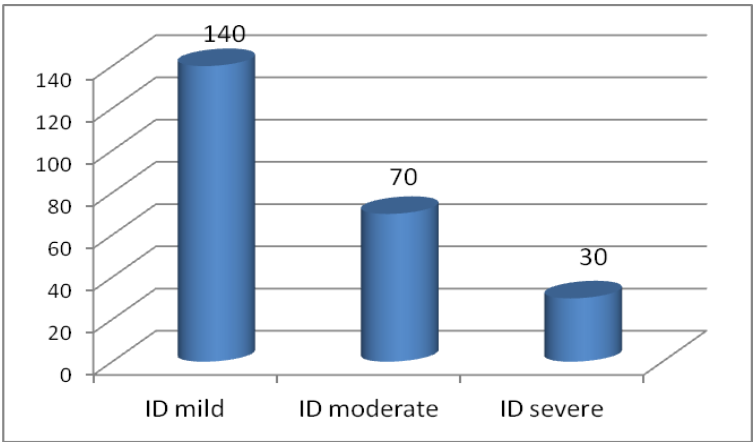

Chart 1. Composition of the study group.

The control group consisted of 156 children, pupils and preschoolers of public schools and preschools, in the ages of 4 to 10 years. The research which forms the basis of this work was conducted from 2004 to 2014.

Each of the children included in the test participated in four trials, whose purpose was to provoke the study subject to form longer phrases, based on illustrated material. Use was made of picture techniques with verbal stimuli (instructions), which are included among basic techniques used for the purpose of eliciting a longer utterance by the pupil. This is therefore called *eliciting technique* (Menn, Bernstein Ratner 2000). The use of such a method allows one to obtain a sample of free utterances by chil-

dren, elicited in a certain situational context, with the use of the same image stimuli for the whole group and a single procedure. This limits the range of content and facilitates comparison of the gathered utterances. In this manner samples were collected of speech dialogue, but also description and story-telling, as these three forms of utterance seem most important both for the development of communicative abilities as well as for colloquial social communication.

The purpose of the undertaken research was to indicate and describe differences in certain significant aspects of linguistic competence and ability, existing between children with ID to a mild, moderate or severe degree and children of TD, chosen according to mental age. According to provisions of the International Statistical Classification of Diseases and Related Health Problems (ICD-10 1998; 2000), we compared the results of the following groups:

- children with ID of a severe degree with 4- and 5-year-olds of TD,
- children with moderate ID with 6-, 7- and 8-year-olds of TD,
- as well as children with ID of a mild degree with 9- and 10-year-olds of TD.

Research results

Through the tests about 65 hours of recordings were obtained. The extensive study material was segmented and analysed, due to which a total of 38,283 words and 13,250 phrases were extracted from the speech of children with ID, while from the recordings of the control group there were 31,709 words and 7179 phrases.

Due to the large amount of collected study material, attention was focussed on a few, most important matters from the point of view of communication with another person:

The number of words used by the study subject was determined, calculating the average used by a child and the number of structured phrases, allowing one to calculate the average length of phrase built by children with ID and of TD (**the *mean length of utterance* - MLU)**[2]. The average length of utterance was calculated, determining the ratio of number of words to number of phrases. This work did not include the use of average length of expression based on morphemes, as this measure is relatively less trustworthy in the case of children above 5 years of age (Leonard 2006: 48).

– Determination was made of differences existing between groups in the frequency of occurrence of

[2] MLU is recognised as one of the most commonly used indicators of the level of linguistic development of children. It is most often measured in words or morphemes (Reber, Reber 2008: 773; cf. Crystal 2008: 300).

verbal (i.e. containing a verb)[3] and non-verbal utterances, calculating their average percentage in the overall number of phrases formed by the study subjects;

– the most important objective of the research was to determine the degree of grammatical complexity constructed by the study subjects. We concentrated on an analysis of basic inflectional-syntactic structures[4], based on observation of inflexional forms and word combinations within the phrase. Inter-word relations (accommodative and non-accommodative) in the children's utterances were distinguished, and then an analysis of their frequency was conducted. Dividing the number of words building a given utterance by the number of syntactic relations which include these words, the so-called ***indicator of syntactic density*** was obtained. The lower the value of this indicator, the greater share of syntactic relations in the text, which may be recognised as a higher level of complexity of utterance. In determining this factor in this work, all the syntactic relations were used, both accommodative and non-accommodative. It should be emphasized here that this is the first such broad use of this indicator in linguistic research. The indicator of syntactic density may be considered especially useful in studies on the speech of people with ID, as it allows one to obtain objective and precise data. In descriptions of the communicative capabilities of this section of the population, it is very often emphasized that these are poor and grammatically simplified utterances; however, such descriptions, though undeniably true, require confirmation which is enabled by conducting statistical analysis of the data.

In the subject literature in general, attention is drawn to the restricted vocabulary range of children with ID; therefore:

– in order to evaluate the range of vocabulary of the study subjects, we determined the number of lexemes[5] in utterances of the studied groups of children, and then their average use among the study subjects;

– among the lexemes, verbal lexemes were distinguished, whose frequency and average use were treated as a factor distinguishing the two groups of children. In testing

[3] The work assumes that such an understood phrase is the dominant syntactic unit, which is divided into verbal expressions (containing a verb predicate), or sentences, and non-verbal expressions (not containing a verb predicate).

[4] Word relations (ros. словосочетание), or syntactic relations. syntactic relations in a phrase refer to agreement, order, and enclosure.

[5] The authors assumed that lexemes (or dictionary words) are abstract units of the grammatical-semantic system, represented in the text by various grammatical forms in the case of variable lexemes (Nagórko 2006: 76; cf. Crystal 2008: 276).

linguistic competence and skills, thus the ability to build grammatically correct sentences, it is important to determine the use of verbs. Their role in forming utterances, and thus syntactic units as minimal informational units, is indisputable for researchers, regardless of the syntactic theories that they may support.

The set of data was then supported by their statistical analysis, which allowed one to indicate significant differences between the compared groups. Through analysis we obtained a concrete and extended description of language competence and ability in children with diagnosed ID. The study results indicated that the study group is more varied than assumed, and in certain aspects clearly divides into two sub-groups: people with ID of severe degree as well as of a moderate or mild degree, which is contrary to the commonly used, in subject literature and in practice, division into groups with mild and more profound disability.

As characteristics decidedly distinguishing all subjects with ID from the control group, selected according to mental age, the following should be recognised:

1) **the *mean length of utterance* (MLU)** – the subjects with ID built shorter phrases than those noted in the control group. This regularity concerned all study trials. A clear majority of differences which appeared between the groups had a statistically evident nature, so the average length of utterance constructed by children with ID is lower than expected at a given level of mental age. The results obtained in particular samples are gathered in table 1.

Table 1. Mean length of phrase built by study subjects in particular samples

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	2.03	3.35	2.16	3.79	2.54	5.67
II	1.87	2.73	2.17	3.42	2.71	4.19
III A	2.31	3.19	3.09	6.24	4.66	7.88
III B	2.47	2.85	3.12	5.92	4.26	7.15

2) the percentage share of non-verbal phrases in the overall number of phrases constructed by study subjects. In each of the conducted trials it was observed that non-verbal phrases are for intellectually disabled children a significantly larger part of all phrases noted in their speech. All of the differences had a statistically significant character, so it may be recognised that a characteristic feature of this group is the significantly more frequent construction of phrases without a verbal predicate than in the control group (table 2).

3) the mean use of non-verbal phrases by children – the subjects with ID in all trials constructed significantly more of these than the selected control group. Their average use was therefore considerably higher than expected at a given level of mental age (table 3).

Table 2. Average percentage share of non-verbal phrases in the overall number of phrases built by study subjects in particular samples

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- i 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	65.08	40.14	66.71	31.07	58.67	8.01
II	68.15	48.26	70.26	56.27	65.24	48.05
III A	29.53	3.21	19.32	3.3	9.01	0.48
III B	29.89	4.17	16.46	5.20	8.46	2.63

Table 3. Average use of non-verbal phrases in utterances of study subjects

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	7.20	2.50	6.59	3.59	8.10	0.83
II	14.53	10.31	19.70	13.94	18.61	11.17
III A	1.73	0.12	1.29	0.19	0.81	0.04
III B	2.00	0.23	1.24	0.40	0.90	0.23

4) the average number of constructed word relations – analysis of data clearly confirmed that children with ID (regardless of its degree) used considerably fewer word relations than those of TD chosen by mental age. In all conducted trials, the differences existing between the compared groups were statistically significant (table 4).

5) the indicator of syntactic density – the level of complexity of speech of the intellectually disabled turned out to be considerably lower than in the control groups. Therefore, the syntactic abilities of those studied with mental retardation were recognised to be significantly lower than expected at a given level of mental age (table 5).

Study of the remaining aspects did not allow for such clear conclusions:

1) the average number of words turned out to well distinguish the study groups with mild or moderate ID, who used considerably fewer words than the control group selected according to mental age. All of the differences observed between these groups were statistically significant. However, in the case of children with severe mental retardation, the obtained results were close to those of 4- and 5-year-olds of normal development, while in two of the four conducted trials, the results were at the level of expectations for a given mental age (table 6).

Table 4. Average use of word relations in particular samples

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	4.67	7.81	5.97	16.82	11.46	20.10
II	6.43	17.92	12.23	27.04	18.62	36.62
III A	2.77	3.58	7.46	18.15	17.69	25.40
III B	2.33	3.96	8.63	20.08	19.14	28.35

Table 5. Ratio of syntactic saturation in particular samples

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	6.74	3.01	5.26	3.41	4.90	2.21
II	7.86	4.56	7.94	3.97	7.90	3.22
III A	5.40	3.19	3.86	2.14	2.56	2.00
III B	4.40	3.85	3.72	2.23	2.61	2.10

Table 6. Average use of words in particular samples

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	20.17	19.73	21.26	38.64	32.67	42.37
II	41.87	60.19	63.36	85.74	79.15	101.13
III A	11.83	10.27	19.63	37.91	38.69	50.25
III B	9.23	11.38	21.77	42.42	42.13	58.17

Table 7. Average lexeme use in study subjects' utterances

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	14.80	15.58	15.56	28,67	23.71	32.98
II	27.27	41.42	38.64	54,58	48.13	63.85
III A	9.47	8.65	15.06	26,38	26.06	34.25
III B	6.97	9.38	16.19	27,53	27.59	36.40

2) the variance of vocabulary range, which was determined by calculating the average number of lexemes (dictionary words) used by the study subject, was to confirm the thesis of a smaller range of words at the disposal of children with ID. However, in each of the conducted trials, only those subjects with a diagnosed mild or moderate level used on average considerably fewer lexemes than the pupils of TD selected by mental age, while all of the apparent differences were statistically significant. The group with severe disability again turned out closest in their level to that of typically developing children, in two trials reaching a range of used lexemes at the level of mental age (table 7).

3) analysis of **the mean use of verbal lexemes** confirmed that children with ID of mild or moderate level have considerably fewer verbal lexemes in their range of active vocabulary, and their use is considerably less than that noted in the groups of TD and similar mental age. In the case of the severely disabled group, the differences were not so obvious (table 8).

Table 8. Average use of verb lexemes in study subjects' utterances

Sample	Children with severe ID	4- and 5-year-olds of TD	Children with ID moderate	6-, 7- and 8-year-olds of TD	Children with mild ID	9- and 10-year-olds of TD
I	2.53	3.08	1.99	6.42	3.44	6.92
II	5.20	9.85	7.01	11.83	8.69	13.13
III A	3.57	3.23	4.87	7.85	7.45	9.29
III B	2.10	3.96	5.49	9.01	8.89	11.38

Conclusion

The research on which this article is based is only an attempt at describing a few chosen aspects of linguistic competence and skills in children with intellectual disability. **Analysis of the gathered data has allowed confirmation of apparent differences between the compared groups of study subjects of similar mental age, both in the length of constructed utterances as well as in the vocabulary range and syntactic complexity of speech.**

Therefore, while analysing the syntactic aspect of children's utterances, it may be recognised that it diverges from the expected level at a given mental age in the whole group of participants with ID, while in the case of the lexical level the group with severe ID obtained a level similar to that typical for mental age. In order to explain this phenomenon, one should take under consideration the nominal age. The group of subjects with a diagnosed severe degree were the oldest in age (average age - 14 years, in the case of the remaining groups - 12 years); their results were set against 4- and 5-year-old pre-schoolers, as the mental age of people with severe ID is at the level of 3 to less than 6 years. In acquiring vocabulary, the time factor is thus important – in the case of this group of participants, they had extended their vocabulary range for 9 or 10 years longer than children of the control group, which allowed them to reach a level similar to that of pre-schoolers of normal development. However, this time was not translated into progress in the area of syntactic skills, the formation of which depends to a greater extent on cognitive functions. It may therefore be stated that up to a certain level of mental age, vocabulary range is similar or adequate to expectations, but above this level, children of TD enrich their vocabulary significantly faster than subjects with ID of similar mental age (MA) and between the study participants considerable disproportions appear. In the case of syntactic abilities, the differences are considerable regardless of MA level.

It should be emphasized that the ratio of syntactic saturation turned out to be especially useful in describing the linguistic abilities of children, allowing one to precisely evaluate the complexity of syntactic complexity of utterances and to make comparisons between particular groups. The conducted statistical analysis of data confirmed the formulated conclusions.

The group with ID is characterised by a communicative disability (Griffer 2012: 240–241), which appears at the level of each language system. In order to support people with ID and enable them to function fully and satisfyingly in society, it is necessary to get to know their manner of communicating, describing its strong and weak sides. Meanwhile, the speech and language development and communicative abilities of people with intellectual disability are a relatively rarely explored area of study, especially by linguist and speech therapists. In order to be able to offer help, stimulate the communicative skills of this group and make their communication more effective, it is necessary to thoroughly study and characterise what could be termed a biolect of people with intellectual disability.

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ABOUT THE NATURE OF STUTTERING AND ITS TREATMENT

Abstract. The state of the problem of stuttering is characterized by a variety of views on the nature and the brain mechanisms of this widespread speech disorder. A most common point of view recognizes the neurotic and the convulsive components as triggering factors. However, the study of stuttering from a neuropsychological point of view provides a basis for a conclusion about more specific brain mechanisms underlying the speech defect. First of all, they refer to the imbalance in the relationship between the vectors "depth" — of the brain cortex and the right-left hemispheres. It is known that the right hemisphere has more powerful and intensive connections with the deep structures of the brain (energy block, according to A.R. Luria). In this regard, it is easily excitable. The paper shows that exceeding the degree of functional excitation of the "right brain" leads to a critical situation. The left hemisphere doesn't cope with control over the functioning of the right one. There emerges an interhemispheric conflict that results in various kinds of neurotic states. The article underlines that within the framework of speech activity, the interhemispheric conflict consists in the following. There is a clash between the task to combine the semantic (left hemispheric) line of constructing the utterance and the emotional-prosodic (right hemispheric) one. Since the semantic component is leading, the utterance does not fulfill this requirement. This article aims to reveal the corresponding processes, to unify some of the theories and practical treatment of stuttering, and to draw the specialists' attention to the parameters of spoken prosaic speech, significant for its fluency. The article presents the author's views on the causes (brain mechanisms) of disruptions in the speech of stutterers, as well as on the main direction of rehabilitation of stuttering in children.

Keywords: stuttering; speech rhythms; poetic speech; prosaic speech; syntagms; brain mechanisms; speech fluency; speech rehabilitation; speech disorders.

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The phenomenon of stuttering has been treated in literature in various ways. It is convincingly shown in the monograph by V. M. Shklovskiy "Zaikanie" (*Stuttering*) [12]. The author gives a retrospective review of the opinions about the nature of stuttering showing that this speech disorder was first discovered by Aristotle who called it *entelehia* (life disorder as a purposive process of the organism). Aristotle and his followers believed that the given disorder was caused by brain humidity, short lingual frenulum or palate deformation.

In the early 20th century, stuttering began to be divided into organic and psychogenic stuttering. It was also believed possible that stuttering was a sign of degeneration, because persons with this defect often had anatomic deformities of the scull, left-handedness, etc. [6]. At the same time, opinions were expressed that stuttering might be caused by sharply negative social conditions of life. [13]. N. P. Tyapugin [10] and V. A. Gilyarovskiy [5] treated stuttering from the positions of neurophysiology, specifically from the position of I.P. Pavlov's theory giving priority in the emergence of speech disruption to pathological conditioned reflexes. They did not altogether disregard the hereditary factor as well.

These views were dramatically widespread, though even A. Marcel (1886) believed that spastic *coordination neurosis* causing spasms of the vocal apparatus was the main manifestation of stuttering. His contemporaries A. Kussmaul (1889) and E. Fröschels [11] considered stuttering disruptions as symptoms of *aphthongia (hypoglossal nerve spasm).*

If we add to what has already been mentioned the point of view of the Neo-Freudians (Gregory, 1994) who attribute stuttering to manifestation of oral eroticism (oral masturbation), the diversity of opinions about this "mysterious" disorder will become evident enough.

A most complete definition summing up various theories of stuttering belongs to V. M. Shklovskiy [12], who treats it as a neuro-

motor discoordinated spastic speech disorder appearing in the process of communication in accordance with the mechanism of systemic verbal-motor neurosis. It is also stressed that stuttering emerges in childhood, at the ages of 2 to 6 years on average. Stuttering is triggered by aggressive, more often than not sudden interventions, specifically frights.

Irrespective of such a considerable research base of stuttering phenomenon, it has not been discovered till now: a) why speech disfluency in the sensitive period does not take place in all children; b) what brain mechanisms underlie external symptoms (disruptions) constituting the nucleus of the stuttering syndrome.

A monograph of the author of the given article was published in 2012 [4] which suggests and experimentally substantiates (on the basis of a three-year long experiment) the neuro-psychological conception of the causes and rehabilitation of stuttering in children. The realization of this conception in the work with stuttering children has corroborated practical effectiveness of the suggested methodology but it has not been implemented in broad practice.

The aim of the present article which provides some significant details to the conception described earlier is to attract attention to the theoretical ideas and practical recommendations of the author.

The most popular definition of stuttering used in practice runs as follows: "Stuttering is an impairment of speech tempo and rhythm" [7]. We believe that this notorious idea dominates common sense and prevents from due understanding of the way the changes of speech tempo can lead to speech disfluency and, which is still more important, of the essence of speech rhythm.

Speech regulating brain mechanisms have been described by A. R. Luriya and the representatives of his school in sufficient detail [8]. It has been shown that speech auditory gnosis performed by the secondary temporal cortex of the left hemisphere, and phonemic awareness effected by the tertiary cortex of the same brain area are the main brain mechanisms of speech perception. Articulatory praxis (AP) – afferent AP, controlled by the secondary cortex of the lower parietal area of the left hemisphere, and efferent AP performed by the secondary cortex of the premotor area are the main mechanisms of speech reproduction.

In contrast to this, brain mechanisms of the rhythmic constituent of speech acts remains outside the frames of special attention.

In order to throw light on this problem, it is necessary to consider the peculiarities of poetic and prosaic speech.

It is a generally accepted fact that speech rhythm is salient in poetic speech.

Rhythm is a measured flow of rhythmically strong (stressed) and rhythmically weak (unstressed) syllables. The stressed syllable is conventionally marked with the symbol —, and the unstressed one – with ∪. Rhythmic units of various meters are different, but this fact does not affect the essence of the problem. It is important that these units are regularly repeated ("street organ"), the same as in music. In other words, poetic speech has salient rhythmic-periodic character.

It can be easily seen that prosaic speech is devoid of such periodic nature (rhythm). Let us illustrate the fact with the following phrase:

My vsegda lyubuemsya zakatami nad velichestvennoy rekoy Volgoy.

It can be pronounced in several ways:

1) My // vsegda lyubuemsya // zakatami nad velichestvennoy rekoy Volgoy.
2) My vsegda lyubuemsya zakatami // nad velichestvennoy rekoy Volgoy.
3) My vsegda // lyubuemsya zakatami // nad velichestvennoy rekoy Volgoy.

It is evident, that in any variant, one part of the phrase is not equal in length to the other one, i.e. the segmentation lacks uniformity and periodicity.

Meanwhile, an oral prosaic text can be also divided into segments. If the principle of segmentation is not periodic, then, what kind of principle is it?

Linguistics can answer this question as it has singled out such a unit of phrasal speech as syntagm. It is defined in the following way: a syntagm is a complex of several words united in accordance with the principle of semantico-grammatico-phonetical combinability. It follows from the given definition that the division of the sentence into parts is done predominantly on the semantic principle. The syntagms are separated by the speaker with pauses. Each pause lays semantic stress on the words which are emphasized. The distances between the pauses are different, but in poetry, pauses are made at the end of lines equal in length. It is necessary to note that each syntagm has its own rhythm which is made up by a sequence of stressed and unstressed syllables.

Consequently, each syntagm has a unique sequence of stressed and unstressed syllables.

This requirement to the modus of reproduction of prosaic text in oral speech needs the skills:

– to carry out syntagmatic programming, i.e. to know, before pronouncing a phrase, what segments it will be broken into;

– to inhibit the articulation inertia, i.e. to pass on from the syntagm with one rhythmic pattern to another.

Why do some children manage to do so and others do not?

Role of individual profile of hemispheric asymmetry

The matter is in the profile of hemispheric asymmetry individual for each child. It is well known that brain hemispheres are not identical in the degree of functioning. First of all, it concerns speech, with reference to which the left hemisphere should become dominant as early as at the ages of 2.5-3 years of life of the child. During the transition at this age to phrasal speech with different rhythmic syntagms, it is necessary to make the semantic program of the phrase dominant. The rhythmic features of the syllabic structure of the words should go to the background and give place to the *semantic* division of the phrase into segments. The left hemisphere functioning on the discrete-logical principle is solely responsible for this. If the right hemisphere is hyperactive by its nature, which is observed in cases of true (not forced!) left-handedness, there appears interhemispheric conflict. It grows at the moments of excitation (excitement) because the right hemisphere becomes even more active than at quiet moments of life. It is the interhemispheric conflict which is called functional or neurotic that lies at the basis of the main stuttering emergence mechanism.

But why is it the disruptions or spasms (as they are conventionally called) but not any other kinds of phrasal speech disfluency that commonly emerge?

Brain mechanism of disruption (spasm)

To disclose this mechanism, it is necessary to focus attention on the fact that each organ of the vocal apparatus is unique but divided along the central line: lips, tongue, pharynx, and breathing organs – they all consist of two halves. It is still more important that each of these halves should get nervous impulses (innervations) exactly equal both in speed and intensity. But in cases of non-standard profile of interhemispheric asymmetry this condition can hardly be fulfilled or is absolutely impossible.

Let us look at it in more detail.

It is known, that the muscles of different halves of speech organs get innervations from the cranial nerve nuclei which are present in the brainstem in pairs. The nucleus situated in the pair, say, on the right, should send an impulse to the corresponding half of the speech organ exactly identical to the impulse sent by the nucleus situated on the left. At the same time, these nuclei themselves receive nervous impulses from the brain cortex (premotor areas) which reach them through cortical-neural pathways. Irrespective of functional interhemispheric asymmetry, the neural impulses should be equalized in the nuclei in such a way that the speech organ halves would get equal inner-

vations. In cases when interhemispheric asymmetry exceeds the threshold of permissible difference, one nucleus of the pair gets a more powerful impulse than the other. Their equalizing becomes more difficult. As a result, one half of the speech organ gets an impulse differing from that of the other one. The muscle tries to save the situation and begins to "jerk" (clonus) or, "having lost the last glimmer of success", freezes (tonus). In the picture below, one can see an example of a scheme of unequal provision of nervous energy to the muscles of the halves of the most active speech organ – the tongue.

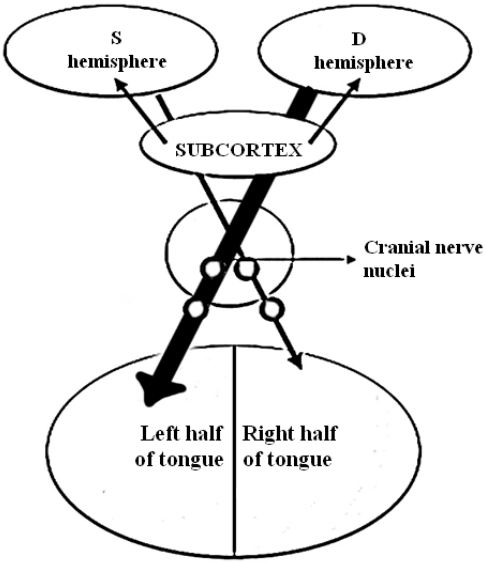

Figure. Scheme of disproportional innervations of the muscles of different halves of the tongue

A similar regularity is typical of the innervations of the muscles of other speech organs.

It can be seen that the impulses from the cortex are not equal. If the difference in their "power" is great, there emerges a disruption (spasm). During emotionally calm periods, innervation differences are smoothed over, and the severity of stuttering is lower. This fact explains the fluctuating (changeable) course of the given disorder – stuttering.

The given interpretation of the brain mechanisms of stuttering also facilitates the development of the spastic theories of this speech disorder mentioned at the beginning of this article.

Principles of speech rehabilitation of stuttering

The following methods of speech rehabilitation of stuttering are commonly used in practice: training (practicing optimal modi) speech (phonic) breathing, phonation, and articulation. The techniques of speech rhythmization are also widespread (L. Z. Arutyunyan [1], E. E. Shevtsova, E. V. Oganesyan, L. I. Belyakova [2], I. Yu. Abeleva, A. V. Yastrebova [15], C. Van Riper [16]). Taking into account what has been said above, we may assume that these techniques do not play the decisive role; they may be rather considered as additional.

Due to the peculiarities of prosaic phrasal speech, the main techniques of preventing the unequal innervations of the muscles by the brain may be based on training the child to properly divide phrases into semantic segments – syntagms [14].

Practice shows that body-oriented methods involving tactile markers of logical stress and sense pauses and their intensive vocal emphasis are the most efficient ones.

Other methods of practicing syntagmatic phrase segmentation are also possible. In all cases, they should take into account the skills of programming the semantic plan of prosaic speech, observing logical accent and making sense pauses, i.e. speaking consciously and expressively. Such tactics of rehabilitation allows the pedagogues to rearrange the child's mode of speech production and thus achieve the desired positive result. In relation to adult stutterers, this method is less effective because of the stability of the pathological speech stereotype. Psychotherapy is the only remedy in this case.

Conclusion

Thus, the neuro-linguistic approach to the nature of stuttering proves the hypothesis about its neurotic essence (hyperactivity of the right brain hemisphere); at the same time, it elaborates the given conception by specifying the mechanism of disruption – clonic or tonic one – depending on the severity of the interhemispheric conflict.

By way of summing up, we may state the following.

1. Stuttering is the result of problems with prosaic speech acquisition, which is aperiodic and needs the skills of phrase segmentation on the semantic principle.

2. The brain mechanism of the problems with acquisition of prosaic speech consists in the non-standard profile of interhemispheric asymmetry in stuttering children, and specifically in the hyperactivity of the right hemisphere programmed for “sporadic speaking”.

3. Rehabilitation of stuttering consists in practicing the skills to divide phrases of prosaic texts into syntagms of different length and rhythm on the basis of semantic principle of phrase segmentation.

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VARIABILITY OF DYSGRAPHIA IN PRIMARY SCHOOL PUPILS

Abstract. The article presents the results of a longitudinal study of all types of errors characterizing the eponymous forms of dysgraphia (acoustic-articulatory, motor, visual-motor, visual-spatial, sound analysis and synthesis) in primary school pupils of a general education school. The question whether the dominant form of dysgraphia revealed in a first-grade pupil is permanent, or whether it is replaced by some other form by the end of primary school remains unsettled until now. Its solution appears to be critical in determining the rehabilitation strategy for pupils with stable dysgraphia. Therefore, the experimental study is aimed at dynamic analysis of dysgraphia forms in the process of a longitudinal experiment. The monitoring of phonemic writing skill formation combined with retrospective analysis of its results in pupils with dysgraphia shows the presence of several forms of dysgraphia in every year of learning (from the first to the fourth grade), where one such form is dominant. The monitoring results have revealed a change of the dominant form of dysgraphia: from dysgraphia of sound analysis and synthesis in the first grade to motor dysgraphia by the fourth year of learning. Variability of dysgraphia forms, corroborated by the experimental data obtained should be taken into account in rehabilitation work with the children of the given category.

Keywords: dysgraphia; logopedics; primary school pupils; primary school; forms of dysgraphia; writing disorders.

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Interest in the problems of teaching writing and the difficulties of the phonemic writing skills formation have been stable over the past 50 years. This is associated, first of all, with the low efficiency

of the existing learning rehabilitation programs and the inadequate study of the phenomenon of dysgraphia with its complex nature, which prevents primary school pupils from mastering the communicative competence lying at the basis of acquisition of academic knowledge designated by the general education program.

Theoretical analysis of the literature and the practical work experience in the field of logopedics show that formation of writing skills in children during the first years of learning is often complicated by dysgraphia. At the present stage of empirical research, dysgraphia is studied separately from another writing disorder – dysorthography (O. I. Azova [1], O. V. Eletskaya [4], R. I. Lalaeva [8], E. A. Loginova [11], L. G. Paramonova [12], E. V. Prishchepova [13], etc.). Dysgraphia is looked upon as a specific disorder characterized by a complex of symptoms (A. N. Kornev [7]). The presence of stable writing errors of a special kind made by children in various written works is the most important symptom in this complex (O. B. Inshakova [6]). Other, in no way less important symptoms of dysgraphia include speech disorders, varying in their nature, which are usually less vividly expressed than writing disorder: dissociation between the typical level of development of the general intellect indicator (IQ) and the low level of acquisition of writing, unnatural for typical children predominance of the non-verbal intellect indicator over the verbal one keeping their specific structure, poor formation of a number of indicators of development of the higher psychological functions (programming, regulation, control, procession of auditory and visual information, etc.); impairment of automation of the acquired writing skill; impossibility of spontaneous treatment of disorder without specially organized logopedic work; and reduced working capacity. In diagnostic observation, the abovementioned symptoms of dysgraphia may be used as criteria for its diagnostics.

The experience of rehabilitation support convincingly shows that dysgraphia is rather often caused not only by speech disorders but also by poor formation of non-speech components of the functional system of writing (R. E. Levina [9; 10], T. V. Akhutina [2; 3], R. I. Lalaeva [8], A. N. Kornev [7], I. N. Sadovnikova [14], G. V. Chirkina [16], etc.).

However, the specificity of the impairment of the writing skill acquisition in cases of dysgraphia has not been properly studied yet. The question whether the dominant form of dysgraphia revealed in a first-grade pupil is permanent, or whether it will be replaced by some other form by the end of primary school

remains unsettled until now. It is also worthy of note that there is no uniform approach to detection of the forms of dysgraphia and no theoretical foundation of distinction between dysgraphia and dysorthographia. It should be noted that the presented research defines the forms of dysgraphia on the basis of the typology of errors with a uniform mechanism of development and impairing the acquisition of the phonemic principle of writing, taking into account the new tendencies in the diagnostics of dysgraphia.

The absence of works targeted at the study of variability of the forms of dysgraphia and the need to get this information for better understanding of the mechanisms and the ways of rehabilitation of this disorder determine the urgency of the given research.

This comprehensive problem can be solved only via monitoring the process of acquisition of writing by primary school pupils with dysgraphia.

The experimental study is aimed at dynamic analysis of dysgraphia forms in the process of a longitudinal experiment in the course of 4 years of primary education.

206 pupils of general education schools make up the sample taking part in the longitudinal experiment. All the participants completed such tasks as dictation and copying printed and hand-written texts.

Specially designed and validated methods have been used to detect dysgraphia in the primary school pupils. The results obtained have been processed and analyzed with the help of mathematical statistics methods (O. B. Inshakova [5; 6]).

More than 5,000 written works (dictations and copying printed and hand-written texts) have been collected and analyzed in the process of empirical study of the general sample of the primary school children of the general education school. The results of their analysis allow us to single out all errors violating the phonemic principle of writing: acoustic-articulatory, sound analysis and synthesis, motor, visual-motor and visual-spatial ones, which are referred by us to dysgraphic errors. It should be noted that the group of dysgraphic errors does not include errors of agrammatical nature reflecting poor acquisition of orthographic rules regulated by morphological, traditional and other principles of writing which are referred by us to the sphere of dysorthography, as well as optical errors which have not been registered in the process of observation of the general sample of the pupils of the general education primary school (replacement and mixing up the letters *з — д*, *е — с*, *у — д*). The absence of such errors in the works of the general education school pupils was reported by I. N. Sadovnikova [14] in her earlier

writings, commenting that they were only typical of children with visual impairment.

Two groups of children were formed on the results of the longitudinal study of the children of the general sample: the control group (CG) including 66 pupils successfully mastering phonemic writing, and the experimental group (EG) of 56 pupils with dysgraphia. All pupils of the EG with disorders of oral speech and writing have been provided logopedic assistance at the logopedic facility of the general education institution.

The comparative analysis of the results of the longitudinal observation of acquisition of the phonemic writing skill shows that all EG children (in comparison to CG children) make significantly more dysgraphic errors in written works: errors of sound analysis, motor, acoustic-articulatory (or phonemic), visual-motor (graphical search, inadequate letter shaping and visual-gnostic errors, for example *ч — н*, *и — ч*, etc.) and visual-spatial errors (mirror errors), the number of which reflects the degree of manifestation of the namesake forms of dysgraphia.

The monitoring of phonemic writing skill formation combined with retrospective analysis of its results in EG pupils shows the presence of several forms of dysgraphia in every year of learning (from the first to the fourth grade), where one such form is dominant. The domineering form of dysgraphia in each grade is singled out on the basis of percentage of the predominant kind of errors. The results are given in the diagram below.

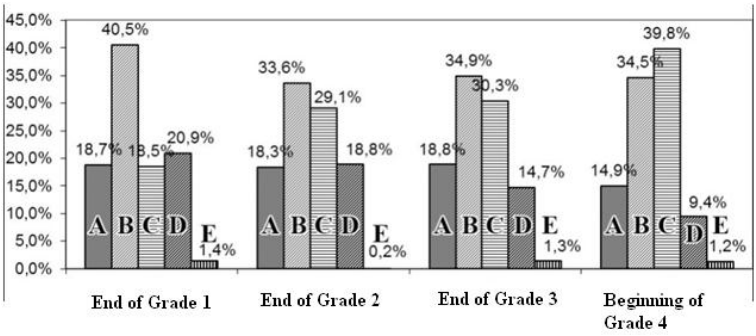

Figure. Dysgraphia forms in EG pupils.

Note: A — errors of phonemic perception; B — errors of sound analysis and synthesis; C — motor errors; D — visual-motor errors; E — visual-spatial errors.

It follows from the diagram that the form of dysgraphia caused by poor formation of the operations of sound analysis and synthesis of speech units (40.5 %) predominates

in the EG pupils **at the end of Grade 1**.

Omissions of vowel letters are more frequent errors referring to this form of dysgraphia. It is well known that this is associated with the fact that at the initial stage of learning, recognition of the vowel in the syllable is more difficult in comparison to the recognition of the consonant sound, as the kinesthetic signal in the vowel pronunciation is weaker than in that of the consonant, and, as a result, is more difficult to recognize. This fact may predict that coding information during writing will be done with mistakes.

Visual-motor (20.9 %), acoustic-articulatory (18.7 %) and motor (18.5 %) forms of dysgraphia are recorded significantly more seldom in Grade 1. Visual-spatial form of dysgraphia characterized by mirror writing of letters, syllables and short words is found very rarely.

Predominance of dysgraphia associated with impairment of the operations of phonemic analysis and synthesis in first graders is caused by inadequate phonemic awareness and poor formation of successive operations ensuring planning and performance of smooth graphomotor movements following one another in time and space. For school children, these operations present complex mental activities equally important not only for perception of speech information but also for its precise reproduction, which is especially significant for writing.

In Grade 2, the domineering position of the form of dysgraphia caused by impairment of the operations of sound analysis and synthesis persists. However, its quantitative manifestation decreases in comparison to Grade 1. The number of errors demonstrating the manifestation of the motor form of dysgraphia grows markedly on this background.

At this time, acoustic-articulatory and visual-motor forms of dysgraphia continue to be found with equal frequency (18.3 : 18.8 %), remaining practically the same as in Grade 1. Visual-spatial dysgraphia is expressed minimally.

In Grade 3, insignificant changes emerge with the dominance of the form of dysgraphia caused by impairment of the operations of sound analysis and synthesis still remaining. Beginning with Grade 3, the number of vowel letter omissions in written works begins to match the number of consonant letter omissions, which testifies to a change in the quality of errors.

The motor form of dysgraphia is manifested even more vividly than in Grade 2; the manifestations of visual-motor dysgraphia start to decrease. The visual-spatial form of dysgraphia is expressed minimally as before.

In Grade 4, the number of errors characterizing the acoustic-articulatory and visual-motor forms of dysgraphia slightly decreases, which is due to the traditional logopedic work carried out during the first years of learning. Only one form of dysgraphia remains to be stable – dysgraphia caused by impairment of the operations of sound analysis and synthesis of speech units.

The increase of motor errors and the domineering of the motor form of dysgraphia in Grade 4 of the EG may be considered paradoxical. This fact shows that the motor graphic skills do not develop in children with dysgraphia at this age. Motor errors at this period of learning usually include writing extra elements of letters (40% of the total of motor errors), and, more rarely, errors of kenesthetis start (33 %), omission of elements of letters (16 %) and perseveration of letters and syllables (11 %).

Motor errors begin to be manifested more vividly as a result of growing general academic load and requirements to such aspects of writing as speed, connectedness and smoothness. Alongside errors, the pupils demonstrate unstable handwriting, its degradation, which can be observed even in the course of one learning day.

Problems with the formation of the motor component of writing indicate the presence of dyspraxia manifestations in the EG children which are characterized by disorders of movement coordination in the performance of complex motor actions.

Dyspraxia manifestations can hardly be noted in Grade 1, when the number of written tasks is small. The growing learning load, significantly increased requirements to writing speed, as well as to the need to distribute attention between the underdeveloped technical aspect of writing and use of orthographic rules lead to the situation, when these dyspraxia manifestations begin to aggravate. All this is reflected in the increase of the number of motor errors in writing.

We may assume that dyspraxia manifestations and writing problems associated with them dictate the necessity to use the sufficient amount of exercises at logopedic lessons aimed at the formation of serial organization of the rhythmic structure of writing, and the preservation of the corresponding sections of the program, especially at the initial stage of learning, which are overlooked or disregarded in the modern educational programs.

The results of our research saliently illustrate a number of important conclusions.

First, not a single form of dysgraphia exists in isolation. The dominant form of dysgraphia in each year of learning is accom-

panied by errors typical of other forms of dysgraphia.

Second, there is no one fixed from of dysgraphia in primary school children. The dominant forms of dysgraphia alternate in the process of primary education, the same as their degree of manifestation does, which either increases or decreases.

Third, the predominance of the motor form of dysgraphia in EG children by the time of finishing primary schooling indicates the necessity of inclusion of the formation of graphomotor functions in the process of logopedic classes held from Grade 1 through Grade 4.

Fourth, complete rehabilitation of dysgraphia in children by the end of primary education does not take place without special work on the motor components of writing, irrespective of traditional logopedic work aimed at overcoming speech disorders, development of phonemic awareness and the skills of sound and sound-letter analysis and synthesis participating in the production of writing.

Fifth, the data obtained convincingly testify to the need to introduce corrections in the general educational program of teaching writing to primary school pupils by way of increasing academic time allocated for the acquisition of the graphical skills of writing, and training pupils to write elements of letters, whole letters and their clusters accompanied by rhythmic movements of the hand.

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PSYCHOLINGUISTIC FOUNDATIONS OF FORMATION OF SPEECH COMMUNICATION IN PUPILS WITH SPEECH UNDERDEVELOPMENT

Abstract. The article substantiates modern conceptual approaches to teaching children with speech and language disorders to speak on the basis of comprehensive understanding of the nature and origin of their speech and language disorders. To construct a holistic rehabilitation-pedagogical model of teaching language, the author uses the psycholinguistic method based on the analysis of the process of spoken and linguistic activity of pupils with speech underdevelopment and presupposing inclusion of many factors that determine both general effectiveness of activity and its structural specificity. The purpose of the study is seen by the author in design and scientific substantiation of communication-oriented language teaching to children with speech and language disorders due to a theoretically and methodologically developed integrative approach to the systemic organization of language and its functional features. The process of unfolding expanded spoken communication of the pupils, designed in accordance with the main stages of speech generation is based on training them for active search activities through initiation of verbal behavior; on creating the semantic program of utterance involving the development of the initial idea into a spatial-conceptual scheme; and on forming the mechanisms of linguistic (grammatical structuring of the verbal material) and phonational organization of speech.

Keywords: communication-centered training; speech activity; speech behavior; speech development; speech disorders; children with speech disorders; logopedics; speech mechanisms; motivational process; utterances; linguistic semantics; speech underdevelopment; psycholinguistics.

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Working out psychological foundations of language teaching is impossible without experimental validation of certain arguable positions. The latter may include questions associated with specification of communicative methods, choice of linguistic notions to be learnt, determination of the content necessary for text analysis, its segmentation presupposing making up a plan, distinguishing the message of the utterance, etc. The solution of the given problems is substantially important, as long as both the approach to understanding speech development and the aspects of the work on it need further specification in the light of the recent data obtained by linguistics and adjacent disciplines.

There is a point of view that definitely dominates the theory and practice of language teaching. According to it, the academic process should be brought to the conditions of real communication as close as possible, which would guarantee communication-centered training [1; 2; 3]. Stepping from the psychological characteristics of the process of speech, the researchers in this field give scientific substantiation to the content and methods of teaching speech communication, determine the real conditions of optimization of the learning process, work out communication-centered systems of exercises and forms of control oriented towards specific kinds of speech.

Most research conducted within the framework of the theory of speech activity proceed from the ideas of the modern linguistic science based on the acknowledgement of the structural-semantic approach to linguistic system analysis, choice and application of various linguistic means, and systematization of the lexical and grammatical material, unequal in their content. These theoretical positions are referred to by scholars when they single out coherent text as a unit of teaching, analyze the mechanisms of its generation and perception, work out the typology of communicative errors, and model learning texts for special study [4; 5; 6; 7].

Methodological realization of a complex of communicative tasks becomes possible only provided there is strict adherence to the basic assumptions of the general theory of linguistics. To our regret, we must admit, that far from all ideas of the linguistic science guide the work of the teacher and their choice of certain methods and techniques of teaching. In the first place, it is the specialists in methods that are responsible for the gaps in scientific elaboration of linguistic foundations of the theory of teaching methods. Instead, they are often preoccupied with the problem of systematic search for various kinds of exercises

not infrequently aimed at practicing one and the same element of linguistic structure. It is only natural that such position, being the cause of numerous linguistic mistakes of the students, brings about natural dissatisfaction of the scholars. Refusal from allegedly high scientific level, unwillingness to go too deep in the theory and make the inherently abstract linguistic material still more complicated, as well as a number of other reasons of methodological nature invariably lower the level of linguistic competences of the students, and bring about what is known in pedagogical practice as relapse into illiteracy.

Analysis of the pedagogical aspect of the problem suggests that the search for adequate ways and methods of formation of coherent utterances of children with speech underdevelopment should be conducted in different areas: in the field of teaching methods improvement and in the realm of the content of education itself. It should be noted here that we would like to recommend inclusion of a much wider range of issues in the scope of the science of methods than just concrete methods and techniques.

Teaching coherent speech is considered in this article as a special direction in the general linguistic education of children with speech underdevelopment. Speech development classes devoid of theoretical foundation cannot properly facilitate the skills of real speech communication and the skills of easy operations with various syntactical models of the language. We believe that the conceptual system of the course of language learning needs an additional revision and specification in the first place. Let us now pass on to the discussion of the main theoretical conceptions to support the process of designing rational methods of teaching speech communication.

Special linguistic education should be based on the ideas of a syntactical theory presupposing certain stages of construction of an utterance. A “principal structure” of the model of speech generation most adequately corresponding to the modern interpretation of language can be found in the works by A. A. Leont'ev and A. R. Luriya [2; 8]. The model includes the following sequence:

1) stage of utterance motivation;
2) stage of initiation and planning (creation of an internal semantic program);
3) stage of plan realization (lexico-grammatical unfolding the utterance);
4) stage of external (phonational) organization of speech.

A brief description of the content of the methods of special teaching speech communication the main parts of which fully correspond to the abovementioned stages of speech

generation should begin with the consideration of its initial stage (Stage 1). The present state of the conceptual apparatus in the field of motivation psychology is characterized by terminological polysemy. Meanwhile, on the background of the existing differences, there emerges a positive tendency allowing one to consider *the motive* as a complex integral whole. The thought that initiation of speech behavior is determined by a unity of many factors having their own functions and performing quite evident roles in the general process of motivation is becoming more and more salient [9; 10; 11].

It is well known that the motivation process has a phasic nature. The initial stage of its organization is the formation of demand (primary domineering motive) which emerges as a certain abstract aim devoid of concrete details and methods of designing possible paths of its realization. The next step in the motive organization manifesting the beginning of live search activity is associated with creation of the motivation purpose capable of changing the direction of the verbal behavior of the speaker and exercising decisive influence upon their determination.

In order to be motivated towards a certain kind of behavior (in our case linguistic behavior), the child should be sure of the existence of direct tie between the behavior realized and its consequences. If the consequences turn out to be negative for the speaker, they stop feeling the intention, and the desire to perform the speech act vanishes; the motivation process wanes or disappears altogether.

Finally, the finishing stage of the motivation process formation is directly connected with the goal setting and decision making, the consequence of which consists in a purposive speech act performed according to the rules of speech behavior. By giving the linguistic process speech orientation, the speaker, according to the well-known conception of J. Austin, turns it into an illocutionary act realizing the previously adopted purpose, in order to bring about the desired consequences, i.e. to influence the consciousness and behavior of the addressee, and to create a new communicative situation [12]. Analysis of the stage of speech generation organization, targeted at the transformation of a demand into conscious inducement to perform a speech act and into a desire to reach the aim, helps to realize that the role of motivational factors is not limited to direct determination of linguistic behavior, but rather leads to participation in the formation of cognitive assessment schemes with the help of which the speaker interprets the situation.

Marked decrease of demand of speech communication in children with speech underdevelopment

caused by the specificity of their speech defect makes the teacher face the necessity to create positive motivation of speech activity. Speech practice of such children should be organized in such a way that the need to say something, to convey certain information, to express an opinion or attitude to something, to assess the situation should arise each time in the process of learning. A panel talk or discussion in which all pupils (including the teacher) take direct participation is the most efficient form of organization of such lessons.

Being one of the components of the inner structure of speech activity, the level of motivation and inducement defines and controls it to a great degree. The mechanism of speech motivation, as I. A. Zimnyaya notes, is deeply intimate, individual and inherently indivisible, but, which is still more important for the practice of special education, can be regulated indirectly [3]. Such interpretation of the motive presupposes the corresponding organization of the whole process of learning, and, primarily, of the object of speech activity itself: original solution of the topic, it's informative and cognitive potential; continuity and accessibility of material presentation; semantic completeness of texts under analysis, the necessary amount of action and dialogue in them.

A significant place should be occupied by various game-based techniques, problem situations presupposing the solution of simple mental problems, analysis of interesting linguistic paradoxes (language quizzes) – all that allows involving children in active speech due to the presence of a motive. Under the conditions of such education, it is necessary to single out behavioral patterns which are more desirable from the point of view of the pedagogue modeling the learning process: high speech activity of pupils at the lesson, stable cognitive interest, and good discipline. Improvement of the abovementioned components of a well organized education process markedly increases the learning motivation providing the children with an opportunity of free speech communication in learning situations of unequal complexity.

The level of creation of the idea of the utterance and construction of its semantic program (Stage 2) is of special interest for psychological analysis of the linguistic process. The structure of this stage is complex and heterogeneous. The stage has its own, quite definite characteristics which cannot be disregarded in the course of creation of the corresponding links of the linguistic process. Let us now look at its psychological essence.

Defining various approaches to the study of the process of sense

generation, specialists in the sphere of psycholinguistics are apt to regard speech intention as the initial stage, or starting point of inner programming. In this interpretation, intention is nothing but the most general whole sense of the utterance; and the semantic program is interpreted as a complex dynamic unity emerging as a result of intention unfolding. It follows from this assumption that the first phase of the sense generation stage lies in the sphere of semantics, whereas the second phase controlling the unfolding of intention in time and in correspondence with the rules of language constructing is regulated by the laws of syntax.

For many years, linguistic research has been dominated by the conception practically absolutely excluding semantic issues from view. The experimental research of recent years has convincingly shown to the scientific world the power of the ubiquitous semantic criterion as, according to R. Jacobson, any component of the linguistic specter, beginning with sound complexes of linguistic signs and finishing with speech as a whole, is inevitably endowed with semantic and transformational significance [13]. This conclusion is of principal significance for methodological organization of the process of acquisition of language because the typology of learning texts needed for linguistic analysis may be correctly defined on the semantic level only.

Under the conditions of special education, when the children's speech experience is insignificant (group of children with semantic disorders), it is necessary to teach them to establish various variants of semantic connection easily, which is not always possible within the framework of the traditional approach to teaching methods. Purposive linguistic training in this case is based, first of all, on discovering the notional content of the words children use (level of interconceptual semantic ties). This initial link in the system of regular development of elementary semantic concepts of the pupils is especially important, because interconceptual relations are viewed upon as the basis of free combinability of words. The formation of the utterance, in accordance with rigorous linguistic logic, begins with establishing predicative relation, because this type of semantic relations constitutes the basis, or "kernel model" of speech generation [14]. Then, teaching is carried out in the direction of a search for additional, adverbial and attributive semantic relations, successively unfolding predicative relations with their concretization and complementation.

The content of linguistic work on lexical combinability of words needs special commentary in the

light of what has been said, because violation of the lexical norms of the language is one of the most widespread variants of semantic flaws in the linguistic production of children with speech underdevelopment. In view of the fact that this section is not singled out as a separate chapter in the program material in Russian, the pupils have to learn the real rules of combinability of lexemic units in the process of study of linguistic polysemy, synonymy and antonymy, i.e. at all stages of analysis of the lexical material without exception.

The second level of organization of semantic relations embraces relations between the members of the sentence emerging as a result of connection of simpler semantic relations with each other. The nature of semantic relations of this type is determined, according to I. A. Zimnyaya, by the logic of the thought, word valency and interconceptual semantic relation [3]. Valency, in its turn, is interpreted as indication of the necessity to extend the word with words of certain types implied by the meaning of the word or implicitly expressed in it [15]. It follows from this statement that the word valency depends exclusively on its meaning *("pis'mo komu — bratu", "pis'mo kuda — v Moskvu", "pis'mo s kakoy tsel'yu — s pros'boy")*.

With reference to the abovementioned linguistic landmarks, the methods of special teaching at the given stage should be aimed at establishment of semantic ties of a higher level *("Vchera mnoyu byla prochitana interesnaya kniga")* than just elementary interconceptual relation *("Kniga — interesnaya". "Kniga prochitana vchera". "Ya prochital interesnuyu knigu").* The examples illustrate that the difference of the relation of the first type from that of the latter one consists in its much greater degree of abstraction. Various lexico-semantic exercises are widely used in the process of such work: completing a sentence, building word combinations from separate words, connecting names of objects and their qualities with names of actions, replacing a word combination with a word, making up sentences with given words, etc.

Topic-Focus relations, which are regarded in linguistic literature as functional sentence perspective and are treated in a very ambivalent way, represent the highest link in the organization of semantic relations. These semantic-functional categories are associated with text construction and unfolding speech communication more closely than any other units of syntax. Under the conditions of speech communication formation, topic-focus analysis is given special attention to, because it allows modeling semantic relations functioning in various syntactic constructions.

The special organization of the process of language acquisition at the given stage presupposes successive development of the skills to orient in the semantic structure of the text, to determine the nature of connections between separate sentences and between short utterances, to analyze various ways of expression of the logic of the plot, to shorten the text preserving its main content, to unite separate parts of the utterance into a complete whole, to single out the message, to title the text, to logically support one's point of view, to assess the related facts from the point of view of their credibility, etc. The establishment of semantic relations between the parts of the text, creation of an adequate composition associated with identification of the significant and the secondary and with the ability to determine the logical character of transition from one thought to another are the main moments in this work. The techniques of text compression need special specification in the course of learning. Here, transformations of the semantic structure of the text and identification of the secondary elements of narration, as well as compression of the outward, linguistic structure of the text keeping the basic components of its semantic content intact, are quite possible.

Even a brief analysis of the semantic organization of speech communication gives us every ground to say that the process of speech generation is identical in its essence to the process of emergence and formation of thought. This uniform indivisible psychological scheme displays three successive phases of sense generation with a complex hierarchical structure. The adequately established semantic ties at each of the abovementioned stages determine the semantic unity and indivisibility of the utterance.

The third level of speech generation (Stage 3) presupposes the construction of the inner grammatical scheme of the utterance, its grammatical unfolding (structuring). The given stage is considered in most detail in all models of speech generation because it is this stage only that reflects the process of linguistic organization of speech communication, being the most difficult link in the realization of the semantic program. The transformational model of N. Chomsky, giving a chance to look at the language from the positions of a holistic grammatical system organized according to certain rules, has every right to be considered the most perfect model of grammatical generation [14]. Though not all linguists share this point of view, no one can deny the importance of this linguistic theory for understanding the specificity of the process of speech.

The mechanism of speech utterance organization is extremely complex. It is known that the fol-

lowing psychological operation lie at its basis:

– choice of semantically necessary words and syntactic structures (the process of decoding);

– their reproduction in inner speech in correspondence with speech situation;

– combination of linguistic units connected with the search for adequate grammatical form of the word, and syntactic organization of words in the sentence (the process of coding).

The abovementioned operations are associated, first of all, with a complex of concrete rules based on the unity of interacting syntactic, semantic and phonological constituents. Orientation towards them in the process of teaching may allow forming efficient skills to organize the intention of the future utterance using to this end the corresponding lexico-grammatical means of the language, to independently choose the right words connected with associative ties, to define and transform the grammatical structure of the sentence filling it with certain lexical content proceeding from the knowledge of the complex of syntactic rules reflected in the system of language.

Stable deviations in the acquisition of linguistic grammatical rules by children with speech underdevelopment (immaturity of morphological and word derivational ideas about the word, inadequate usage of syntagmatic and paradigmatic linguistic means, problems with syntactic analysis) allow us to speak about the need to work out theoretical foundations of such teaching, and its grammatical course in the first place. Without going deep into the essence of the problem, we would like to note that such approach to teaching presupposes salient orientation of the process of acquisition towards the stage-by-stage development of the pupils' grammatical thinking, not limiting language learning to formal acquisition of ready-made grammatical models and constructions, as it is often done at school [16].

A series of communicative exercises proper, gradually training pupils for independent utterances and successive expression of thoughts should be separated into a special group. Question answering and asking, making up sentences on certain grammatical models, on the given clause (main or subordinate), on the analogy; grammatical transformations, verbal description of various speech situations and work with deformed text may refer to this group. Much attention should be paid in the process of organization of coherent utterance to understanding the words expressing the connections and relations between the elements of the text. To this end, exercises on summing up, explaining the reason or stating a fact can be used.

Under the conditions of special education, considerable effort should be given to practicing grammatical means which are used to code complex paradigmatic relations. Here belong the techniques aimed at improvement of understanding of the genitive attributive case (*"sestra materi", "mat' sestry"*), functional words (prepositions) expressing spatial, temporal and causal relations (*"zima pered vesnoy"*), sentence word order (reversible and irreversible constructions); decoding of comparative (*"Petya sil'nee Vani"*) and distant constructions (multiple and hierarchical government), and the constructions that demand semantic inversion (*"On ne mog ne ponyat' etogo"*). It is only meticulous analysis of the complex forms of speech communication ("relations communication"), as well as the grammatical means used to decode these constructions that allow the pupils to deeper understand the process of their generation.

In the course of learning syntactic constructions larger than the sentence, it is necessary to pay special attention to the specificity of dialogue construction. The degree of completeness of the initial and response utterances, the nature of their components, the construction of the whole dialogue to a great extent depend on its communicative direction presupposing the solution of a concrete linguistic problem. In view of this, the ways of dialogue organization may be rather varied: making up a dialogue on a model, continuing a dialogue, transformation in accordance with situation change, etc.

Monologic speech, as different from dialogue, is more often than not preplanned. It is known to be characterized by higher degree of coherence: certain word order, structural and semantic completeness. The development of monologic speech presupposes a wide use of such communicative tasks as continuation of the text, inventing a beginning or end of the text, segmentation of the text, modeling a text from separate sentences, reconstruction of various variants of a "violated" text (desemanticized and degrammaticalized), shortening of the text, singling out a set of keywords, and extraction of new information and its brief reproduction. The teacher's attention should be concentrated in this case on gradual practice of the skill to reproduce the content of the read (seen and heard) material logically and coherently, to establish causative-consecutive relations using elements of speculation, argumentation and assessment.

Taking into account the psycholinguistic characteristics of the given stage of acquisition, it seems possible to outline a certain approach to the systematization of the grammatical material which should include grammatical schemes of

construction of textual units functioning as ready-made linguistic constructions (word combinations and sentences), generalized grammatical information disclosing the inner organization of morphological and syntactical material stage by stage (rules of constructing and usage of ready-made grammatical patterns), sets of concrete communicative tasks and aims, and characteristics of the actions performed by the children in the process of learning.

The final level of speech generation (Stage 4) consists in its external realization (articulatory, phonational and intonational) with its own quite definite specific features. Analysis of the peculiarities of construction of the articulatory program shows that the process of word pronouncing represents a sophisticated speech mechanism including commands and movements realizing the external program and the ability of the operative memory to keep and unfold the units of this program.

As long as the direction of the speaker's attention towards the semantic organization of the utterance is the main condition of efficient speech communication, its external unfolding, naturally, presupposes complete automation of the articulatory actions which ensure the speech act realization. It is only natural that in case of typical development these actions are easily automated as a result of numerous reiterations over a long period of time; but under the conditions of pathological development of the speech function, they should be practiced specially at logopedic lessons presupposing active speech rehabilitation. In view of the complexity and great diversity of speech disorders, the methods of conduct of rehabilitation intervention techniques should be rigorously differentiated to match the child's speech defect. It is only on the basis of such position that a complex approach to the issues of logopedic rehabilitation where each concrete section of speech-oriented rehabilitation activity takes a strictly subordinate position in the methodological system and, at the same time, is a constituent part of classes on formation of phono-articulatory aspect of speech and its phonational and prosodic mechanisms can be formed.

Practical teaching of children with speech underdevelopment shows that under the conditions of special education, most time is allotted to work with mechanisms of external organization of the utterance. Work over other links of the speech and language mechanism targeted at revealing the semantic orientation in the content field of the text of utterance, the definition of the logical plan of events occurrence, the expansion of the range of linguistic means of expression of various semantic text constructs and the formation of the skills of lexico-grammatical editing of the resulting

speech product and the methods of its adequate translation are, as a rule, disregarded. Meanwhile, meticulous development of the psycholinguistically oriented methods of diagnostics and rehabilitation of speech disorders in children with speech underdevelopment, and regular implementation of innovative psycholinguistic technologies in their practical teaching may allow intensification of the rehabilitation process via active usage of linguistic exercises embracing all levels of structural organization of the language.

These are the main characteristic features of our psycholinguistic approach to the process of formation of extended speech communication of children with speech underdevelopment, based on the structure of their speech defect, and designed in accordance with the main stages of speech generation.

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APPENDIX

Submission Guidelines for Prospective Authors

DEAR COLLEAGUES!

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The editorial board of *Special Education* accepts articles in the fields covered by the journal in case the article has not been published before. All articles are reviewed by independent experts. The final decision about the publication of the article is taken by the editorial board. If the article is rejected by the board the author is sent a well-founded refusal to publish the article. Doctors of sciences and post-graduate students are exempt from payment for the publication.

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All papers have to be written in DOC/DOCX format using Microsoft Office Word for Windows meeting the following requirements:

- article length — 8—12 pages (about 20 000 characters including spaces);
- paper size — A4;
- font — Times New Roman (if the author uses rare fonts it is necessary to attach separate files with these materials);
- font size — 14;
- margins — 2 sm;
- line spacing — 1,5.

References to the literature are given in the body of the text in square brackets. They contain the number of the source in the list of literature and in case of citation – the corresponding page, for example: "Citation…" [5, c. 56—57]. The numbered list of literature (not less than 15 sources) is given at the end of the article according to GOST P 7.05—2008.

Sample List of Literature

A book of one author	**Иванов, И. И.** Название книги / И. И. Иванов. — М. : Наука, 2004. **Внимание!** Пробел до и после знака «двоеточие»
A book of 2-3 authors	**Иванов, И. И.** Название книги / И. И. Иванов, П. П. Петров, С. С. Сидоров. — М. : Наука, 2004.
Dissertation	**Иванов, И. И.** Название : дис. … д-ра пед. наук : 07.00.02 : защищена 22.01.04 : утв. 15.07.04 / Иванов Иван Иванович. —Екатеринбург**,** 2004**.** **Иванов, И. И.** Название : дис. … канд. ист. наук : 07.00.02 : защищена 22.01.04 : утв. 15.07.04 / Иванов Иван Иванович. — Екатеринбург**,** 2004**.**
An article in a collection	**Иванов, И. И.** Название статьи **/** И. И. Иванов, А. А. Петров // Название сборника / Урал. гос. пед. ун-т. — Екатеринбург, 2004**.**
An article in a journal	**Иванов, И. И.** Название статьи **/** И. И. Иванов // Наука и жизнь. — 2004. — № 1.
Electronic resource (according to GOST 7.82—2001)	**Иванов, И. И.** Компьютерная графика [Электронный ресурс] : рабочая программа : для студентов-заочников / И. И. Иванов ; Урал. гос. пед. ун-т. — Электрон. дан. и прогр. — Екатеринбург, 2006. — 1 дискета. — Систем. требования : IBM PC, Windows 95, Word 6.0. **Российская** государственная библиотека [Электронный ресурс] / ред. И. И. Иванов ; Web-мастер Н. Козлова .— Электрон. дан. — М. : РГБ, 2003 — . — Режим доступа: http//www.rsl.ru.

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- scientific degree, rank and appointment;
- affiliation to organization;
- contact information (e-mail, postal address for shipping and publication in the journal with the index).

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Note 2: It is preferable to use your work address as the address for publication.

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5. Classification code of the topical section - GRNTI code (the code could be found on the site of grnti.ru) and VAK code (VAK code is to be found in the Section of "Номенклатура специальностей научных работников" vak.ed.gov.ru)

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