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Yu. S. Biryukova
L. V. Khristolyubova
Ekaterinburg, Russia

REALIZATION OF CONDITIONS OF INCLUSIVE EDUCATION IN EDUCATION INSTITUTIONS OF SVERDLOVSK OBLAST

Abstract. The article deals with the realization of the conditions of inclusive education in education institutions of Sverdlovsk Oblast. It analyzes the requirements to organization of inclusive environment according to the FSES of primary general education for pupils with disabilities. The article briefly characterizes the main components of the conditions of inclusive education: organizational, material, psycho-pedagogical and personnel. Special attention is given to the functions of the specialists involved in the process of inclusive education. The authors provide research materials in the field of realization of inclusive education conditions carried out on the results of analysis of information retrieved from the sites of education institutions on the territory of Sverdlovsk Oblast. The article analyzes the data obtained through interviewing the pedagogues involved in the system of inclusive education: their understanding of the essence of inclusive education; knowledge and usage of the methods of teaching persons with disabilities, organization of lessons in an inclusive class, and application of innovative methods and technologies; establishing relationships between the pupils and the teachers of an education institution. The authors make a conclusion about the importance of the system of formation of value-based relations between all participants of inclusive education, about the need to create a technology of formation of organizational-pedagogical conditions of inclusive education. The article is addressed to students trained in the field of special (defectological) education, pedagogues and all participants of the system of inclusive education.

Keywords: children with special educational needs; SEN; disabilities; special educational conditions; inclusion; inclusive education; adapted basic

general education programs; FSES; psycho-medico-pedagogical commissions.

About the author: Biryukova Yuliya Sergeevna, Second Year Master's Degree Student.

Place of employment: Ural State Pedagogical University.

About the author: Khristolyubova Lyudmila Viktorovna, Candidate of Philology.

Place of employment: Associate Professor of Department of Theory and Methods of Teaching Persons with Special Educational Needs and Disabilities, Institute of Special Education, Ural State Pedagogical University.

E-mail: uspumpsd@mail.ru.

At present, inclusive education cannot be viewed upon as an innovation for the educational system of Russia, though it still needs comprehensive analysis, development and adaptation to the existing social mentality. The special conditions for the organization of inclusive environment have been formulated in the Federal Law No 273 "On Education in the Russian Federation" of December 12, 2012 [12], and in the letter of the Ministry of Education and Science of the Russian Federation No АФ-150/06 "About Creation of Conditions for the Provision of Education to Children with SEND" of April 18, 2008 [11]. These documents highlight the necessity to work out special educational programs, methods, technologies and forms of teaching, guidelines in methods, textbooks and didactic materials, and stress the need for special technical means and equipment for the realization of inclusive education. It is specially underlined that the provision of special conditions for the education of persons with special educational needs and disabilities (SEND) is one of the priority tasks of inclusion.

Creation of special conditions for children with special educational needs (SEN) is associated with the diagnostics of their disabilities and further determination of the necessary individual rehabilitation support. As long as there are various forms and kinds of disabilities, the ways of providing special conditions are numerous. The following components should be taken into account when introducing inclusive education: organizational, material, psycho-pedagogical and personnel [9; 11].

Organizational provision embraces all conditions relating to normative legal acts, general child care (work with specialists, feeding, and medical service), network interaction, financing and material-technical equipment.

The normative legal acts regulating educational activity should protect both the rights of the pupils with disabilities and the rights of the typically developing pupils. It is important that an agreement be concluded with the parents too. It should presuppose the conditions for all participants of educational relations, the rights and obligations of the parents before the education institution, the duties of the teachers with reference to design of individual educational route and individual work, and, moreover, the conditions of possible changes in the individual educational route [11].

Medical service presupposes provision of medical treatment in cases of somatic illnesses. And early diagnostics and support for all analyzer systems is one of the major components of medical treatment provision. The presence of medical support is one of the most important elements of the work of the education institution realizing adapted basic general education programs (ABGEP).

Organization of information provision means the presence of special information technological means at the institution (personal computers, special equipment, special computer-assisted educational programs for children with SEND) for socialization and formation of ideas about the surrounding reality [11].

Material provision is a component that makes part of the work of any organization. This area presupposes abidance by the sanitary-hygiene norms and creation of ready access to the educational environment: ramps, adapted door apertures, flooring, thresholds, stairs, railings inside and outside buildings, specially equipped rooms for personal hygiene activities, specially equipped work places in the classroom, rooms for specialists, a sensory room and wardrobes. The issues of organization of material-technical provision are included in the work on the Russian Federation state program "Accessible Environment" for the years 2011-2020 adopted by the decision of the government of the Russian Federation on December 1, 2015, No 1297 [3].

Inclusive education also presupposes the provision of learning materials and teaching guides which include not only special teaching aids (for children with visual, auditory, intellectual and musculoskeletal disorders) and special programs but also sets of diagnostic procedures, interactive boards, mobile facilities for the work of specialists and special equipment.

Psycho-pedagogical support presupposes the realization of programs and methods provision (individual development program). The FSES of primary general education for pupils with SEND demands the provision of adaptation and reha-

bilitation of the child's developmental deviations [9]. It is important to single out the special educational needs of the child with a disability, to assess the need for psycho-pedagogical and medical assistance, and to provide each child with the opportunity to master the ABGEP.

The sphere of personnel provision presupposes the presence of competent specialists in the field of inclusive, defectological, pedagogical and medical education. And the specialists' professional qualification and its development should be an urgent issue. The professional development should necessarily involve the use of supplementary professional programs and special programs aimed at the study and education of children with individual developmental disorders (auditory, visual, intellectual, autism spectrum disorders, etc.) [13].

The creation of special conditions as an important component of inclusive education is associated with the specific features of development of each child of a concrete education institution. But we must not forget that implementation of inclusive education can hardly be achieved without complex and well-organized work of a group of specialists called upon to create these essential supplementary conditions. The presence of the specialists providing student support is one of the obligatory requirements to the organization of educational activity at education institutions realizing ABGEP. The requirements to the professional activity of these specialists need further clarification, because the FSES of primary general education for pupils with SEND pays attention only to the level of professional qualification of the specialists. Our analysis of the current normative documentation and the literature on methods made it possible to give a brief definition of the functions of the specialists involved in the process of inclusive education [8; 9; 11; 13; 15; 16].

1. The defectologist carries out work on rehabilitation and development of intellectual activity, formation and development of higher psychological functions and analyzer systems; determines the forms and methods of intervention aimed at improvement of the quality of acquisition of the educational program; works individually with the pupils having developmental deviations or problems with the educational program acquisition and makes up the plan of individual work. The presence of such narrow specialists as oligophrenopedagogue, surdopedagogue and typhlopedagogue is one of the obligatory components of the educational environment in which the child with SEND receives education [8; 11; 16].

2. The psychologist diagnoses intellectual development, carries out

prevention and rehabilitation of developmental deviations and consults the parents and the pedagogues; corrects the pupils' behavior, their communicative activity and emotional-volitional sphere; selects the forms and methods of work most suitable for the learning material acquisition; facilitates preservation of the psychological well-being of each student; and determines the present level of development and the zone of proximal development. The psychologist's individual work also includes activity aimed at development of cognitive processes [1; 4].

3. The social pedagogue is a specialist supervising the observance of the pupils' rights by synthesizing information about the social needs of the family and the student; selects the organizations that provide the necessary services and protect the rights of the pupil, and realizes a complex of events targeted at receiving educational services in the amount designated by the Russian Federation legislation [13; 18].

4. The logopedist carries out activity on development and correction of speech (oral and written), defines the methods and forms of work on development and rehabilitation of all kinds of verbal activity, diagnoses speech disorders, fills in logopedic charts, works out speech development programs, individual routes and curricula on the basis of the previously made diagnosis [2; 13].

5. The tutor supports the child during their learning, education and development; helps to complete the tasks set by teachers and other specialists; carries out work on the child's adaptation to new conditions and regulates their behavior in the educational environment and towards the closest surrounding people. They organize the daily routine, help to perform individual work and build up individual cooperation between the pedagogues. The tutor is a link in the organization of interaction and activity of all participants of educational relations [7; 11; 13; 15].

6. The methods specialist (coordinator of inclusive practice) coordinates the work of all members of the pedagogical staff on inclusion organization. The methods specialist is one of the pedagogical workers organizing events on the development of inclusive practice and culture at the education institution; coordinates interaction between the specialists and specifies the areas of activity on creation of inclusive conditions; and provides information about the practical, theoretical, legislative and informational innovations in the sphere of inclusive education [13; 15].

7. The pedagogue is a specialist who carries out teaching and is one of the main sources of information transfer in a specific learning area

(Russian, mathematics, surrounding world, etc.) [7; 15; 16].

In case the abovementioned specialists are not available at an education institution, the work on organization of network interaction becomes especially urgent. Network interaction provides organization of interaction with other institutions which offer help, give consultations and share experience: psycho-medico-pedagogical commissions, methods centers, resource centers for the development of inclusive education, organs of social care and health protection, and public organizations. It is important to form and include such cooperation in the corresponding agreements [13; 15].

Organizational-pedagogical conditions are determining and include methods, forms and means of work with pupils with SEND and adaptation of the basic general education programs or their design [16]. While creating organizational-pedagogical conditions, it is necessary to take into account the pupils' individual needs and the conclusion of the psycho-medico-pedagogical commission and the educational route including all the components of the education process. In addition to educational activity, pastoral activity aimed at creation of a favorable social space and environment, formation of motivation in learning and communication with peers, attention to individual personal traits and needs of the students, provision of conditions for self-development, self-learning and creativity and adaptation of the pupils with disabilities among peers is vitally important.

In early 2017, we analyzed the sites of 163 education institutions of Sverdlovsk Oblast with the aim of identifying the above-mentioned conditions of inclusive education. According to the open access information it turns out that most education institutions have no tutors and coordinators of inclusive practice. As a rule, the absence of the position of the tutor is not associated with the absence of the specialist as such, but with the fact that the education institution either has no students with disabilities, or there are specialists who perform this activity simultaneously with teaching as they have basic defectological education. Defectologists, logopedists and social pedagogues are on the staff of only several education institutions: teachers-logopedists – in 24% of cases, social pedagogues – 9.2%, defectologists – 1.2%. It should be noted that the collected data are different from those which are presented in the "2016/17 School Year Information Report on the Creation of Special Conditions for Receiving Education by Children with SEND at Education Institutions Situated on the Territory of Sverdlovsk Oblast" [10] as our research is based only on the open access information available on the sites of education institutions.

On the basis of analysis of the personal cards of the pedagogues, we have found out that many teachers with the basic higher pedagogical education work as specialists of psycho-pedagogical support (defectologist, logopedist, psychologist, tutor, or pedagogue of supplementary education).

One more category of specialists who are available at less than 50% of education institutions is that of teacher-psychologist. Teachers-psychologists are present at 47% of schools; they work either independently or in a team of psychological support, which also includes a teacher-logopedist. In case some specialists are absent, a part of education institutions publish on their sites information about organization of interaction with developmental centers that can provide the needed specialists (within the framework of network interaction).

The majority of the sites contain information that computer hardware is installed only in several classrooms, and there is special equipment for persons with disabilities. Many pedagogues note that while forming academic groups (forms) on September 1, school Headmasters try to cover the school quota with pupils who develop in accordance with the ontogenetic stages, and thus avoid involvement in the process of inclusive education.

In order to analyze the activity of the participants of inclusive education, we have interviewed the pedagogues of education institutions that realize ABGEPs. 34 primary school pedagogues from 3 education institutions (the town of Zarechnyy, the settlements of Staropyshminsk and Aramil') took part in the interview.

The first group of questions is connected with the understanding of the essence of inclusive education: what kind of children are the pupils with SEND, what is inclusive education, and what are the ABGEPs? The pedagogues' answers contain the terminology relating to the basic notions and kinds of developmental deviations. Practically all teachers have enumerated various categories of children with disabilities as they had children with the following disorders: intellectual disability, disorders of psychological development, musculoskeletal disorders, general speech underdevelopment, and autism spectrum disorders.

The question about the organization of inclusive education (whether there are separate classes or the pupils get together only for out-of-class activities, etc.) has been answered by the majority of teachers that the institution realizes all forms of integrated learning: from joint education together with typically developing peers (inclusion) to streaming into groups according to the deviation category. The question about "special equipment" is answered by almost all teachers in the positive, but they include here only

sensory room, physical therapy room and gym. Thus, we can make a conclusion that many defectological notions of the members of the pedagogical staff about inclusion should be formed, specified and expanded.

The second group of questions is associated with the methods of teaching persons with disabilities: teaching methods, forms of material presentation at lessons, lesson composition in an inclusive group, presence of special assessment means and application of innovative methods. The question about organization of lessons in a group including pupils with SEND is understood in a rather general way; that is why the answers simply enumerate the tasks set by the education institution but not by separate pedagogues (creation of accessible environment, inclusion in interaction with peers, design of individual programs and application of individual approach). Eleven pedagogues (38 %) have noted that they work out additional tasks for children with disabilities, repeat the task several times and allow more time for its completion.

Therefore, it may be noted that the lessons are usually organized in a traditional form, but this is not enough for the creation of inclusive environment. It is necessary to adapt the forms of organization of different kinds of activity for successful education of children with SEND. Analyzing the information obtained we may conclude that the pedagogues mostly use traditional forms and methods of teaching and material presentation (talk, narration, observation, visual aids, etc.).

One of the questions deals with the application of innovative teaching methods, which are associated by the pedagogues only with information and communication technologies (ICT), project and game-based activity and watching video lessons. The analysis of the interview results makes it possible to come to the conclusion about the necessity of complex work aimed at propagating new forms and technologies of teaching and their realization while organizing various forms of activity of pupils with SEND.

The third group of questions is devoted to establishing relationships between the pupils of an education institution. It is necessary to specify the way the students are organized to form a united collective, how the notion of tolerance is formed, and in what way supplementary education is realized. And again, the answers enumerate such traditional methods as talk, holidays, homeroom, visits to the theater, etc. Talks, stories about looking after animals and plants, meetings with war veterans and watching films about the war are mostly used for the formation of tolerance. Distance learning and education at home, group work and

out-of-class activities are looked upon as supplementary education.

Thus, our analysis of interview results has revealed that most pedagogues work within the framework of traditional methods and techniques of teaching and do not use new organizational methods and technologies in the development of inclusive educational environment. Most pedagogues have no idea about innovation methods and techniques of conducting and organizing lessons, which tells also on the quality of education of students with special educational needs and disabilities. All this proves the necessity to create the technology of formation of organizational-pedagogical conditions of inclusive education.

There are many factors in the inclusive educational environment that should be taken into account with its introduction in the education system. The educational institution should be prepared for changes in its activity. The system of formation of the value-based attitude of all participants of inclusive education towards each other, and of the education institution – towards inclusive education in general, is of principal importance. The individualized nature of such system presupposes design of individual educational routes, elaboration of ABGEPs, and creation of a special (inclusive) environment and special conditions that would meet the needs of a child with disabilities.

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E. V. Karakulova
Ekaterinburg, Russia

LOGOPEDIC WORK ON DEVELOPMENT OF COHERENT SPEECH IN PRESCHOOL CHILDREN WITH STRABISMUS AND AMBLYOPIA ON THE BASIS OF FORMATION OF PERCEPTION, UNDERSTANDING AND REPRODUCTION OF EMOTIONS

Abstract. The existing programs and technologies for overcoming speech disorders in children with functional visual impairments do not sufficiently take into account the peculiarities of their emotional development, whereas speech pathology in children with visual impairments often has a systemic character and is aggravated by immature processes of perception, understanding and use of non-verbal means of communication. The article dwells on the qualitative and quantitative aspects of the results of a study of the lexico-grammatical structure, coherent speech and emotional sphere of children with strabismus and amblyopia, systemic speech underdevelopment and pseudobulbar dysarthria. The results of a summative experiment allowed the author to plan rehabilitation work with the children of the given category throughout one school year. The development of coherent speech was carried out alongside simultaneous rehabilitation of the processes of perception, understanding and reproduction of emotions during frontal logopedic lessons. The author suggests the structure of the lessons on coherent speech development adapted for the given kinds of work. The results of the control experiment have confirmed the effectiveness of the work carried out. The study may be of interest to special education pedagogues.

Keywords: preschool children; children with visual impairment; preschool typhlopedagogy; strabismus; amblyopia; speech underdevelopment; coherent speech; children's perception; understanding emotions; reproduction of emotions; logopedic lessons.

About the author: Karakulova Elena Viktorovna, Candidate of Pedagogy, Associate Professor.

Place of employment: Department of Logopedics and Clinics of Dysontogenesis, Ural State Pedagogical University, Ekaterinburg, Russia.

E-mail: *filatova@uspu.ru.*

Introduction

It is common knowledge that visual impairments affect the development of all components of speech as a holistic functional system.

The study of active vocabulary of children with visual impairments reveals significant lagging behind the norm manifested in errors while recognizing and calling objects in pictures, in mixing up notions of one and the same lexico-semantic group, problems with choosing antonyms and synonyms, detection of the properties of an object, and in choosing words with a common meaning [5; 11]. Preschoolers with visual impairments demonstrate poor and monotonous verbal vocabulary [2], which leads to violations of the predicative line of the sentence.

Limited vocabulary, inadequate spatial perception and concepts, and reduced volume of verbal memory in children with visual pathology call forth inadequate understanding of prepositions, gender classifiers of objects expressed by personal pronouns in oblique cases, some case inflections and complex logico-grammatical constructions. Preschool children of the given category demonstrate incorrect usage of the grammatical forms of number and case of nouns; person, number and voice of verbs; disagreement of the adjective with the noun in gender, number and case; problems with the use of prefixal verbs and errors in the usage of prepositions [11].

Underdevelopment of the lexico-grammatical aspect of speech leads, in its turn, to problems in the formation of coherent utterances. Speaking on a topic, children reproduce only part of the material presented, mainly its object-related content, find it difficult to reproduce the dynamics, single out and analyze main events and observe the logic of coherent speech [6; 10; 13].

The specificity of verbal development of children with visual impairments is also manifested in interpretation mistakes and inadequate use of non-verbal means of communication (L. S. Volkova, G. V. Grigor'eva, V. P. Gudonis, V. Z. Deniskina, A. G. Litvak, V. A. Feoktistova, etc.). Coherent utterances of preschool children of this category often lack emotive lexical units [10], whereas understanding and identification of emotions and their verbal denotation make up the backbone of the social teaching of children to regulate and control emotions [1].

Methods and Results

A complex study of senior preschool children with strabismus and amblyopia was held on the base of Ekaterinburg Specialized Kindergarten of a compensatory kind for children with visual impairments No 569. The traditional logopedic

diagnostics was used. The methods and techniques of investigation of the emotional sphere of preschoolers have been worked out on the basis of recommendations of S. D. Zabramnaya, V. M. Minaeva, R. S. Nemov, G. A. Uruntaeva, L. S. Tsvetkova and have been described in detail in our previous publications [7; 8].

46 preschool children with strabismus and amblyopia, systemic speech underdevelopment (SSU) and pseudobulbar dysarthria were selected from among the pupils of the education institution. Let us dwell in more detail on the results of the study of the vocabulary, grammatical aspect, coherent speech and emotional sphere of the children of the group under observation.

The preschool children of the given category had difficulties with understanding adjectives denoting color, form, height, length, width, prefixal verbs, spatial adverbs and some nouns. Problems in understanding nominative vocabulary were connected with underdevelopment of object gnosis and, as a consequence, with poor and underdifferentiated ideas-images about objects. Underdevelopment of spatial perception led to the fact that the tasks on understanding complex logico-grammatical constructions – comparative and inverted ones – were beyond comprehension for the children of this group.

Marked immaturity of active vocabulary revealed itself in problems with actualization of the nominative and predicative lexicon and adverbs, in poor ability or absolute inability to choose synonyms or antonyms, and in word building mistakes. Underdevelopment of the grammatical aspect of speech showed itself in violations of word form derivation of both nonproductive and productive grammatical categories; there emerged difficulties constructing sentences: dropping prepositions and incorrect word order in the sentence.

The limited number of verbs and adjectives in the vocabulary brings about problems with programming coherent utterances and structural agrammatism. While making up sentences on a picture, 87.0% of those tested had difficulties; for example, they made up such sentences as "*U nego slon*", "*Tut mashina*". 13% of the children of the experimental group could not make up a sentence by themselves.

While retelling a familiar fairy tale, the children forgot the plot, showed lack of logic, mixed up main events or dropped them (50.0% of children). All children had difficulties with the lexico-grammatical aspect of retelling. Here is an example of retelling of the fairy tale "The Turnip": "*Potom baba shla, za baboy — devochka shla, potom sobaka uvidela, chto devochka prishla. Za sobakoy kiska bezhit, za kiskoy — myshka*".

Composition of a story based on a series of pictures caused difficulties in all children under experiment: there were mistakes in placing pictures in the right order, vague understanding of the meaning and fragmental retelling of the plot, as well as agreement and government mistakes.

The stories made up by the children on one plot-driven picture consisted of 1-2 sentences and were underinformative.

Table 1. Subdivision of children according to the level of formation of coherent speech, %.

Levels of formation	Kinds of activity						Final level
	making up sentences	text retelling	making up a story on a series of pictures	making up a story on a plot-driven picture	making up a story about an object	making up a story from one's experience	
high	0.0	0.0	0.0	0.0	0.0	4.3	0.0
medium	87.0	50.0	28.3	26.1	30.4	13.0	26.1
low	13.0	50.0	71.7	73.9	69.6	82.6	73.9

Problems with making up a story on the basis of personal experience have been revealed in 95.7% of preschoolers of this group. It was typical of them simply to enumerate actions, for example: "*Ya spal, kushal, gulyal*". There were no such structural elements in the story as beginning and end.

Description of an object caused difficulties in 100% of the children of the category under study. It was short, and consisted of 1-2 sentences, for example: "*Kukla krasivaya, sidit na stole*"; "*Eto krasnaya mashina*".

The absence of semantic unity and utterance coherence was combined with instances of morphological agrammatism.

Our study of the emotional sphere of preschoolers with SSU revealed underdevelopment of the motor, vocal and intonational basis necessary for the development of facial expressions and pantomimic positions. The children demonstrated a significant reduction of the skills of arbitrary formation of facial expressions for the basic emotions (surprise, fear, sadness and anger); we often observed a mixture of emotions. A part of those tested (52.2 %) reproduced these emotions with little expression and in an undifferentiated manner. Incapability of pantomimic expression of the basic emotions was observed in 48% of the preschoolers. 52% of the children had static, monotonous, tense and inadequate pantomimic positions that did

not match facial expressions. Vocal expressiveness was impaired in all children under experiment, which is connected with the low potential of voice intensity, pitch and timbre.

In the course of the study of perception and comprehension of emotions shown in graphical images, a low level of formation of the given skill was demonstrated by 69.6 % of the children. They did not recognize the emotion of anger, or mixed it up with fear. 60.9 % of the preschoolers managed to interpret the facial expression of sadness only with the help of the experimenter. 56.5 % of the children found it difficult to recognize the emotion of surprise; quite often, a surprised face was taken as bad, cheerful or crying. The expression of calmness was not recognized by 82.6 % of those tested: they said it was joy or surprise, that the face was "gloomy" or "bad".

The emotional state of the characters in plot-driven pictures was hard to define by 47.8% of the children. They did not recognize surprise and fear, and mixed up the feelings of sadness, surprise and fear. 65.2% of the children found it difficult to say whether the characters in the pictures performed good or bad actions.

Understanding of emotional content of the pictures included in the presentation materials [15] caused difficulty in 47.8% of those tested, especially in the pictures where the characters were depicted in a calm emotional state (91.3 % of preschoolers). The emotion of interest was mistaken for sadness, or was not recognized at all by 73.9% of the children.

The emotional content of works of literature was comprehended with mistakes by the majority of the children under experiment. The works depicting sorrow and fear caused most difficulties in 87.0% of preschoolers.

Rehabilitation Work

Taking into account our research results, we have defined the purpose of rehabilitation work: formation of coherent speech in senior preschool children with strabismus and amblyopia, SSU and pseudobulbar dysarthria with simultaneous application of the methods and techniques of development of perception, understanding and reproduction of emotions.

Table 2. Subdivision of children according to the level of formation of emotional sphere, %.

Levels of formation	Kinds of activity			Final level
	motor, vocal and intonational basis	arbitrary formation of facial expressions and panto-mimic positions	perception and understanding of emotions	
high	0.0	4.3	0.0	0.0
medium	65.2	43.5	23.9	26.1
low	34.8	52.2	76.1	73.9

Rehabilitation intervention drew on the traditionally used logopedic stages and areas of work with preschool children with general and systemic speech underdevelopment (V. K. Vorob'eva, V. P. Glukhov, N. S. Zhukova, R. I. Lalaeva, L. N. Likhodedova, E. M. Mastyukova, S. A. Pokutneva, N. V. Serebryakova, G. V. Chirkina, T. B. Filicheva, etc.).

From among the scope of the methods of stimulating and development of emotional processes in preschoolers, we have used the ones worked out by V. Z. Deniskina, E. I. Izotova, I. Yu. Kondratenko, S. V. Kryukova, N. L. Kryazheva, V. M. Minaeva, E. V. Nikiforova, E. V. Ryleeva, M. I. Chistyakova, N. A. Yakovleva.

All rehabilitation work has been subdivided into three successive stages (initial stage, basic stage, and reinforcement), each of which included 10 subgroup lessons on development of lexico-grammatical means of the language and 10 subgroup lessons on development of coherent speech. Individual logopedic sessions were carried out daily. It is more convenient to use lessons on development of coherent speech for the formation of emotional processes.

Logopedic work was carried out in three main blocks.

Block 1 included formation of the motor sphere (gross and fine motor skills, facial expressions, and articulation motor skills); the sensory sphere (special concepts, visual and auditory gnosis, and visual, auditory-speech and motor memory).

Block 2 was targeted at formation of the lexico-grammatical and phonetical-phonemic aspect of speech and coherent speech.

Block 3 presupposed work on formation of the emotional sphere:

– motor, vocal and intonational basis for reproduction of emotions and emotional memory; understanding, recognition and reproduction of the basic emotions (joy, calmness, surprise, anger, sadness and fear) *at the initial stage of work*;

– skills of perception, understanding and reproduction of more sophisticated emotions and feelings (sorrow, shame and guilt, offence, happiness, complacency and boasting, envy, suffering, satisfaction, interest, and pride) *at the basic stage of work*;

– differentiation of similar emotions and feelings (sadness – sorrow, displeasure – anger, surprise – interest, satisfaction – complacency, fright – fear, sadness – displeasure, joy – delight); reinforcement of the concepts of feelings (love, hope, belief) *at the reinforcement stage of work*.

We have made changes and amendments in the structure and content of frontal lessons on development of coherent speech in children.

1. The preliminaries of the lesson were held using psycho-gymnastic exercises aimed at proper development of the posture, walk, and gesticulation; they facilitated strengthening and stimulation of the muscular apparatus taking part in pantomimic and facial muscle movements and helped to create a positive emotional background at the lessons.

2. Facial muscle, articulatory and respiratory gymnastics were aimed at formation of arbitrary movements of the muscles of the forehead, eyes, lips and cheeks, which later helped the children to reproduce facial expressions and pantomimic movements of the emotions practiced more expressively.

3. Presentation of the topic of the lesson was accompanied by announcing the lexical topic and "current" emotion.

4. Acquaintance with the graphical image of the "current" emotion and its facial expression. Pictograms of the basic human emotions were printed on a special color background, for example: calmness – on the green one, anger – on the violet one, joy – on the pink one, etc. It was discussed at this stage what movements of facial muscles were needed to express a certain emotion. The formation of facial expression of an emotion was held using a mirror due to which the children could control the work of facial muscles.

5. Looking at the picture or first reading of a story. The skills of perception and understanding of the emotional content of pictures or literary works (depending on the main aim of the lesson) expressing the "current" emotion. All visual and verbal material corresponded to the topic of the lesson and helped the pupils master the knowledge about the skill practiced at the lesson.

6. Talk about what has been seen or read. Talks were held after looking at the picture for some time, or reading a text. It facilitated development of dialogic speech and reinforcement of non-verbal means of communication.

7. Formation of facial or pantomimic expression of a "current" emotion. At the given stage, we practiced the skills of facial or pantomimic expression of emotions in the form of a dynamic pause.

8. Lexico-grammatical exercises training children to make up a coherent utterance or retelling were held with the aim to expand and activate the children's vocabulary, and to reinforce emotive lexicon (joy, merrymaking, delight; surprise, marvel, miracle; anger, rage, displeasure; sadness, sorrow, anguish; fear, fright). We tried to develop the use of semi-productive or non-productive word form derivation types learnt at the lessons on lexico-grammatical means.

9. Making up a story based on a picture (a series of pictures) or retelling of a text. While forming coherent speech at the initial stage of work, accent was laid on perfection of the skill of constructing and extending sentences. Then the children were taught to retell short texts of 3-4 sentences using visual support and utterance plan in the form of pictograms. Work on formation of coherent speech and skills of perception and understanding emotions conveyed by thematically selected literary texts or pictures was organized on one and the same linguistic material. For example, at the lesson on retelling within the framework of the lexical topic "Wild Animals and Birds Living in the Forest. Fear.", we worked with the story by L.N. Tolstoy "Two Friends". This work did not only form the skills of text retelling but also reinforced the concept of fear and its pantomimic expression. At the lesson, at which it was necessary to make up a story on a series of plot-driven pictures on the topic "Domestic Animals and Birds", the children worked with the story "The Living Hat" by N. Nosov and a series of illustrations to it. Apart from development of coherent speech, the given text was used to reinforce the children's knowledge and concepts about the emotions of joy, fear and surprise.

At the basic stage of work, the children were taught to make up narrative descriptions. We used the technique of telling a story on the part of another character, for example, a sofa or kitchen table. One pupil made a retelling, and the other children did not know what character was being spoken about. They made their guesses after they had listened to the narrative description the plan of which had been thought out and drawn before. While making up a story on a series of pictures, the children were asked to think of its continuation.

At the reinforcement stage, more attention was devoted to making up stories with creative elements: stories on a given topic, stories after an excursion, etc. The children made up stories from their own experience in which they expressed their emotions and feelings. We tried to reinforce the skills of making up comparative narrations-descriptions of objects and landscapes and retelling on the part of other characters. While making up a coherent utterance at this stage of work, the children built up the plan of the story themselves and drew it with the help of pictograms.

10. Assessment of the children's achievements included analysis of the stories; the children evaluated their own work and that of their peers.

11. The final stage of the lesson presupposed a brief summary and identification of the most significant material.

Conclusion

The results of our research demonstrated significant improvements in the development of coherent speech and emotional sphere in the experimental group, which is reflected in table 3.

The preschoolers of the experimental group planned their utterances independently, used varied vocabulary, including the emotive one, in their stories adequately, and actively employed paralinguistic means of communication: gestures, facial expressions and pantomimic movements, and expressed their mood with proper intonation.

Table 3. Subdivision of children according to the level of formation of coherent speech and emotional sphere in the experimental and control groups at the summative and control stages of the experiment, %

Observation blocks	Levels of formation	Groups of preschoolers			
		Experimental group		Control group	
		summative stage	control stage	summative stage	control stage
coherent speech	high	0.0	4.3	0.0	0.0
	medium	34.8	91.3	21.7	69.6
	low	65.2	0.0	78.3	30.4
motor, vocal and intonational basis	high	0.0	17.4	0.0	17.4
	medium	60.9	82.6	69.6	73.9
	low	39.1	0.0	30.4	8.7
arbitrary formation of facial expressions and pantomimic positions	high	4.3	30.4	4.3	13.0
	medium	39.1	60.9	47.8	60.9
	low	56.5	8.7	47.8	26.1
perception and understanding of emotions	high	0.0	39.1	0.0	13.0
	medium	30.4	52.2	17.4	39.1
	low	69.6	8.7	82.6	47.8

The statistic analysis results using Pearson's chi-squared test corroborated the significance of the data of the control stage of our experiment. The indicator value obtained according to the results of the study of oral speech formation (χ^2_{exp} = 6.55) is greater than the corresponding tabulated value equal to 5.99. The indicator value obtained according to the results of the emotional sphere formation (χ^2_{exp} = 8.63) is greater than the corresponding tabulated value equal to 5.99. It means that the changes in the level of formation of coherent speech and emotional sphere of the experimental group children that have emerged in the course of training are statistically significant.

The analysis of the experimental data obtained in the course of the study, as well as the calculations using the mathematical statistics methods testify to the efficiency of the suggested work on development

of coherent speech on the basis of the methods and techniques of formation of perception, understanding and reproduction of emotions, which means that the suggested approach allows caregivers to improve the quality of preparation of preschoolers for schooling.

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E. Yu. Konyukhova
Ekaterinburg, Russia

CREATION OF SPECIAL CONDITIONS FOR RECEIVING HIGHER EDUCATION BY BLIND STUDENTS

Abstract. The article contains references to international and federal normative acts regulating the creation of special conditions for receiving education by persons with special educational needs and disabilities. The author suggests a list of recommendations for the creation of special conditions for receiving higher education by blind students. The creation of special conditions for receiving higher education by students with severe visual impairments presupposes the provision of physical accessibility to the buildings of higher education institutions via equipment of the system of tactile, auditory and color cues, and information accessibility to the education process through provision of computer typhlo equipment and learning materials in special formats adapted for the comprehension by the blind (in large letters or Braille on paper, in an electronic format in a text editor, etc.), as well as the organization of pastoral activity taking into account the specific needs and interests of the students with disabilities of the given nosological group. The suggested recommendations have been worked out in accordance with the requirements of the current federal legislation, and taking into account the specificity of organization of the education process in higher education institutions and the special educational needs of the students with visual analyzer function impairments.

Keywords: special educational conditions; typhlopedagogy; students; inclusive education; visual impairments; children with visual impairment; blind students.

About the author: Konyukhova Elena Yur'evna, Candidate of Pedagogy, Associate Professor.

Place of employment: Associate Professor of Department of Social Work Technologies, Institute of Social Education, Ural State Pedagogical University.

E-mail: *Elena_konuhova@list.ru.*

At present, our country has extensive experience of education of blind students at higher education institutions which, no doubt, should be used while organizing the education process of the students of the given category. Nevertheless, for a long time, higher education of students with visual impairments has been integrated, i.e. there have been no requirements to the education process to create special conditions for receiving education by the students of this category. After ratification by the Russian Federation of the UN Convention on the Rights of Persons with Disabilities (*hereinafter* Convention) adopted by the UN General Assembly Resolution No 61-106 on December 13, 2006, under Federal Law No 46-FZ of May 15, 2012 "On Ratification of the UN Convention on the Rights of Persons with Disabilities", amendments were made in the Russian normative legal acts regulating the organization of the education process in accordance with the special educational needs of persons with disabilities.

The main aim of the abovementioned Convention is to protect persons with disabilities from discrimination and to establish equality among people having different physical and mental abilities in the field of civil, cultural, economic, political and social rights. The international normative legal act mentioned above says that the member states recognize the right of persons with disabilities to education. With the purpose of realization of this right without discrimination and on the basis of equal opportunities, the member states ensure inclusive education at all levels and guarantee the conditions for lifelong education. In accordance with the Convention, education should be aimed at development of mental and physical abilities to the highest degree possible; provision to persons with disabilities of a chance to take active part in the life of the free society; guarantee of free access to education for all persons with disabilities at the place of their residence ensuring rational satisfaction of the person's needs; provision of efficient measures of individual support in the general system of education; creation of conditions for successful acquisition of social skills; and organization of training and retraining of pedagogues [5].

As a consequence of ratification of the Convention by the Russian Federation, our country took the obligation to include all the abovementioned provisions of the given international document in the normative legal acts regulating organization of the education process of persons with special educational needs and disabilities. The list of the main federal documents regulating the creation of special condition

for receiving education by this category of persons includes Federal Law No 273-FZ of December 29, 2012 “On Education in the Russian Federation”, Federal Law No 181-FZ of November 24, 1995 “On Social Protection of Persons with Disabilities in the Russian Federation”, and many others.

In accordance with the current federal legislation, special conditions for receiving education by persons with disabilities are interpreted as the conditions of education, upbringing and development of such students including application of special educational programs and methods of teaching and pastoral care, special textbooks, teaching aids and didactic materials, special technical teaching aids for collective and individual use, provision of the services of an assistant giving the students the necessary technical support, conduct of group and individual rehabilitation sessions, guarantee of access to the buildings of organizations providing educational services, and other conditions the absence of which makes the acquisition of educational programs by students with disabilities either difficult or absolutely impossible [15]. The state guarantees the creation of the necessary conditions for receiving education by persons with disabilities [14].

Before passing on to the consideration of the list of recommendations on creation of special conditions for receiving education by blind students at higher education institutions, it would be worthwhile to dwell on what definite category of persons with visual impairments are considered to be blind.

According to V.Z. Deniskina, blind persons include:

– blind persons *with a sense of light*;

– blind persons *with a sense of light and color*;

– blind persons *with* only a *very small fraction of the typical visual acuity* (approximately from 0.005 to 0.009);

– blind persons *with residual vision capable to detect forms and objects;* visual acuity of such people varies within the range of 0.01—0.04 (on the eye with better vision with glasses);

– persons *with better vision acuity* (up to 1, i.e. 100 %), with the field of vision narrowed down to 10-15 degrees or to the point of fixation [4].

In addition, it is only natural that the category of the blind includes persons with complete absence of visual perception.

Let us dwell now on the list of recommendations on creation of special conditions for receiving education by persons with severe visual impairments at higher education institutions.

1. The provision of physical accessibility of higher education institutions. Physical accessibility of the

buildings of education institutions and the adjoining territory for blind students is achieved via equipment of the system of tactile, auditory and color cues (guiding railings; Braille plaques and signs; tactile tiling; stoppers of contrasting colors, etc.). Spatial orientation of blind students both in the building of the higher education institution and on the adjoining territory would be made much easier by an interactive tactile-auditory map that can be situated in the foyer of the education institution.

2. The provision of information accessibility to the education process. Under the current federal legislation, students with disabilities are guaranteed provision of free access to information [14].

Information accessibility can be achieved in higher education institutions through creation of the following conditions:

– provision of literature published in special formats for persons with disorders of the visual analyzer functions (in large letters or Braille, etc.) on paper in the libraries of higher education institutions or from the funds of special libraries for persons with visual impairments using the interlibrary loan system;

– creation of library workplaces equipped with computer and typhlo hardware (Braille display, Braille printer, etc.), as well as a computer with special software for blind users (*Jaws*, *Nide*, *Lookout*, etc.), and information of the blind students about availability and whereabouts of such workplaces by the staff of the dean's offices, social work departments, and members of the students' councils;

– organization of free electronic delivery of documentation (fragments of textbooks and teaching aids, articles from scientific journals and collections of materials of scientific conferences, etc.) to blind students from the library funds of higher education institutions;

– provision of the support of an assistant who can render students with severe visual impairments the necessary technical assistance in their work with academic literature and in the process of technical preparation of student works for publishing (reviews, course and graduation qualification papers, etc.);

– application of only audio methods of teaching, i.e. full refusal from using multimedia presentations by the academic staff while teaching in the groups in which there are students with severe visual impairments;

– design of a list of tasks and learning materials accessible to the students with the visual analyzer dysfunction and their inclusion in the syllabi of the taught disciplines;

– adaptation of the educational platforms and official sites of higher education institutions in accordance with the requirements of the current

federal legislation and the specificity of information perception by persons with severe visual impairments.

3. The organization of pastoral activity in higher education institutions taking into account the specific needs and interests of the students with disabilities including persons with severe visual impairments, i.e. preparation and conduct of events in which blind students can take part. Persons with severe visual impairments can take part in vocal competitions, intellectual games, exhibitions of decorative and applied arts, etc. Participation of students with severe visual impairments in the events carried out outside academic activity would facilitate establishment of interpersonal contacts between blind and typical students, improvement of the emotional state of the persons with visual impairments, realization of their creative potential, development or individual capabilities and skills, etc. It should be stressed that interaction between the blind and the pedagogues and peers with typical vision outside the lecture room is very important for the development of the personal traits and the formation of habits and skills necessary for further integration in the student environment and in professional collectives.

By way of summing up we may say that today, the organization of the education process for blind students of higher education institutions leaves much to be desired. And what is necessary to do first and foremost is to guarantee information accessibility of the education process to persons with visual analyzer function disorders. It is the most critical problem the solution of which is necessary for successful acquisition of the professional educational programs of higher education by blind students. What is more, provision of information accessibility does not need heavy investments. The recommendations on provision of information accessibility can be realized via organization of the education process in compliance with the current federal legislation.

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O. D. Larina
Moscow, Russia

RESTORATION OF SPEECH IN PATIENTS WITH APHASIA VIA INTERACTIVE TECHNOLOGIES

Abstract. The article deals with the use of interactive technologies in logopedic restoration of speech function in patients with various forms of aphasia caused by organic lesions of the central nervous system of various etiologies. The article describes the structure and the content of the rehabilitation-diagnostic computer program "Speech Restoration" at different stages of logopedic rehabilitation of patients with aphasia and specifies the peculiarities of its application in the comprehensive system of rehabilitation of patients with focal lesions of the central nervous system. For practical reasons, the program tasks are divided into seven blocs: 1) speech stimulation (restoration of automated speech series; actualization of the names of months and seasons; work with numbers; reading poems and abstracts from songs); 2) speech sounds and letters; 3) phonetic structure of words (reading by syllables, reading words with the same initial sound, etc.); 4) vocabulary (matching words and pictures, synonyms, antonyms, metaphors, anagrams); 5) grammar (the category of number, prepositions); 6) phrasal speech (deformed phrase, making up three phrases according to pictures out of the words from the list); 7) restoration of the functional basis of written speech, correction of specific and non-specific violations. The opportunity to manipulate images and texts according to individual preferences enhances the patient's motivation. The feedback (response of the complex to correct task completion) is effected at the auditory and visual levels.

Keywords: aphasia; information technologies; logopedics; speech disorders; logopedic rehabilitation; speech restoration; neuro-rehabilitation; speech impairments; focal brain lesions.

About the author: Larina Ol'ga Daniilovna, Neuro-rehabilitator, Senior Logopedist.

Place of employment: Senior Researcher of the Laboratory of Neurocognitive, Psycho-physiological Research and Physical Rehabilitation, Therapeutic-rehabilitation Scientific Center "Russkoe Pole" of the Dmitry Rogachev National Medical Research Centre of Pediatric Hematology, On-

cology and Immunology of the Ministry of Healthcare of the Russian Federation; Associate Professor of Department of Logopedics, Moscow State Pedagogical University.

E-mail: oldanlar@gmail.ru.

High incidence of focal lesions of the brain among the adult population of the Russian Federation makes it imperative to work on improvement of the technologies of their neuro-rehabilitation aimed at restoration of the damaged functions (L. V. Stakhovskaya, O. A. Klyuchikhina, M. D. Bogatyreva, V. V. Kovalenko, 2013—2016; V. M. Shklovskiy, 2010—2013; A. V. Belopasova, 2012; M. A. Piradov, Z. A. Suslina, 2008, etc.).

Loss of working capacity and reduction of social activity in patients with focal brain lesions are associated with the emergence of multiple violations of the higher cortical functions, among which speech underdevelopment, including aphasia, occupies a special place. Logopedic rehabilitation of patients with aphasia focuses on expansion of speech and socio-communicative skills. Optimization of logopedic intervention is associated in modern aphasiology with the introduction of the methods recreating the structure of the damaged link of the speech function in detail. Regular enough and multiple repetitions of the damaged operations lead to the restoration of the impaired speech activity in patients with aphasia.

Modern standards of rehabilitation training of patients with aphasia presuppose the use of computer-assisted technologies. The given article describes the advantages of the rehabilitation-diagnostic logopedic module "Speech Restoration" at different stages of logopedic rehabilitation of patients with different forms of aphasia.

While designing the content, the structure and the interface of the rehabilitation-diagnostic module "Speech Restoration", we followed the recommendations of the leading specialists in aphasiology and the experience of creation of similar programs. Specifically, we have analyzed a large number of various materials containing tests and exercises used for restoration of phrasal speech, as well as different home and foreign computer-assisted e-learning systems (for example, «DR.Fluency», Speech Therapy Systems, 1994—1999, etc.). The final choice of tests and exercises was made taking into account the opportunity of their modification and adaptation. The tests and exercises were structured into

topics, sections and subsections. Each subsection contains a host of similar exercises varying in difficulty, which makes it possible to take into account the education stage and the state of the patient.

The selectivity built into the content of the program, the sequence of operations completion, the opportunity of multiple repetitions (trainability principle) of the program by the patient in the process of learning, the support on external auxiliary means – all this creates the conditions for provision of a high degree of activity and independence of the patient in overcoming the defects.

The computer-assisted program "Speech Restoration" is designed in accordance with the main requirements to the methods of the speech function restoration. The total number of tasks in the system is being constantly enlarged and is close to 1,000 at present. For the sake of convenience, they are grouped into 7 blocks.

1. Speech stimulation: restoration of automated speech series; actualization of the names of months and seasons; work with numbers; reading poems and abstracts from songs, etc. (Figures 1, 2)

Fig. 1. An exercise on disinhibition of pronunciation

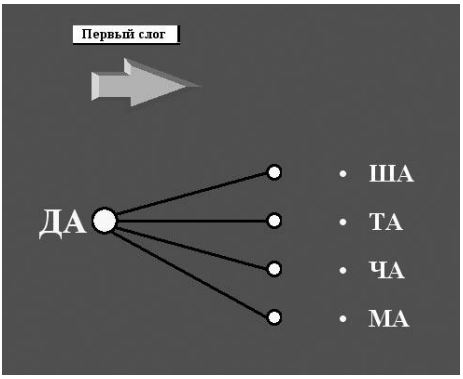

Fig. 2. An exercise on actualization of understanding of simple open syllables

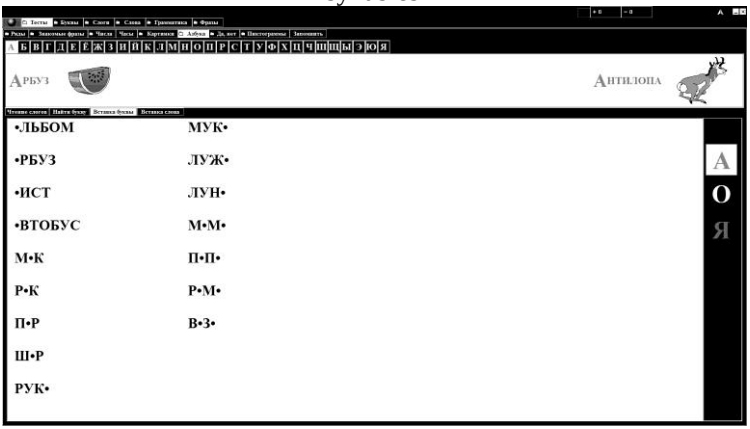

Fig. 3. An exercise on restoration of the link "articuleme – phoneme – grapheme"

2. Speech sounds – letters: alphabet (repetition of syllables, naming letters, inserting letters, inserting syllables); letters in a word; different images of letters (Figure 3).

3. Phonetic structure of words: reading by syllables, reading words with the same initial syllable, reading words with the same initial element; inserting syllables, finding syllables; sorting out words of various lengths; making up words of different syllables, dividing text into syllables; etc. (Figure 4).

Fig. 4. An exercise on restoration of the sound-letter synthesis of the phonetic word structure without visual support

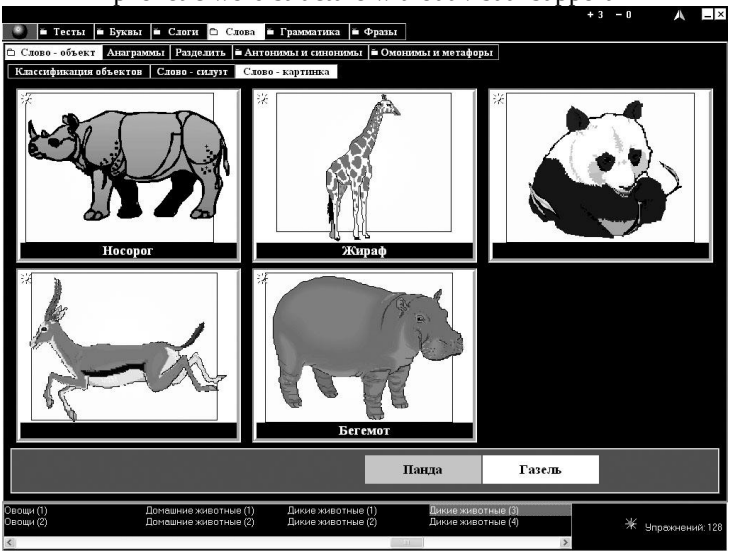

Fig. 5. An exercise on restoration of global reading skills

4. Vocabulary: word – image (choosing the right word, placing captions under pictures), giving synonyms and antonyms; metaphors and homonyms; anagrams (Figure 5)

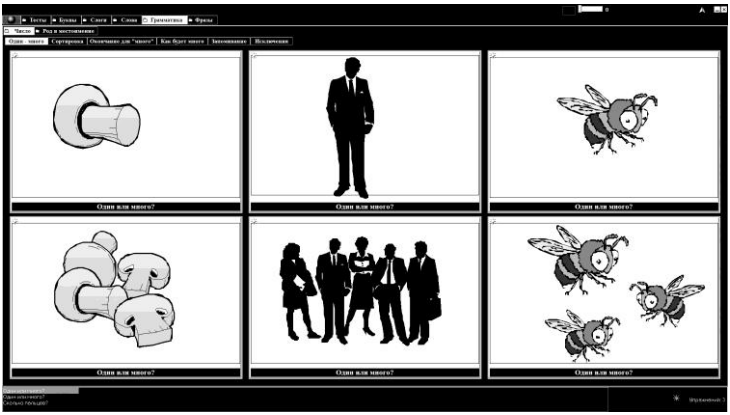

Fig. 6. An exercise on restoration of grammatical construction skills

Fig. 7. An exercise on restoration of written utterance programming

5. Grammar: the category of number (sorting out by the notions "one – many", sorting out by number, changing the singular into the plural, remembering the plural number inflections, exceptions); gender and pronouns; verbs; prepositions; description of actions (Figure 6).

6. Phrasal speech: placing captions under plot-driven pictures; deformed phrase; deformed phrase with conflicting words; making up three phrases on the pictures out of the words from the list (Figure 7).

7. Restoration of the functional basis of written speech, correction of specific and non-specific violations.

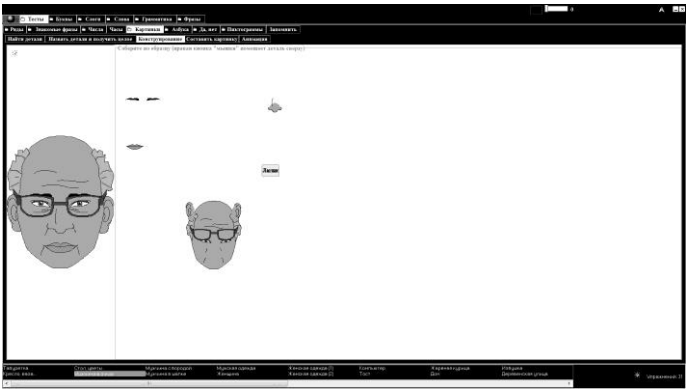

Fig. 8. An exercise on overcoming optico-spatial disorders

The program content can be set up for each patient individually; it depends on the form of aphasia and the structure of speech communication defect.

The experience of many years of application of the module "Speech Restoration" in the system of rehabilitation training of patients with aphasia corroborates its efficiency and effectiveness. The analysis of the factors of optimization of rehabilitation training involving implementation of the module "Speech Restoration" showed a change in the patient's motivation, improvement of their emotional attitude to logopedic sessions; increase of the effectiveness of monitoring and control over the dynamics of written speech restoration due to precision and accuracy of procession of the temporal and qualitative indicators of the patient's completion of the computer-assisted program tasks; improvement of the quality of reinforcement of the new algorithm of the restored speech due to intensification of the individual logopedic practice of speech habits.

The automated program complex "Speech Restoration" creates an opportunity to visualize various means of restoration of phrasal speech for the development of the largest number possible of various verbal-nonverbal associations in the patient. The provision of an opportunity to manipulate images and texts to suit the interests of the patient facilitates the improvement of the person's motivation. The program gives a chance to listen to the auditory material read by male or female speakers. Feedback (response of the complex to correctness of task completion) is provided on the auditory and visual levels. The rehabilitation-diagnostic module provides an opportunity to choose the most adequate tasks for

each patient and offers unlimited resources for observation of the speech restoration dynamics.

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M. Sh. Magomed-Eminov, O. S. Orlova,
D. V. Uklonskaya, Yu. M. Khoroshkova
Moscow, Russia

PROBLEMS AND PERSPECTIVES OF COMPLEX PSYCHO-PEDAGOGICAL REHABILITATION AND RESOCIALIZATION OF PATIENTS AFTER SURGERY FOR HEAD AND NECK TUMORS

Abstract. The article raises a number of problems associated with complex psycho-pedagogical rehabilitation and resocialization of patients after surgery for head and neck tumors. Special attention is paid to speech rehabilitation of the patients and psychological support for their return to the usual way of life. The notion of rehabilitation potential is used to describe the rehabilitation opportunities of the patients. On the basis of modern scientific approaches, the authors specify its meaning as a resource opening new perspectives for the person's life and effective resocialization. It is noted that in order to improve the efficiency of the given process, the patients are to carry out specific meaning-focused work on themselves aimed at formation of the motivation to develop their personality in a new life situation. It has been revealed that the conditions of the modern complex psycho-pedagogical rehabilitation and resocialization make it possible to avoid the invalidating effect of the surgery for head and neck tumors and to return the patients to their usual mode of life in almost 100% of cases, though the process is long and complicated. The authors raise the issue of the economic factor as a serious barrier for conducting a complete course of logopedic lessons which are not included in the program of obligatory medical insurance. According to the authors, provision of efficient complex psycho-pedagogical rehabilitation and resocialization of patients after surgery for head and neck tumors can be economically effective for the state, because it may help avoid invalidation of economically active people who will have a chance to return to the usual way of life, and specifically to employment.

Keywords: complex rehabilitation; psycho-pedagogical rehabilitation; rehabilitation-pedagogical work; resocialization; head tumors; neck tumors; rehabilitation potential; semantic work; surgery, oncology.

About the author: Magomed-Eminov Madrudin Shamsudinovich, Doctor of Psychology, Professor.

Place of employment: Head of Department of Psychological Support and Resocialization, Faculty of Psychology, Lomonosov Moscow State University.

E-mail: m_sh_m@mail.ru.

About the author: Orlova Olga Svyatoslavna, Doctor of Pedagogy.

Place of employment: Professor of Department of Logopedics, Institute of Childhood, Moscow State Pedagogical University; Leading Researcher, Scientific-Clinical Center of the Federal Medico-Biological Agency of Russia.

E-mail: os_orlova@mail.ru.

About the author: Uklonskaya Dar'ya Viktorovna, Candidate of Pedagogy, Associate Professor.

Place of employment: Logopedist, Oncology Department №2 (head and neck tumors), The Semashko Central Clinical Hospital №2 of the Open Joint-Stock Company «Russian Railways», Moscow, Russia.

E-mail: d_uklonskaya@mail.ru.

About the author: Khoroshkova Yuliya Mikhaylovna, 1st category Engineer.

Place of employment: Department of Psychological Support and Resocialization, Faculty of Psychology, Lomonosov Moscow State University.

E-mail: yu.khoroshkova@gmail.com.

In recent years, the campaign against malignant tumors has stopped being purely medical and turned into an issue of national significance. Oncological diseases occupy the leading position among the main causes of mortality in the world. Every seventh death is caused by cancer, and this mortality rate indicator is higher than that of AIDS, TB and malaria taken together.

Malignant tumors (MT) are the second leading cause of death (25 %) after cardiovascular diseases (38 %) in the countries with high standard of life and income, and the third one (12 %) after cardiovascular (30 %), parasitic and infectious diseases (14 %) in the countries with low and medium level of income. In 2012, the world standardized indicator of MT incidence was 182.07 per 100,000 general population. According to the WHO, the incidence of MT will continue growing globally, and the greatest increase should be expected in the developing countries. Apart from loss of human life, cancer brings about significant economic damage as well [26].

Over recent years, we have also witnessed a steady increase of the indicator of newly revealed cases of MT in Russia. In comparison to 2015, in 2016 this indicator grew by 1.7 %. The incidence of this disease in the general population of Russia over the last decade is higher than the level of 2006 by 28.8 % [17]. High levels of morbidity and mortality rates, diagnostic problems, the need to carry out mass preventive measures, complex and costly treatment, inadequate short- and long-term results of treatment of patients with certain forms of cancer issue such daunting challenges to health care organizers that their solution may be possible only within the frames of national measures. Recent decades have also marked the fact that oncological patients in more and more cases include people of the economically active ages, who often have no chance of true rehabilitation in the modern economic conditions.

The issues of cancer origin and the search for efficient methods of its prevention and treatment are dealt with in a large number of scientific works in the field of medicine, pedagogy and psychology [7; 8; 13; 19; 21; 22]. At present, due to ever expanding and improving provision of medical assistance, the life-saving indicators for oncological patients are growing. Nevertheless, equally serious problems emerge after operations for removal of malignant tumors. These problems are connected with the patients' quality of life, their psychological support and return to usual way of life [2; 5; 16].

Head and neck malignant tumors are the most difficult for treatment from the point of view of localization. They are dangerous due to their fast and aggressive growth, late diagnostics, undersensitivity to medication, close location of the growth focus to the vitally important structures and organs, and irrevocable cosmetic and functional defects [14]. Recent years have seen a tendency for the incidence rate of such diseases to grow. Thus, in 2016, the MT of the oral cavity were diagnosed in 26.7 cases per 100,000 population of Russia, whereas in 2015 this figure was 25.9; the MT of the pharynx in 2016 amounted to 30.3 (in 2015 – 30.1); the MT of the thyroid gland – 105.8 (in 2015 – 101.2). It is evident that the tumors of these localizations are widespread, and their incidence rate shows no tendency to reduction. Moreover, such tumors are characterized by high invalidization rate – this fact explains the medical and social significance of the treatment of such patients which largely depends on provision of complex rehabilitation measures which would help minimize spending on social assistance and bring the patients back to their normal way of life.

The issue of complex rehabilitation inseparably accompanied by speech restoration measures the necessity of which is brought about by the mutilating character of surgical procedures on the organs of head and neck is especially urgent for surgical departments of head and neck tumors. The main contingent of persons in need of logopedic assistance after surgery for head and neck tumors consists of patients who have had surgical treatment of pharynx, lymphatic system of the neck, thyroid gland, salivary glands, and mouth cavity organs. The speech restoration of such patients as a part of complex medico-psycho-pedagogical intervention is carried out with active participation of the medical staff, the patient's family and their close people [20].

To describe the rehabilitation opportunities of the patients after surgery for head and neck tumors, let us consider the notion of rehabilitation potential. The term was first put forward in 1975 by V. P. Belov and I. N. Efimov who defined it as a complex of biological, personal and socio-environmental factors which make up the basis of the patient's resocialization [1]. According to the definition of V. M. Korobov, rehabilitation potential comprises the patient's opportunities under certain conditions in the form of cooperation between the rehabilitation services and the society in general with the purpose of activation of the biological and socio-psychological reserves of mobilization of restitutional, compensatory and adaptive processes and other mechanisms lying at the basis of restoration of their ruined health, working capacity, personal status and social position [10]. According to R. M. Voytenko, the rehabilitation potential of a person suffering from an illness or defect contains the opportunities (medico-biological, social and psychological) to level, reduce or compensate for social deficiency and/or life limitations [4]. Thus, the majority of authors agree that rehabilitation potential presupposes a complex of medical, psychological and social factors facilitating the return of the patient to normal life.

In scientific literature, the notion of rehabilitation potential is more often used with reference to the problem of rehabilitation of disabled persons. And specifically, it presupposes the creation of such conditions of life and activity for these people under which they can realize their abilities on an equal basis with other citizens and go back to normal life. The specialist in the field of complex psycho-pedagogical rehabilitation and resocialization of patients after surgery for head and neck tumors face another problem – how to avoid the invalidizing effect of the surgery and to return the patients to their habitual mode of life, including employment. Thus, in the majority

of cases, speech rehabilitation logopedic lessons accompanied by psychological support allow the patient actually to return to the way of life he had had before surgery.

According to the data obtained and our own experience, disability status is now often granted in cases when it could be avoided, and the person could be returned to full life without getting the status of a disabled person. In order to make up a plan of rehabilitation measures, they first define, as a rule, rehabilitation goals which include three main ones: a rehabilitation goal (without losing working capacity), a supporting goal (presupposing loss of working capacity), and a palliative goal (focusing on prevention of complication development) [16]. In our case, the first rehabilitation variant allowing return to the usual way of life without significant loss of working capacity is quite possible. The modern logopedic achievements make it possible to provide effective speech rehabilitation of patients after such operations and give them back the chance of professional occupation and preservation of their habitual social circle [13].

Let us dwell in more detail on the problem of psychological state of oncological patients. In most cases psychological literature provides a negative approach to the given theme with accent on such notions as distress, psychogenic anxiety, hard psychological tension due to fear of death or pain, etc. [15; 18]. A number of authors even say that oncological diseases cause severe psychological disability and lead to suicidal practices [6; 18]. Due to the prevalence of such an approach to the description of the state of oncological patients, we think it necessary to stress that according to the home and foreign literature, there are quite a number of modern investigations the results of which allow us to insist that a psychological trauma, whatever its causes, should not necessarily bring about only negative consequences (disorders) allegedly turning the patient into a psychologically disabled person [23; 24; 25]. Psychological consequences in such cases are determined not only by the degree of impact of the traumatic situation but by the meaning-focused activity of the person (finding new meanings, connecting meanings, etc.) which is performed with relation to oneself and one's life. Resilience and coping with the trauma, as well as post-traumatic personal development often result from dealing with a traumatic situation [11; 12].

Moreover, a number of studies, specifically in the field of clinical psychology, are based on the use of procedures assessing the degree of psychological disorder during the first weeks after surgery, when the patients are still in a stress-ridden

post-surgery state. We can give an example of a dramatic difference between the patient's state during the first days after the operation and their condition some months later. In the course of our observation, in addition to special procedures, we practiced short interviews with the patients. The patient N with the diagnosis "pharyngeal cancer" said in his first interview (at this moment he had just started logopedic training) that "all he had to do was to wait for death". But three months later, during which he continued to attend logopedic training sessions where he learned to use the voice replacing mechanism in everyday communication, the same patient showed an active interest in the life of his family and spoke about his hobby.

It has been found in the course of the interviews that the majority of the patients wanted to find an occupation irrespective of the help of their relatives. Only two out of 66 patients had no idea about what they were going to do after leaving hospital. The rest spoke about their plans, family, hobby, social circle, return to employment – in a word, they saw their future and were oriented towards the future, which allows us to make a conclusion about the prevalence of L-meanings (i.e. Life-meanings oriented towards life) in the structure of their personality. While describing the state of oncological patients and designing rehabilitation measures, it should be borne in mind that the person gets in an unusual extraordinary situation. The person's life now is threatened not only by loss of working capacity but by death [11; 12; 24; 25].

In accordance with the given theoretical conclusions, we have specified the role of the person's rehabilitation potential which does not automatically determine or define productive resocialization. Hard work of the patients over themselves, which should engage all personal resources they have, is needed in order to raise the effectiveness of this process. Personal motivation – in this case rehabilitation motivation, which stimulates the person to use the rehabilitation potential actively on the way to effective resocialization – is one of the important components of such work. To form such motivation, it is necessary for the person to treat rehabilitation potential as a resource which can open up new life opportunities, i.e. to have the personal development motivation actualized.

66 patients aged 23-78 years (38 men and 28 women) have been under our observation over two last years. Among them, 18 persons (27 %) were operated on for malignant tumors of the pharynx, 8 persons (12 %) – of the salivary glands, 17 persons (26 %) – of the thyroid gland, and 23 persons (35%) – of the oropharyngeal zone.

All patients needed complex psycho-pedagogical rehabilitation and resocialization in order to return to the habitual way of life. Nevertheless, we have come across disappointing statistics: only 35 persons (53 %) out of 66 patients have undergone the necessary restoration procedures. 28 persons (42 %) out of 66 of those tested have not resumed lessons for unknown reasons without letting the doctor and the logopedist know about their decision. Three patients (5 %) had to give up lessons due to the tumor relapse and the necessity of a new surgical intervention. And only two persons (6 %) out of 35 patients who have gone through the whole course of lessons were discharged with a moderate speech function improvement; in the remaining 33 patients (94 %), we have noted full restoration or considerable improvement of the speech function, which allowed them to return to the usual way of life without losing working capacity.

The statistics obtained allow us to make a conclusion that the modern complex psycho-pedagogical rehabilitation and resocialization give a chance to avoid invalidization of patients after surgery for head and neck tumors and to bring the patients back to the normal way of life. It becomes evident that inability to attend lessons or interruption of the course of lessons on speech restoration constitutes the main reasons of the failure of rehabilitation measures. It turned out in the process of our experiment that this phenomenon has a complex character and is connected, specifically, with psychological peculiarities of the patients.

The patients who have undergone surgery for head and neck tumors look differently at their life situation, which is actually a situation of survival and continuing life under new conditions. As we have already noted, hard work over oneself in cooperation with the specialists and the relatives towards transformation of one's own personality and formation of motivation adequate to the situation in which the person has found themselves is necessary for the conduct of effective work on speech rehabilitation.

It should be kept in mind that this process is a long one and needs certain time resources: first, for organization of a holistic course of logopedic training; second, for the patient to be able to actualize and use in practice their own rehabilitation course, which becomes a basis for the solution of the first problem. The economic factor may become a serious barrier for the patient's receiving real rehabilitation assistance, and we would like to devote certain attention to it in the given work. The matter is that logopedic lessons for this category of patients are not included in the program of obligatory medical insurance, and

far from all patients can afford paying for them themselves.

In recent years, the number of persons of economically active ages for whom restoration of communicative abilities does not only mean improvement of the quality of life but is also a precondition for successful return into the habitual environment and employment has considerably grown. A number of authors speak frankly about the material problems of oncological patients in accordance with the fact that the diagnostics and treatment of the diseases of this kind become more and more highly technological and, consequently, more expensive [3]. A similar problem exists in the field of rehabilitation measures. It should be noted that the Russian Territorial programs of medical care provision on the basic program of Obligatory Medical Insurance (OMI) of the profile "Medical Rehabilitation" contain no measures for complex psycho-pedagogical rehabilitation of the abovementioned contingent of persons, which gives grounds to argue that medical care is not provided in full. At the same time, complex measures demand the participation of a multidisciplinary team of specialists, and take up to 2-4 months on average. The economic factor does not always allow trying all currently existing opportunities for restoration of the damaged functions.

Our analysis of the sources of scientific information on the problem under discussion and the data obtained in the course of investigation allow us to draw a conclusion that oncological patients after surgery for head and neck tumors are left without special assistance which could not only improve the quality of their life by reducing their disability but would also allow the majority of them to remain useful members of society and preserve their social and professional status. What is more, proper provision of efficient complex psycho-pedagogical rehabilitation and resocialization of patients in need of rehabilitation-pedagogical intervention after surgery for head and neck tumors can be economically effective for the state, because it may help avoid granting the disability status to economically active people who may otherwise have a chance to return to the usual way of life, and specifically to employment which they had before the positive disease diagnosis and the corresponding surgical treatment.

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Y. T. Matasov
Saint Petersburg, Russia
E. A. Steblyak
Omsk, Russia

IDEAS OF SENIOR PUPILS WITH DISORDERS OF PSYCHOLOGICAL DEVELOPMENT ABOUT ADULTHOOD

Abstract. The article reflects the structure and content of collective ideas of adolescents with disorders of psychological development 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, mental and behavioral definitions of adulthood. The article compares the collective ideas about adulthood of senior pupils with disorders of psychological development with those of senior pupils with intellectual disabilities. It has been revealed that the mental characteristics of an adult are used by the respondents with disorders of psychological development significantly more often than by their peers with intellectual disabilities. These characteristics include utterances about the ability of an adult to understand himself, about his life experience and lines of reflection. The data obtained can be used as a basis for designing learning actions allowing the pupils with disorders of psychological development to specify the meaning of the categories and concepts making up the semantic field of the concept *adulthood*. The conclusions and generalizations presented in the article, and the fragments of the judgments of the respondents with disorders of psychological development characterizing their specific categories and concepts outline the zone of real and proximal development of ideas of senior pupils with disorders of psychological development about adulthood and can be used for research and rehabilitation-educational purposes in the educational process of the general education school for the pupils of this category.

Keywords: ideas about adulthood; maturity; adulthood; collective ideas; disorders of psychological development; DPD; adolescents.

About the author: Matasov Yuriy Timofeevich, Doctor of Psychology.

Place of employment: Department of Olygophrenopedagogy, Herzen State Pedagogical University of Russia.

E-mail: matasovut@gmail.com.
About the author: Steblyak Elena Anatol'evna, Candidate of Pedagogy.
Place of employment: Department of Defectological Education, Omsk State Pedagogical University.
E-mail: steblyak@list.ru.

The study of ideas of senior pupils with disorders of psychological development (DPD) about adulthood would facilitate the development of rehabilitation-educational practice focusing on formation of social competences of pupils with DPD, and on the development of a more mature perspective than the one revealed in persons of the given category by many researchers [1; 2; 5; 6; 8; 11; 13; 14, etc.]. Information of this kind is necessary for determination of significant ideas recommended for acquisition by pupils with DPD in the context of modern requirements to their education [12; 13; 14; 15]. The facts that pupils with DPD use certain concepts in their speech and understand their meanings show that they have certain ideas about "social voices" [7; 15]. In order to form social competences of the pupils, special psychologists have the right to construct a discourse able to reinforce certain "social voices", if they are unable to facilitate the attenuation of them [4; 7]. Attentive consideration of semantic peculiarities productive for the development of discourse of adulthood and of their explication in the verbal speech of persons with DPD may be useful in the future for constructing pedagogical discourse represented by learning texts and tasks.

The aim of our research is detection and comparative analysis of the structure and content of collective ideas about adulthood, on the one hand, of adolescents with disorders of psychological development, and, on the other hand, of adolescents with intellectual disabilities (the data about the structure and content of collective ideas of senior pupils with intellectual disabilities about adulthood were presented in the article by Yu. T. Matasov, E. A. Steblyak "Collective Ideas of Senior Pupils with Intellectual Disability about Adulthood" (on the sample of 36 pupils) [10]). The article shows the ideological diversity of the corresponding collective ideas formed by a unity of individual concepts of *adulthood* [9].

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 separate words like it is in the original variant [16, 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.

26 adolescents with DPD aged 15-17 years, learning in grades 8-9 of a general education school, took part in the experiment (19 males and 7 females).

The technique of inductive identification of categories and coding was used for the interview data analysis [3, p. 194].

Results

In the course of content analysis, we have singled out 131 utterances about adulthood, including 9 cases of tautology, for example "The man grew older" (6.9% of all 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 (42 %).
2. Mental (cognitive) characteristics of an adult (20.61 %)..
3. Characteristics of behavior, relationships and temper (19.1 %)
4. Characteristics through correlation with age (5.4 %).
5. Bodily characteristics of adulthood (3.05 %).
6. Characteristics of adulthood in terms of age-based periodization (2.3 %).
7. Characteristics of the factors determining the behavior and temper of an adult (0.76 %).

The list shows that activity-based ($\varphi^*_{emp} = 2.821$, $p \leq 0.01$) and mental ($\varphi^*_{emp} = 1.704$; $p \leq 0.05$) definitions are used in the utterances of those tested with DPD about adulthood significantly more often than in the control group. Both groups of utterances characterize the kernel zone of collective ideas of the respondents with DPD about adulthood (55 and 27 respectively). Thus, the respondents with DPD characterized the following *occupations and kinds of activity* of an adult: starting a family, being a married person and a parent (10.7 %); work, employment (9.92 %); getting well-off (5.34 %) ($\varphi^*_{emp} = 1.803$, $p \leq \leq 0.05$); getting education, including supplementary one (3.82 %); housework (2.3 %); driving a car (2.3 %); communication with the family of the parents (2.3 %); going in for sports

(1.52 %); serving in the army, hobbies, achievements, spending money, travelling and entertainment (0.76 % each).

In contrast to the respondents with intellectual disability, those tested with DPD paid significantly greater attention to achieving material wellbeing. The changes of percentage of the utterances of other categories did not exceed the threshold for statistical significance, but there are changes in their content. Let us consider them in more detail.

A little more than half of the respondents with DPD (14) expressed their opinion about the content of family and parental duties of an adult, for example: *He has to think about the family. / You can marry, have children, maintain the wife, children* – etc. Functioning in the role of a family man is expressed with the help of predicative associations denoting creative process-focused aims (*creates*), pedagogical efforts (*educates, thinks (about marks, if there is enough of everything …), grew up, to feed, to take to, to take care*). In comparison with the control group, the concepts of *relationships* and *duties* are used in the speech of the respondents with DPD for the first time. This fact arouses one's interest in the future explication of their content. The predicate *think* denoting mental action was also used with reference to the topic *family* for the first time (3). But the predicative associations denoting communicative actions have not been used, which seems to be non-productive for the development of the corresponding discourse and needs correction.

Being placed third after family duties and work, the category of achieving wellbeing characterizes the financial-economic status of an adult in the following way: *Man has to provide for himself. / He has a flat. / He earns money for the car, flat, and maintains the family himself. / You can earn money, have a second job. / The duties: to pay taxes. / Pension. / You earn your money yourself and don't wait till your parents help you* (7). The relatively small category of getting education included, for the first time, considerations about using the Internet with educational purposes and about learning foreign languages (5). The same as in the control group, the mentions of hobbies, travels, entertainments and other forms of leisure activities of adults are rare: *To think about vacation, to go on holiday. / To be keen on sport, dances. / You can go in for sports. / You may have a hobby, for example, woodwork, engraving on wood, glass*, etc. (4).

In comparison to the persons with intellectual disability, the respondents with DPD paid significantly more attention to regarding *mental characteristics* of an adult ($\varphi^*_{emp} = 1.704$; $p \leq \leq 0.05$**)**. It can

be seen from their content that the number of utterances about the ability of an adult *to understand themselves and their life experience and the directions of reflection* have significantly grown ($\varphi^*_{emp} = 2.213$, $p \leq \leq 0.05$). The discourse of understanding oneself is used by the relative majority of the respondents with DPD (20 / 15,3 %). Due to heightened interest in the given ideas, let us present the utterances in more detail: *The experience has grown. / Old age does not always mean wisdom. / He gains more experience with years. / He's grown smart. But there are people who keep on being foolish. / You become cleverer. / Man can be disabled, or may be like a child. / When one becomes smarter with years. / People define adulthood. Define it by knowledge, speech. / There is experience. / It is wise to have one's own resources. / You know how to do it right or wrong. / Thought about his life. / Brains, you must think about what you do. / To improve your mental development each year. / He will realize what he's doing, what he did in his youth. / Careful planning of actions. / You begin to treat things more seriously. / You realize what you are doing, and feel you are to blame. You have done wrong, and haven't realized it.* – etc.

The concept *experience* closely associated with the meanings *to become smarter, wiser, cleverer* is rather frequently used. We have registered the qualities expressing accumulation of experience-wisdom – they are speech and knowledge. The cited utterances contain polar assessments of the intellectual dynamics of an adult: *Old age does not always mean wisdom. / Man can be disabled, or may be like a child. / But there are people who keep on being foolish.* These suppositions reflect understanding of the relative nature of intellectual achievements of an adult forming in the minds of the pupils with DPD. The respondents compare various alternatives of understanding/non-understanding of their own actions and deeds, and regard *careful planning, awareness and seriousness of attitude to something* as the dominant meaning-based life motivation of an adult.

Finally, let us look at the ideas about the temporal perspective of an adult: *It is when everything is changing, what happened in the past becomes just a memory. Adulthood – it's when you mistrust the future and believe in the present.* The respondent has identified the way in which life experience is accumulated – keeping in memory, in recollections. The given utterance rests on the implicit naïve conception of the development of mind according to which the consciousness (*belief*) of an adult focuses on the problems of the present. This conception opposes the period of adolescence with its typical accent

on looking into the future and planning the future adult life, and the period of adulthood. It is only natural that dreams about the future are replaced by *belief in the present*.

The planned nature of thinking and behavior of an adult are seen in the following utterances: *Certain plans you have must be realized, for example at work. / When a person gets older he has different plans for his being older, another fate* (1.52 %). An adult's ability *to make independent decisions and solve problems* is expressed in the following way: *Take decisions for oneself and other people. For those who ask what's best to do. / It's when you make your own decisions. / Decides what to buy, what to wear, where to go. / Of course, it's a difficult period of life. / Many ways have opened up* (3.82 %). The utterances underline the abundance of trying situations and various alternatives for behavior and actions in adulthood, and describe the character of decisions taken and the persons whom an adult helps in making decisions.

The utterances characterizing *behavior, relationships and temper* of an adult were produced by the majority of those tested (25 / 19.1 %), which also makes it possible to refer them to the kernel zone of collective ideas of the respondents with DPD about adulthood. *Responsibility and independence* in the image of an adult were characterized most frequently, for example: *Independence is developing. / One has to use his own brains. / When you live an independent life on your own. / To become responsible for everything. / Responsibility means I must see to it that he doesn't run away, make a mess, or isn't run over. / The adult is responsible for the family and relatives. Must protect and help. / Be responsible for one's actions* – etc. The accent on the definition of responsibility as abstaining from breaking rules of behavior is evident. On the background of a negative definition of responsibility, other utterances sound declarative and tautological, and the concepts *to be responsible for one's actions* and *use your own brains* – semantically fuzzy.

An adult's *behavior* was described by the respondents with DPD in the following way: *Actions do not change. / You begin (some people) to drink, something goes wrong. / Communication ... changes with time. / Live on your own, according to you own rules. / An adult can walk till late at night. You mustn't drink, smoke. / You are no longer young. You can't make merry any longer. At 30 you still can. Get-togethers, parties. / You must do more of everything – eat more, dress more, spend more money. For example, a boy plays with little toys, when he gets older – studies and gets, for instance, a car. / Behave like an adult, study* (6.1 %). The

contradiction between the suppositions about the non-temporal stability of behavior and its changeability in time attracts our attention. The utterances about changeability associate it with the change in the person's behavior and emergence of bad habits. The respondents name the factors influencing the behavior of an adult: social prohibition of smoking, drinking and live a riotous life. The utterances about the necessity *to do more of everything* illustrate replacement of qualitative change in behavior by quantitative growth of consumption (of food, clothes, money, etc.).

The utterances about the *temper* of an adult present them as one possessing *good personal traits, quiet, never hurting others, living a normal life* (3.82 %). The respondents stress changeability of temper: *Temper changes. / Temper changes with time*. In comparison with similar utterances of the respondents with intellectual disability, there is absolute absence of negative characteristics like *does not fool around*, and scarcity of personal traits and properties, which makes us conclude about the absence of the given concepts in those tested. In other words, the implicit conception of the temper of an adult needs further specification.

Characterizing adulthood via *correlation with age* (5.4 %), the respondents with DPD marked the boundaries of adulthood differently, for example: *People come of age at 18 in Russia. / Adulthood begins at 40. / From the time a person becomes responsible for oneself. It may happen earlier than the well-known 18 years. / Adulthood is middle age. It is when you are about 40 and think, how old I am. / 40-50. / Maturity of a person*. The relativity of ideas about the boundaries and typical features of the period are illustrated by the following utterance: *If a little child asks you, "I am 2-3 years older than you, am I an adult?"* Suppositions representing *implicit age-based periodization* quite rationally oppose childhood and old age. Bodily characteristics of adulthood have been found in only 3.05 % of all utterances, for example: *The voice changes, the hair grows dark, when you have formed*".

And finally, it should be noted that we have registered a singular case of utterance about passing experience from adults to children and referred it to the corresponding category: *Parents say, "You sit here with a switch". Adults pass their experience to their children*. This utterance explicates the rule-like form of experience fixation, i.e. the one that dominates in the pedagogical discourse of special classroom.

Thus, the kernel zone of collective ideas of the respondents with DPD about adulthood is made up by three categories of utterances: characteristics of occupation and kinds

of activity, mental (cognitive) characteristics and characteristics of behavior, relationships and temper of an adult. While giving mental characteristics of an adult, the respondents with DPD spoke about the adult's ability to understand themselves, about their life experience and directions of reflection significantly more often than the control group children. The features of responsibility and independence interpreted as abstaining from rule-breaking behavior prevail in the category of characteristics of behavior, relationships and temper of an adult. Characteristics of behavior contain contradictory ideas about non-temporal stability of behavior and its changeability in time. Temper descriptions are marked with scarcity of traits and properties and absence of negative characteristics present in the utterances of the respondents with intellectual disability.

The utterances of the respondents with DPD presented in the article may serve as initial material for constructing a pedagogical discourse of maturity including design of problem situations and other learning tasks included in the zone of proximal development of pupils with DPD. Design of learning actions should take into account the contexts in which certain categories and concepts are used, so that the pupils could specify their meaning, and those who have reached understanding, could translate it to others.

In order to construct the discourse of adulthood, it is necessary to specify the typical semantics of the concepts included in the semantic field of the concept of *adulthood* (*to pat on the head, to indulge oneself, own business, own problems, choice of responsibility, to make plans, to consult, to ask, to rely, communication, to be responsible for oneself, to live one's own life, to realize what one is doing, to think about, to treat seriously, resources, experience,* etc.), and to test the learning tasks based on the given discourse experimentally.

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O. S. Orlova
Moscow, Russia
O. V. Zontova
St. Petersburg, Russia

IMPROVEMENT OF MEDICO-PEDAGOGICAL REHABILITATION OF DEAF CHILDREN AFTER COCHLEAR IMPLANTATION BY SETTING UP SPEECH PROCESSOR

Abstract. Detection of the quality of physical hearing of children with auditory impairment subject to cochlear implantation, and setting up the cochlear implant processor are important areas of rehabilitation-pedagogical support for such children. The aim of the given research is to work out a system of pedagogical methods and techniques of diagnostics of accuracy of the setup of the cochlear implant processor. The setup quality control of the cochlear implant processor is done by the setup specialist and the pedagogue using subjective and objective methods. The authors have worked out a series of special pedagogical techniques to diagnose the adequacy of the processor setup in children after cochlear implantation which are effective and adequate for the assessment of the quality of the processor setup. The series includes six blocs: observation, discomfort test, registration of conditional reflex motor response to sound, categorization of the sounds by volume, the recruitment phenomenon, and speech legibility. Cochlear implantation and the subsequent processor setup facilitate the emergence of the child's physical hearing, and the lessons with pedagogues and the parents enhance the development of functional hearing, which stimulates the formation of the child's spontaneous oral speech and his integration and socialization. The suggested methods can be used by defectologists, surdopedagogues, logopedists, parents and setup specialists.

Keywords: hearing disorders; surdopedagogy; children with hearing loss; cochlear implantation; rehabilitation work; processor setup.

About the author: Orlova Olga Svyatoslavna, Doctor of Pedagogy.

Place of employment: Professor of Department of Logopedics, Institute of Childhood, Moscow State Pedagogical University; Leading Researcher, Scientific-Clinical Center of the Federal Medico-Biological Agency of Russia.

E-mail: os_orlova@mail.ru.

About the author: Zontova Ol'ga Viktorovna, Teacher-Defectologist.
Place of employment: St. Petersburg Research Institute of the Ear, Throat, Nose and Speech.
E-mail: ozontova@yandex.ru.

At present, the cochlear implantation method is the only efficient method of rehabilitation of persons with severe hearing loss and deaf persons which allows them to get physical auditory sensations that serve as the basis for the development of functional hearing and spontaneous oral speech facilitating their socialization and integration in society.

Over recent years, the number of such operations at the Saint Petersburg Research Institute of Ear, Throat, Nose and Speech and other Russian clinics have considerably grown, which, to a large extent, satisfies the demand in the given kind of high-tech medical care. The growing numbers of cases of cochlear implantation bring about the need to improve the given kind of medical assistance to persons with hearing loss, first of all in the aspect of post-surgical aural rehabilitation, and especially to children, because the effectiveness of cochlear implantation is determined by the outcomes of the post-surgical rehabilitation-pedagogical assistance facilitating the development of hearing and speech in children.

The procedure of cochlear implantation is subdivided into several periods: pre-surgical period, operation and rehabilitation treatment, and post-surgical period (including initial, basic and final stages of rehabilitation-pedagogical assistance); this periodization is shown in table 1.

The post-surgical period is the leading one, obligatory for all categories of children and the longest one determining the final outcome of cochlear implantation. Apart from organization of purposive training aimed at the children's development of hearing and speech, the initial stage includes the first switch-on and setup of the processor as the basis of physical hearing, which is a prerequisite for the formation and development of more differentiated auditory sensations and spontaneous oral speech. Regular processor setups and their quality control preserve their significance at the next (basic and final) stages of the post-surgical period.

Table 1. Rehabilitation periods and stages

Pre-Surgical Period	Operation and rehabilitation treatment	Post-surgical period		
		Initial stage	Basic stage	Final stage

The setup quality control of the cochlear implant processor is done by the setup specialist and the pedagogue using objective and subjective methods. **Objective** methods include data recording without using child response: neural response telemetry, stapedius reflex and brainstem auditory evoked potentials in response to electric stimulation recording. In a number of children, examination with the help of the given methods is impossible due to various reasons, for example: recording of brainstem auditory evoked potentials in response to electric stimulation has significant measurement error, and not all specialists can use this method. In addition, these methods are not always reliable for assessment of the setup quality taking into account child response to nonverbal sounds of the surrounding world and illegible speech, because the measurements are taken on the auditory structures situated before the cortex, and the human response to speech, and recognition of its individual peculiarities is localized in the temporal area of the cortex. It is due to all this that the processor setup quality assessment should include **subjective methods** that take into account the character of the child's response both to verbal and nonverbal sounds. The subjective methods of the setup specialists include detection of response to sound, categorization of sounds by loudness, and free sound field audiometry. In these cases, the setup specialists notes the presence of the child's response to clear tone sounds of different frequency. According to the data provided by scholars [1; 2; 4], the child's responses to clear tones and nonverbal and verbal sounds are distinctly different. Researchers report [5; 6; 12; 14] that it is only due to the joint effort of the setup specialist, pedagogue and the child's close people that it becomes possible to set the processor up in the proper way and to teach the child to hear with the help of the cochlear implant and, later, – to speak. The speech processor setup and adaptation to new auditory sensations are two inseparably connected processes: the setup specialist switches the processor on and tunes it up and uses objective and subjective methods with clear tones for diagnostics, which gives the child a chance to hear the surrounding sounds. And the pedagogue and the close people evaluate the hearing responses to verbal and nonverbal sounds and help the child in their learning to listen and to orient themselves in them. And the improvement of hearing responses makes the processor parameters setup easier, which, in its turn, stimulates the auditory potential of the child and hearing-and-speech rehabilitation.

Many authors [3; 6; 7; 8; 9; 10; 11; 13; 14] stress the need for appli-

cation of various techniques and approaches to the organization of rehabilitation-pedagogical support, and note the significance of the joint work of the setup specialist and the pedagogue with parents. At the same time, inadequate attention is paid to the detailed study and design of specialized approaches and techniques of pedagogical assessment of the quality of processor setup.

We have worked out a series of special pedagogical techniques to diagnose the adequacy of the processor setup in children after cochlear implantation, including six blocks of realization. Let us dwell on each block separately.

BLOCK 1 – OBSERVATION

This stage begins with collection and analysis of information about the way the child reacts to various nonverbal sounds of the surrounding world including five sounds of various frequencies and volume more commonly heard in the surrounding world for each category: *everyday household sounds* (telephone ring, microwave oven beep, sound of an object falling to the floor, sound of a zipper on clothes/boots, sound of water running from a tap), *street sounds* (car horn hooting, train wheels clattering, wind howling, rain dropping, sound of sea waves), *voices of animals and birds* (cat meowing, dog barking, cow mooing, swine grunting, nightingale singing), *nonverbal human sounds* (steps, sneezing, coughing, laughter, whistling), *musical instruments* (piano, drums, flute, bell, rattle).

We have worked out special workbook for recording the auditory perception results in which children, together with the pedagogue and the parents, are to draw up and record the sounds of the surrounding world to which the child makes a response. The object or phenomenon producing the nonverbal sound is drawn in the workbook, an entry on the model "what? + is doing what?" is made, and the vocal imitation of the sound is fixed. Apart from the diagnostic effect, such workbook facilitates the development of auditory perception, as it allows collecting images of the surrounding sounds, expanding vocabulary, and training in understanding sound imitations. Sound imitations accompanied by the sound descriptions can be used later for diagnostics. It is easier for the child to explain their sensations to the setup specialist with the help of sound imitation.

BLOCK 2 – DISCOMFORT TEST

It is important to check up the discomfort parameters and take its results into account for better speech intelligibility, so that the child would not develop a negative attitude to the sounds perceived and the presence of the device itself. It is well known that the presence of

discomfort at perception of loud sounds hampers auditory attention and perception in such a way that low sounds get masked and muffled by overamplified loud ones.

Check up of negative sensations presupposes test of possible presence of discomfortable perception of loud sounds across the whole frequency range. We used two kinds of loud high frequency and low frequency sounds: *festive trumpet* as a loud low frequency sound with the maximum frequency peak at 500 Hz; *office bell* as a loud high frequency sound with the maximum peak at 6,000 Hz.

Other sounds in other frequency ranges were not used, as it is difficult to select a very loud sound with a more limited and clear spectrum. What is more, we tried to find the most feasible everyday life stimuli for a wider translation of our method across the pedagogical environment.

BLOCK 3 – REGISTRATION OF CONDITIONAL REFLEX MOTOR RESPONSE TO SOUND

Detection of conditional reflex motor responses to the sounds of different frequencies and volume in a child after cochlear implantation takes place after discovery of the child's ability to hear loud and discern low sounds. We have used speech sounds of various frequencies and volume for pedagogical assessment of the setup adequacy of the cochlear implant. Nonverbal sounds were not presented as they are more broadband and have intensity peaks in various frequency ranges. The following speech sounds were used as stimuli: loud low-, mid- and high-frequency sounds, and soft low-, mid- and high-frequency sounds.

At this stage, we tried to get a motor response to a sound signal. The patients were asked to do the following: to throw a snowball to the floor or into a basket, to put a shell into a bowl filled with water, to press a button with a finger. We used an authored complex of rehabilitation materials "Zanimaemsya s Usharikom" to enhance motivation.

During the process of practicing the ability to hear speech sounds, we began by testing if the child after cochlear implantation had conditional reflex motor response to *visual* (waving of a little flag) and *tactile-vibrational* (knocking on the chair upon which the child sits) signals; after that – *to loud nonverbal sounds* (festive trumpet and office bell). If there was positive response to all these sounds, we asked the child first to listen to loud verbal syllables of various frequencies (PA, LA, SI) at close distance (70 cm – 1 m). After that, we presented low speech signals of various frequencies: first at the same distance, then – increasing it up to 6 m.

We recorded the child's responses to loud and low speech

sounds of various frequencies at the distance of 6 m. We noted the absence of response and registered how the child heard the sound.

Table 2. Distribution of signals in volume and frequency ranges

Range	Sounds	
	Loud	Low
Low-frequency	MU Peaks: 200—700 Hz	po Peaks: 200—3000 Hz
Mid-frequency	LA Peaks: 1000—4000 Hz	sch Peaks: 3000—5000 Hz
High-frequency	SI Peaks: 5000—7000 Hz	s’ Peaks: 4000—9000 Hz

Table 3. Distinction of sounds in volume and pitch

	Low-frequency	High-frequency
Loud	A	I
Low	sh	s

BLOCK 4 – CATEGORIZATION OF SOUNDS BY VOLUME

The ability to categorize (classify) sounds by volume in our diagnostics procedure allowed us to assess the adequacy of the cochlear implantation system processor setup in three modes: low, normal, and loud. The main task of this block is to teach the child to perceive the sounds correctly trough the device setup: loud sounds as loud, low ones – as low, and by frequency – in the corresponding frequency range. After pedagogical detection of the nature of the speech sounds perceived, the setup specialist can tune up the processor.

In the diagnostic mode (before carrying out pedagogical test proper) it is necessary to check up the child’s ability to understand these categories. To this end, one can use tactile-vibrational sensations and schematic images of their intensity: small circle – soft sounds, low vibration, and big circle – loud sounds, strong vibration. Special exercises are presented in the complex of rehabilitation materials “Zanimaemsya s Usharikom”

When you clearly see that the child does the exercises correctly, it is possible to begin pedagogical diagnostics of volume categorization, which presupposes examination of the child’s ability to classify sounds by loudness. Speech sounds of various frequencies are recommended to be used for this purpose (see table 3).

The child’s task is to show low sounds of various frequencies ([sh], [s]) on a small circle, and loud

sounds of various frequencies ([A], [I]) – on a big circle.

BLOCK 5 – THE RECRUITMENT PHENOMENON

It is well known that all people with impaired hearing have a narrow dynamic range, which makes intelligible auditory perception of the sounds and speech perception in general difficult. And the children can hardly hear a low sound after a loud one; in a quiet environment, an unexpected loud sound is perceived as discomfortable.

Pedagogical diagnostics is aimed at the study of adequacy of the cochlear implantation system processor setup. It is necessary to check up if the child hears a low speech sound after a loud one. For this purpose, we used reversed syllables with a low consonant at the end: *As, Osh, Usch*. The child was given isolated sounds and direct and reversed syllables in all combinations: *A, O, U, s, sh, sch, As, sA, Osh, shO, Usch, schU*. In addition, the children who could read were offered cards with letters and syllables.

The pedagogue pronounces sounds and syllables in an exaggerated way: low sounds – softly, and loud sounds – loudly behind a fabric screen which prevents reverberation. The child repeats what they hear. The given recruitment phenomenon test is considered to be positive if the child does not perceive a low consonant in the reversed syllable, but repeats the vowel only. It means that we observe a salient recruitment phenomenon.

BLOCK 6 – SPEECH INTELLIGIBILITY

Adequate processor setup in children after cochlear implantation focuses on speech intelligibility improvement. To evaluate the phonemic level of speech intelligibility, we studied the pupils' capability to discern speech sounds of various volume and frequency within each range.

The data of special literature and our own experience of many years of work with children after cochlear implantation let us argue that it is most difficult for the children to differentiate low-frequency sounds, including loud ones, and soft sounds of mid and high frequencies. That is why, it is these sounds that we used within the framework of the method of pedagogical assessment of processor setup design (table 4).

Table 4. Audio material for speech intelligibility analysis

Sound frequency	Sound intensity	List of sounds used
Low-frequency	Loud	O, U
Mid-frequency	Low	sh, sch
High-frequency	Low	s, s'

The pedagogue offered the child a pair of sounds for oral comprehension (behind a fabric screen in front of the processor microphone): low-frequency loud sounds, mid-frequency low sounds and high-frequency low sounds in various combinations. The child's task was to differentiate the pairs of sounds, and to point at the letter or the corresponding pictogram matching the sound pronounced by the pedagogue. Diagnostics by pictograms presupposed preliminary training and learning the correlation "sound – pictogram ". The answers were recorded and taken into account for processor setup.

All blocks of our method of pedagogical diagnostics of adequacy of processor setup in children after cochlear implantation are realized gradually, from the simple to the most complicated. Correction is held after each block, and second testing and subsequent setup are done according to the pedagogue's recommendations.

The advantage of our research consists in the opportunity to take into account delayed results of application of the pedagogical procedure of the processor setup quality.

CONCLUSIONS

Cochlear implantation and the subsequent processor setup facilitate the emergence of the child's physical hearing, and the lessons with pedagogues and the parents enhance the development of functional hearing, which stimulates the formation of the child's spontaneous oral speech and their integration and socialization.

The series of special pedagogical techniques of diagnostics of the processor setup adequacy in children after cochlear implantation including six realization blocks (observation, discomfort test, registration of conditional reflex motor response to sound, categorization of sounds by volume, the recruitment phenomenon, and speech intelligibility) is an efficient adequate tool of the processor setup quality assessment.

Many years of experience at the Saint Petersburg Research Institute of Ear, Throat, Nose and Speech and other rehabilitation centers on the program "Ya slyshu mir!" (I can hear the world!) allow recommending it for implementation in practical activity.

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L. V. Sokolova, E. V. Kazakova, N. V. Vasil'eva
Arkhangelsk, Russia

PROBLEMS OF FORMATION OF THE READING SKILL IN FIRST GRADERS FACING THE RISK OF EARLY DYSONTOGENESIS[1]

Abstract. The paper is devoted to an urgent issue of analysis of the risk of reading problems in first graders. The sample includes 428 first graders of general education schools of Archangelsk. In the course of the experimental qualitative and quantitative observation, the authors have analyzed the risk factors of early dysontogenesis and the reading skills formation with the help of the questionnaires "Characteristics of early child development", "Heredity and reading", "Challenges of teaching reading", "Typical features of reading skills in schoolchildren". The article discusses the impact of the micro-social environment on the child's reading skills. It demonstrates the relationship between the child's reading problems and the similar problems of the mother, father, siblings or the traditions of family reading and the parents' education. The analysis of reading problems in junior schoolchildren and the members of their families revealed the similarity of the problems caused by the immaturity of visual-spatial perception, phonetic-phonemic awareness and attention. The article confirms the negative impact of unfavorable factors of early ontogenesis (prematurity and artificial feeding of the baby from birth) on the child's reading skills. The high rate of negative factors in the early ontogenesis of schoolchildren with problems of reading skills formation causes a saliently uneven development of certain functions significant for effective learning. The basic cognitive functions deficit during the pre-school period of development brings about various forms of school disadaptation, especially at an early stage of schooling. The children who have problems with reading need special support; therefore, timely identification of such schoolchildren will allow to assess their learn-

[1] The work is based on research materials carried out within the framework of RFBR No 17-06-00967 (2017—2019) «Psychological Health and Cognitive Activity of Junior Schoolchildren with Risk of Dysontogenesis in Modern Educational Environment».

ing potential and to design an individual trajectory of rehabilitation and development for each child.

Keywords: early child development; *inherited susceptibility;* risk factors; learning problems; reading problems; first graders; children's reading; reading skills; dysontogenesis.

About the author: Sokolova Ludmila Vladimirovna, Doctor of Biology, Professor.

Place of employment: Head of Department of Human Biology and Technical Systems of the Higher school of Natural Science and Technology, Northern (Arctic) Federal University named after M. V. Lomonosov, Arkhangelsk, Russia.

E-mail: sluida@yandex.ru.

About the author: Kazakova Elena Valer'evna, Candidate of Biology, Associate Professor.

Place of employment: Associate Professor of Department of Psychology of the Higher School of Psychology and Pedagogical Education, Northern (Arctic) Federal University named after M. V. Lomonosov, Arkhangelsk, Russia.

E-mail: kaz-elena10@yandex.ru.

About the author: Vasil'eva Natal'ya Valer'evna, Master's Degree Student.

Place of employment: Second Year Master's Degree Student of the Higher School of Social Sciences, Humanities and International Communication, Northern (Arctic) Federal University named after M. V. Lomonosov, Arkhangelsk, Russia.

E-mail: svetlaia5@yandex.ru.

Introduction

Modern scientific literature provides detailed description of the issue of challenges of child education. A wide range of problems of emergence of difficulties is analyzed, including those of the reading skill formation: from inherited susceptibility to social deprivation. The study of the child's cognitive development is traditionally carried out in the context of developmental risks. Nevertheless, the question about the causes and consequences of deviations still remains debatable. Many authors note the significant role of inherited factors and early development risks in the formation of the reading skill [2; 7; 13; 19; 22; 23; 24]. Thus, as far back as 1905, C. J. Thomas, observing several generations of one family, found 6 persons incapable of reading [3; 32]. The possibility of inher-

itance of reading disability is argued in the works by S. Stephenson, who posed a hypothesis about the responsibility of the recessive gene for the formation of ability to read on the basis of analysis of three generations of one family [31]. B. Hallgren studied 276 children with dyslexia and their relatives and found that 88% of the families had problems with reading. Having made up 106 genealogies, the author makes a supposition that the disorder is passed down in the autosomal dominant way with gender-modified degree of manifestation [20]. We can often observe preferential manifestation of specific reading disability in human males. Some authors note that the recessive gene, which is the main cause of inheritance of the given disorder in girls, does not fully explain inherited susceptibility to this disorder in boys [29]. The works analyzing genetic factors are also in the foreground of the modern investigations of the cognitive potential of man [3; 15; 17]. Nevertheless, inheritance of the reading ability does not exclude the impact of the environment on the development of the child's cognitive functions, and specifically on the development of the reading skill. The causes of disorders of functional systems regulating the process of reading may include pathology related to pregnancy and childbirth, chronic and long somatic illnesses, frequent infections in early childhood, head traumas, etc. [9; 15; 21]. Thus, it has been discovered that infectious diseases may become both decisive factors in the emergence of reading and writing disorders (in 9 children with dyslexia out of 91 persons tested) and additional causes of development of previous brain lesions (in 12% of cases) [21]. The reading disability may form as a result of impaired metabolism, which may be attributed to specific biological factors [25]. Successful development of the reading skill is said to be connected with the general development of the child [13]. Observing children with reading disorders, researchers report deviations in their personal traits [10; 11; 16; 30]. Such children are characterized by personal immaturity, inadequate social adaptation, and unstable impulsive behavior. They are inadequately focused, absent-minded, can hardly concentrate their attention, and try to avoid psychological effort and difficulties in any kind of activity [33].

The aim of the given research is to analyze the risk factors of the reading skill formation caused by inherited susceptibility and peculiarities of early development of first graders.

1. Research Methods

428 first graders of Arkhangelsk have been observed in the course of the experiment. A complex of various procedures has been used to study the risk factors of early

dysontogenesis, the peculiarities of the reading skill acquisition and its characteristics (table 1).

Table 1. Methods of research of risk factors of early dysontogenesis, acquisition of reading skills and the reading skill characteristics

Method	Characteristics
Detection of risk factors of early dysontogenesis	
Questionnaire "Characteristics of early child development"	Block 1 — peculiarities of the course of pregnancy and childbirth of the mother, presence of inherited risk factors, psycho-physiological development of the infant up to the age of 1 year
	Block 2 — morphofunctional and cognitive development of the child 1-3 years old
	Block 3 — morphofunctional and cognitive development of the child 3-6 years old
Detection of risk factors of acquisition of reading skills	
Questionnaire "Heredity and reading"	Problems with the reading skill formation in the family members; the nature of reading difficulties in the pupils under study
Questionnaire "Challenges of teaching reading"	
Study of the reading skill	
Questionnaire "Typical features of reading skills in schoolchildren"	Reading speed, reading errors, reading comprehension, skill dynamics

To conduct a comparative analysis, we have formed groups of first graders with different level of acquisition of the reading skill: 96 children with reading problems (Group 1) and 106 pupils with successful acquisition of the skill (Group 2).

The procession of empirical data involved both quantitative and qualitative analysis using a pack of computer programs SPSS Statistics 22.00 for Windows. The statistical procession of results included assessment of distribution of qualities with reference to normality using the Shapiro–Wilk test. The comparison of two independent samples with non-normal distribution presupposed the application of the nonparametric Mann–Whitney *U* test. The structure of relations between the variables under study was investigated with the help of correlation analysis involving calculation of the Spearman's rank correlation coefficient *r*.

2. Results and Discussion

Our analysis of the questionnaires "Heredity and reading" and "Challenges of teaching reading" aimed at detection of the possibility of inheritance of reading disorders in the pupils revealed 32.0 ± 4.03 % of families in which reading problems were discovered in representatives of the first and second generations. According to the parents under observation, some problems of teaching reading are similar to those of the children and are mostly brought about by poor visual memory, low concentration of attention and inadequacy of visual-spatial and phonetical-phonemic perception. But the question "What are the main causes of the reading problems in your child?" was more frequently answered in the following way: 10.0 ± 2.1 % of the respondents believe that the problems are caused by poor health; 10.0 ± 2.1 % – by the methods of teaching; 37.0 ± 3.38 % – by inadequate support on the part of the parents. The respondents look for the causes of reading problems in the conditions of the social environment, underestimating the biological factors. None of the parents has made any reference to their own difficulties with learning to read in their childhood and the chance of their inheritance. In its turn, the comparison of the results of questionnaires of families with "inherited susceptibility" and without it demonstrated significant differences in the presence of problems of the reading skill formation in the mother ($p = 0.0001$), father ($p = 0.0001$), and the other children in the family ($p = 0.007$).

Scientific treatises quite often corroborate the impact of environmental causes on the formation of intellectual abilities [4]. Thus, the parents' attitude towards education changes the variability of the reading ability indicators by 10% [17]. Inadequate social and pedagogical conditions of the child's development lead to the accumulation of the non-specific negative influence on the development of brain structures and, as a result, to the emergence of general underdevelopment of the system of higher psychological functions and the violation of the processes of formation of school skills and behavior [14]. Our research has found direct ties between the conditions of microsocial environment and the child's reading problems. The correlation analysis has demonstrated the following dependencies: mother's reading problems – child's reading problems: $r = 0.38$; father's reading problems – child's reading problems: $r = 0.37$; reading problems of the sisters or brothers – child's reading problems: $r = 0.38$; family traditions of reading – child's reading problems: $r = –0.22$; higher education of the parents – child's reading problems: $r = –0.27$ ($p < 0.05$) (Figure 1).

It has been found out that the parents and elder adult children of only 50% of the families are keen on reading and read to the younger children. Unfortunately, the tradition of family reading has been practically lost. Nevertheless, informal communication during the discussion of the books read may facilitate the formation of common interests, emotional unity and family comfort. According to I. A. Zetkina and E. A. Nikolaeva, such reading facilitates the formation of learning cognitive interests, raises the social status and enhances all-round development of the child's personality [6].

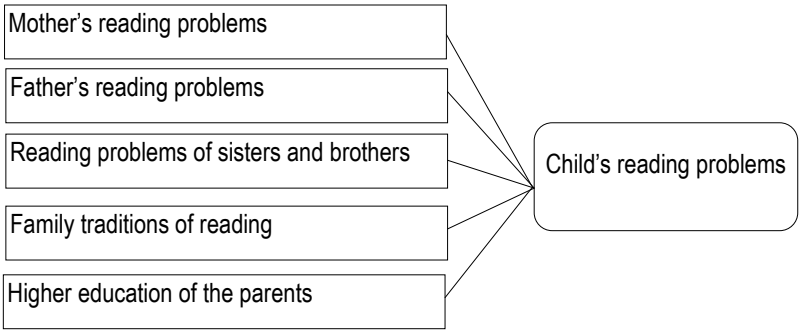


Figure 1. Correlation between the reading problems of the child and the microsocial environment factors.

Legend: thin line — significance at $p < 0.05$ (according to Spearman's rank correlation coefficient).

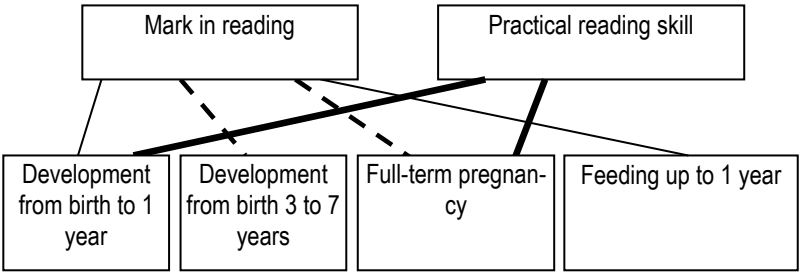


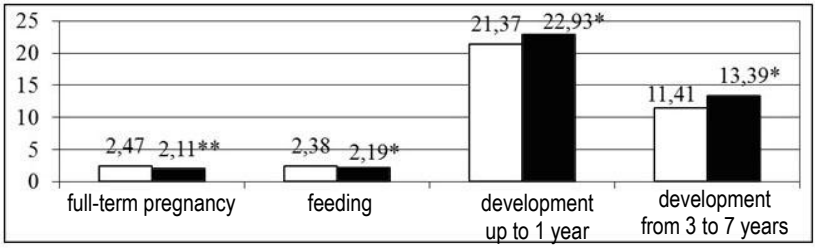
Figure 2. Correlation between the indicators of early ontogenesis and the reading skill development in the first graders under study

Legend: bold line – very close ties ($p < 0.001$), broken line – moderately close ties ($p < 0.01$), thin line – loose ties ($p < 0.05$).

The issue of delayed consequences of the impact of negative factors in early ontogenesis of children is gaining ever growing scientific and social interest. The results of correlation analysis corroborate the impact of unfavorable early development factors upon the individual reading characteristics of the first grade pupils under observation. We have discovered direct associations between the reading skill indicators and the peculiarities of early ontogenesis (Figure 2).

Full-term pregnancy and proper development of the infant from birth to 1 year have close ties with the quantitative characteristics of the skill – practical reading skill (speed and accuracy). We have discovered positive correlations between the indicators of early ontogenesis (the specificity of development up to 1 year and from 3 to 7 years of age, type of feeding up to 1 year and full-term pregnancy) and the mark in reading. Researchers have often noted that premature babies are characterized by immaturity of brain structures [27], sensory-motor underdevelopment [12], underdevelopment of speech [18] and visual-spatial perception [28], and poor reading comprehension in the pupil [13]. The children formula-fed from birth are distinguished by intellectual underdevelopment [5], less progress in speech formation during school years [8], and, in general, by cognitive development deficiency [26]. This testifies to the significance of the perinatal period of ontogenesis for the holistic development of the cognitive activity of the child, and specifically the process of reading.

The comparative analysis of the two groups of children differing in reading proficiency has revealed a number of significant differences (Figure 3).



□ poor readers; ■ good readers

Figure 3. Average values of early development score-based indicators of first graders with different level of development of the reading skill

Legend: ** — at $p < 0.01$, * — at $p < 0.05$ (according to the Mann–Whitney *U* test).

We have discovered significant differences in manifestation of the risk factors during the perinatal period of development – in Group 1, there were more premature babies: 40.4 ± 5.06 % in comparison to 24.0 ± 4.18 % in Group 2. The average score of Group 1 in this parameter was 2.1 ± 0.09 in comparison to 2.47 ± 0.08 of Group 2. The pupils of Group 2 have better scores for feeding during the first year of life: 2.38 ± 0.06 in contrast to the pupils of Group 1 – 2.19 ± 0.07 ($p = 0.05$). This fact suggests a greater number of formula-fed babies in Group 1: 18.1 ± 3.97 % in contrast to 7.6 ± 2.58 % in Group 2.

The comparison of development indicators of the children up to one year and from 3 to 7 years of age in the presence of risk factors revealed higher values in Group 1: the average score was 22.9 ± 0.57 and 13.39 ± 0.29 correspondingly in comparison to 21.3 ± 0.49 and 11.41 ± 0.22 in Group 2 ($p < 0.05$). It should be noted that in both groups, there was a large percentage of children with a high risk of developmental deviations during the first year of life: in Group 2 – 47.6 ± 4.90 %, in Group 1 – 48.9 ± 5.15 %. Nevertheless, at preschool ages (3-6), the number of such children in Group 2 radically decreases and makes up 22.3 ± 4.1 % in comparison to 42.6 ± 5.1 % in Group 1.

The period from birth to 3 years is marked in the ontogenesis of man as the most significant time for the development of neuropsychological functions. At this stage of the nervous system development, we observe intensive increase of brain mass and emergence and differentiation of interneuron ties. Active interaction between the child and the environment, which is more efficient only with the help of the adults, plays an important role in the formation of inter- and intramodal neuron ties. It is a period of "primary education", when "neural ensembles" as a basis for the formation of more complex and versatile kinds of cognitive education are formed [1]. The presence of the necessary and considerable environmental interventions and their timely inclusion favorably tell on the child's nervous system development, stimulate a certain function and thus facilitate successful adaptation to the ever changing requirements and conditions of the external environment. During the period of early childhood, from 1 to 3 years of age, the role of socio-psychological factors, and first and foremost situation in the family, radically increases. Neutralization of negatively affecting factors in the group of good readers might be attributed to the abovementioned arguments: favorable socio-psychological situation, loving and caring attitude of the parents and developing training facilitate the

formation of the child's psychological functions.

3. Conclusion

The results of our study agree with the supposition that both genetic and environmental causes may become risk factors of reading difficulties. The study of the specificity of early ontogenesis of the first graders under observation demonstrated their significance for successful formation and development of the reading skill. The works of specialists in various fields show that the beginning of schooling presenting new complicated requirements to the child's cognitive sphere may serve as an indicator of its inefficiency leading to various forms of school disadaptation. The cognitive functions basis deficit, developing during the first seven years of life, may turn out to be the cause of learning problems, especially at the initial stage of schooling. High frequency of "damaging" factors in the early ontogenesis of the children under study aged 7-8 years with problems of the reading skill formation causes saliently irregular development of the significant learning functions leading to certain manifestations of disadaptation. In view of what has been said, early assessment and analysis of the anamnestic data for timely diagnostics of the child's potential and design of rehabilitation-educational measures become especially urgent.

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Y. O. Filatova, C. V. Reymer
Moscow, Russia

OBJECTIVE CHARACTERISTICS OF THE VOICE OF PRIMARY SCHOOL CHILDREN WITH DYSARTHRIA

Abstract. The study is aimed at revealing objective voice characteristics of children with dysarthria using instrumental methods. The authors have examined 50 subjects aged 7 through 10 years with the diagnostic conclusion "GSU (general speech underdevelopment), speech development of level III" (GSU is caused by a spastic-paretic form of moderate dysarthria) and 20 subjects without speech disorders. The following voice function parameters of the children have been examined: fundamental tone frequency (FTF), voice power, maximum phonation time (MPT). A special speech visualization tool – the computer program PRAAT – was used for objective study of speech characteristics. The program allowed the experimenters to process oral speech, visualize speech signals, and perform speech segmentation. The experiment revealed the following objective indicators of voice disorders in primary school children with dysarthria: frequency range narrowed down towards low frequencies; difficulties in changing the voice power from quiet to loud and vice versa; reduced dynamic voice range; reduced phonic exhalation; difficulties in using intonation contours. Furthermore, the experimental study made it possible to discover connection between the low rates of the MPT and malformation of the pectoral-abdominal type of breathing. The data obtained demonstrate the necessity of purposive rehabilitation work in the system of logopedic support in order to overcome the revealed voice disorders of primary school children with dysarthria.

Keywords: dysarthria; junior schoolchildren; voice; acoustic parameters; objective research methods.

About the author: Filatova Yuliya Olegovna, Doctor of Pedagogy, Associate Professor.

Place of employment: Professor of Department of Logopedics, Institute of Childhood, Moscow State Pedagogical University, Moscow, Russia.

E-mail: yofilatova@yandex.ru.

About the author: Reymer Christina Vyacheslavovna, Post-graduate Student of Department of Logopedics, Institute of Childhood, Moscow State Pedagogical University, Moscow, Russia.

Place of employment: Logopedist, LLC "Med-Service".

E-mail: kristina_reimer@mail.ru.

Introduction

Children with various speech disorders often demonstrate voice disorders, which is reported by many scholars [1; 3; 13; 15; 16; 18; 19, etc.]. Thus, voice specificity in cases of rhinolalia is described in the works by T. N. Vorontsova, I. I. Ermakova, A. G. Ippolitova, etc. T. N. Vorontsova and I. I. Ermakova [5; 7] believe that open nasalization (nasal resonance producing a muffling effect on the voice) is the leading symptom of the given speech pathology. Cleft palate violates coordinated functioning of the resonators, and discoordinates the work of the system "pharynx – palate", which gradually brings about vocal cords asymmetry leading to reduction of voice intensity – it becomes unmodulated and monotonous. The pathological state of the vocal apparatus is aggravated as a result of physiological and phonic respiration degradation. According to A. G. Ippolitova [9], voice nasalization in cases of rhinolalia is caused not by the anatomic abnormality as such, but by such compensatory consequences as improper position of the tongue, impairment of coordination between all parts of the peripheral vocal apparatus, and impaired mobility of the soft palate.

It is well known that stuttering impairs voice. According to L. I. Belyakova and E. A. D'yakova [2], muscle spasms (or "stuttering moments" [20, p. 37]) affect the voice quality, intensity and dynamic range, modulation, and may bring about dysphonia.

On the basis of her observations, V. I. Filimonova [23] revealed the specificity of the vocal function in preschoolers with stuttering in the form of reduced voice intensity, muffled voice and hoarseness. In addition, the author noted monotonous intonation in the speech of such children.

Singular studies of the acoustic parameters of stuttering children of different ages using a speech visualization tool on the basis of information technologies demonstrated narrowing of the fundamental tone frequency (FTF) and its going down towards lower frequencies in comparison to the norm; problems with smooth reduction of the voice loudness; and discoordination between breathing and phonation [21; 22].

Dysarthria, and especially in the form of spastic paresis, is the most

widespread children's speech disorder [18]. The works of E. S. Almazova, L. V. Lopatina, E. M. Mastyukova, I. I. Panchenko, K. A. Semenova and other researchers report the presence of voice disorders in such children [1; 14; 15; 18; 19]. I. I. Panchenko referred shallow breathing, discoordination between breathing and phonation, voice weakness, its intensity exhaustion, absence of vocal modulations, and insignificance of sound pitch variability to the most typical voice disorders. The voice timbre of such children is defined as muffled, sometimes hoarse, monotonous, poorly modulated; the rhythmico-melodico-intonational aspect of speech, its intelligibility and articulacy are severely impaired.

On the basis of the study of voice impairments in children with latent dysarthria with the help of the programs of recognition and analysis of speech signal EDS, L. V. Lopatina [14] singled out in a number of children reduced, unstable, or, on the contrary, exceedingly high voice intensity; problems with keeping a certain pitch of the voice, and switching the FTF from low to high. The voice timbre of the majority of the children was aspirated, hoarse, muffled, nasal, guttural, suppressed, etc.

It is worthwhile to mention the study of M. V. Mokhotaeva [17], which was conducted with the help of the computer-assisted complex "Multi-speech" for investigation of acoustic parameters of the voice of junior schoolchildren with various forms of CP. The author argues that the voice quality of such children differs from the voice of the typical peers in the form of frequency and amplitude instability. Instability is associated with the unstable muscle tone, which does not allow the vocal cords to keep these parameters at a certain level.

Our analysis of the special literature shows that our home logopedics uses descriptive characteristics of voice impairments in children with various speech disorders, and practically lacks objective methods of voice indicators recording. Meanwhile, certain computer technologies have been worked out and are used in special pedagogy with diagnostic and rehabilitation-educational purposes [8; 14; 21; 22, etc.].

The computer-assisted system "Speech Viewer" based on graphic presentation of speech acoustic parameters is one of the results of such research activity. O. I. Kukushkina and T. K. Korolevskaya were among the first to explore the given information computer-based technology using it in their rehabilitation work with junior schoolchildren with auditory disorders [10; 11; 12, etc.].

At the contemporary stage of development of logopedics, the use of instrumental methods of investigation of voice characteristics in children with dysarthria would help

to objectively record such indicators as melodic and dynamic components, presence of breathing and phonation coordination, and smooth speech acquisition. In this connection, we have undertaken a research of acoustic speech parameters in children of the junior school age with dysarthria using objective methods.

Study Organization

Our research was carried out at the base of the Moscow State Budgetary Education Institution "School No 158", structural subdivision No 3 (boarding school for children with severe speech disorders); Rehabilitation-Educational Center No 76; and Scientific-Practical Center of Children's Psychoneurology.

The sample included 50 children aged 7-10 years with the diagnostic conclusion "General Speech Underdevelopment (Third Level of speech development) caused by spastic-paretic form of dysarthria of moderate severity" (*hereinafter*: EG – experimental group). According to the medico-psycho-pedagogical commission, all schoolchildren of the EG had safe hearing, vision and intellectual development corresponding to the norm. The control group (*hereinafter*: CG) included 20 children of the same age without deviations in psycho-speech development.

The study of the voice acoustic characteristics was done with the help of the speech visualization tool *PRAAT* [25], which allows the researcher to undertake analysis, synthesis and procession of oral speech, visualize speech signals, and segment the flow of speech. We have studied the objective indicators of such acoustic parameters as fundamental tone frequency (FTF), voice intensity and maximum phonation time (MPT).

The study of the FTF was divided into two stages. At Stage 1, we recorded the FTF of various echoed constructions. The child repeated after the experimenter the following verbal material:

1) pronunciation of an isolated vowel sound;
2) echoed reproduction of syllables including sounds contrasted on the principle of being voiceless/voiced;
3) echoed pronunciation of words of various syllabic structure;
4) pronunciation of an articulatorily simple phrase;
5) pronunciation of automated series;
6) pronunciation of various types of intonation contours;
7) reproduction of a phrase with logical stress on the model.

At Stage 2, the experimenter asked the child to name words with different syllabic structure at their visual presentation. The computer program recorded the individual indicators of the FTF.

The voice intensity observation was focused on measuring the following:

1) the child's habitual voice intensity;
2) the minimum indicators of the child's voice intensity;
3) the maximum indicators of the child's voice intensity;
4) the dynamic range of the voice.

The fundamental tone frequency (in Hz) and the voice intensity (in dB) were evaluated via analysis of individual spectrograms.

The maximum phonation time was measured with the help of a stopwatch with the child pronouncing the long sound "a". Apart from the observation of the length of phonation exhalation, we paid attention to the presence of additional air intakes.

In all tests, we evaluated the following:

1) instruction understanding;
2) performance quality;
3) degree of independence during task performance.

Observation was conducted with each child individually.

Results of investigation of acoustic characteristics of voice in children with dysarthria and in typical children

1. Melodic range of the voice

Research outcomes of the FTF in pronunciation of a sound, syllables, words with different syllabic structure and phrases by the EG children showed that the lower boundary of the FTF was within the range of 144-200 Hz, the upper boundary – within 328-456 Hz. We have figured out that the average indicator of this parameter equaled to 165-372 Hz. The outcomes of observation of the melodic range of the voice in CG revealed that the lower boundary was within 199-296 Hz, the upper one – within 431-690 Hz, the average indicator value was 235-518 Hz, which coincided with the data of well-known investigations [24]. Figures 1 and 2 contain oscillograms of speech audio recordings of the EG and CG children while reproducing a four-syllable word "*pugovitsa*".

Figures 1 and 2 show that the child with dysarthria used a comparatively narrow range of frequencies (99.5-201.3 Hz) in comparison to the child without speech disorders (168.7-290.6 Hz). We can also state the insignificant inclusion of high frequencies of the range by schoolchildren with dysarthria. In addition, the pronunciation of the word by a child with dysarthria was characterized by the presence of an extra pause within the word and, as a consequence, lack of smoothness or fluency ("*pugovi…tsa*").

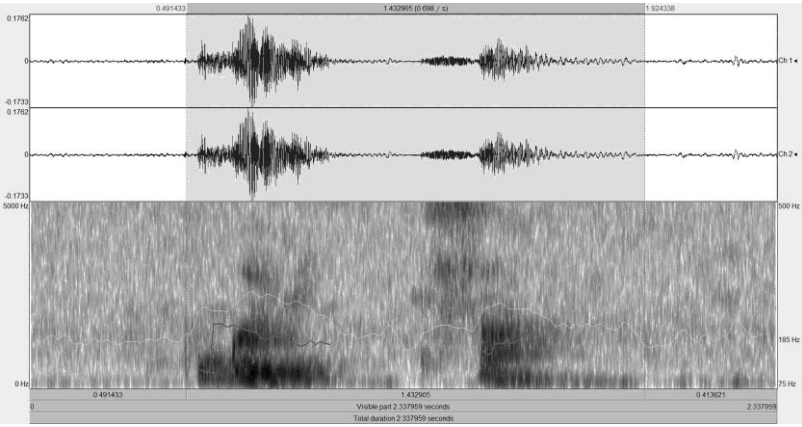

Figure 1. Oscillogram of pronunciation of the word "*pugovitsa*" by the EG children

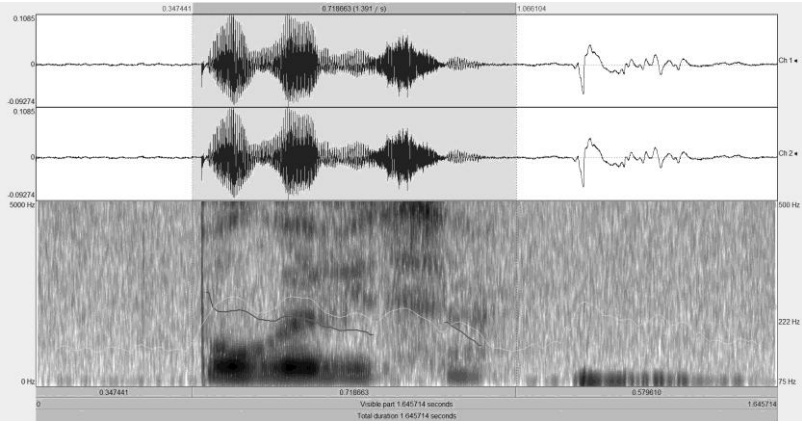

Figure 2. Oscillogram of pronunciation of the word "*pugovitsa*" by the CG children

The objective examples of the FTF parameters testify to the fact that the melodic range of the children with dysarthria was radically narrowed down compared to that of the junior schoolchildren without speech pathology. It was especially salient in reproduction of interrogative intonation, which is shown in Figures 3 and 4.

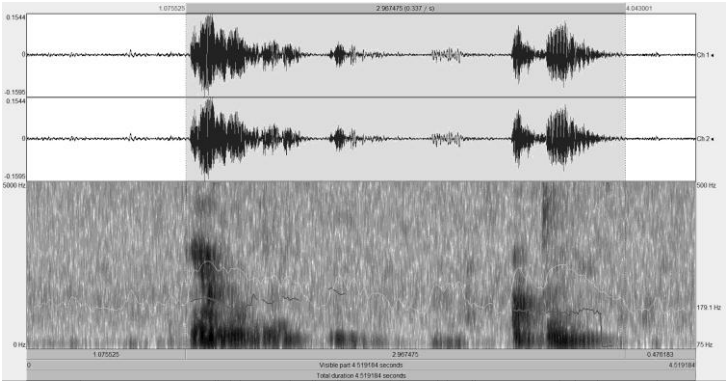

Figure 3. Oscillogram of pronunciation of a question by the EG children

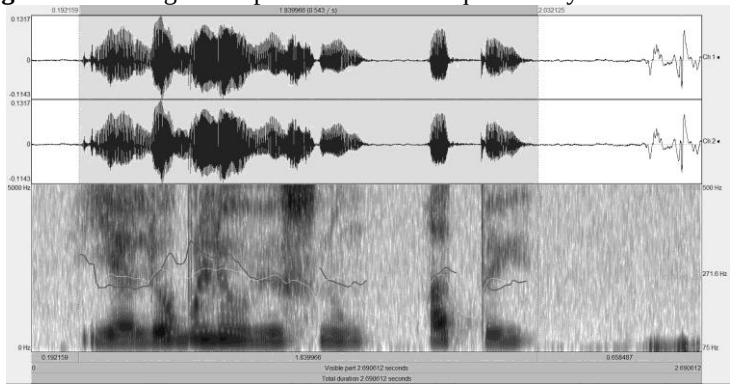

Figure 4. Oscillogram of pronunciation of a question by the CG children

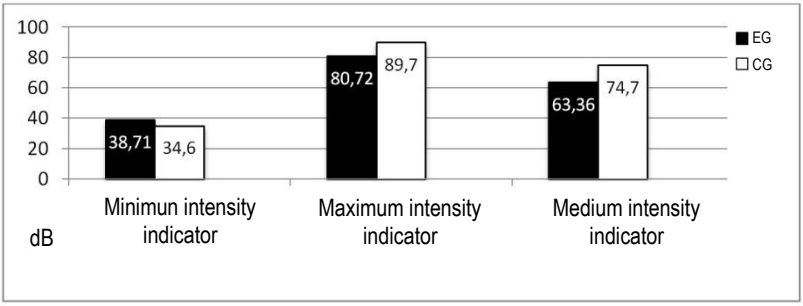

Figure 5. Average indicators of minimum, maximum and medium voice intensity

2. Voice intensity and dynamic range

The outcomes of objective research of the voice intensity in the EG have revealed that the minimum indicators fluctuated within the range of 31.2 through 46.6 dB; the maximum ones – within 68.6 and 88.3 dB. The range of average voice intensity indicator values was within 38.2 – 78.7 dB. In the CG, the lower boundary of voice intensity was 31.7- 38.1 dB, the upper boundary – within 86.9-92.7 dB, and the average indicator was within 70.3-79.1 dB. If we compare these outcomes with the results of the dynamic range analysis of the children without speech pathology, we can speak of reduced voice intensity indicators in the children with dysarthria, which is shown in Figure 5.

In voice modulations from quiet to loud, the majority of the EG children coped with the task; the dynamic range of their voices allowed them to change it within 39 dB, which was close to the norm. The observation results of this parameter in the children without speech disorders revealed the voice range not less than 50 dB both in cases of its increase and reduction. The transition from loud to quiet voice in the EG schoolchildren was impaired most dramatically: the difference between the lowest and the highest values was not more than 24 dB. To complete this task, the children needed repetition of the instruction and demonstration of the model; some children did not cope with the test.

3. Maximum phonation time

Observation of the maximum phonation time in the EG showed the indicator variability from 3 to 9 sec. In the CG, the length of phonation exhalation was 12-14 sec.

In the course of the experiment, fatigability of the children with dysarthria did not make it possible to carry out the whole test at one lesson. A proportion of the children could not understand the instruction at first presentation, they needed a second, and yet others a third one in order to understand it.

Discussion

Application of speech visualization tools on the basis of information technologies in the process of observation of oral speech of children with speech disorders allows the experimenters to obtain objective characteristics of breathing, voice parameters, articulation accuracy, etc.

The study of acoustic characteristics of the voice with the help of the speech visualization tool on the basis of information technologies *PRAAT* gave a chance to obtain objective data about the melodic and dynamic ranges, to reveal voice disorders in children with spastic-paretic form of dysarthria of moderate degree of severity in comparison with the norm.

It has been experimentally found that the frequency range of junior schoolchildren with dysarthria is narrowed down and reduced towards lower frequencies. Their dynamic range is also narrow; gradual reduction of voice intensity causes special problems. Significant reduction of the time indication value of maximum phonation has been experimentally revealed in such children in comparison to the norm. We believe that this is attributed to the immaturity of the abdominal breathing and prevalence of the pectoral breathing; shortened inhale and exhale phases. Weakness and instability of the breathing and articulation muscles tone and weakness of the diaphragm muscles are the main causes of a short phonation exhalation.

The objective data obtained in the course of our experiment about the impairments of the voice of junior schoolchildren with dysarthria testify to the complex organization of the pathological process involving not only the voice but also energetic basis of speech. They also demonstrate the necessity of purposive systematic work targeted at normalization of these indicators in the system of logopedic work with the children of the given category.

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E. A. Yarosh
Ekaterinburg, Russia
T. A. Korotkova
Revda, Russia

INCLUSIVE KINDERGARTEN DRAMA UNIT AS A MEANS OF ACTIVIZATION OF COMPENSATORY MECHANISMS IN CHILDREN WITH SEVERE SPEECH DISORDERS

Abstract. The article is devoted to the issue of creation of a complex of psycho-pedagogical conditions for the provision of inclusive educational space at a general-purpose preschool education institution. The solution of the problem of inadequate efficiency of logopedic rehabilitation measures which are limited, as a rule, to correction of external manifestations of speech disorders (pronunciation of sounds), becomes especially urgent in the context of reorganization of the structure of the system of preschool education and equipment of logopedic facilities in kindergartens. An inclusive kindergarten drama unit is one of the most efficient forms of work towards organization of inclusive educational space at an education institution. The given article contains a brief description of the work aimed at creation of an inclusive kindergarten drama unit in Revda, Sverdlovsk Oblast. A well-organized process of pre-school educational inclusion allows the educators to markedly reduce the number of junior school age children with severe speech disorders, and creates the conditions necessary for the prevention of written speech disorders and difficulties with school adaptation. The article materials have theoretical and practical significance for practicing specialists (teachers-logopedists, music teachers, pedagogues-psychologists, tutors, PT instructors, etc.) in terms of realization of the Federal State Educational Standard of preschool education.

Keywords: dysarthria; speech disorder; preschool logopedics; preschoolers; children with speech disorders; logopedic work; inclusive education; inclusive educational space; integrated logopedic intervention; inclusive kindergarten drama units.

About the author: Yarosh Elena Aleksandrovna, Candidate of Pedagogy.

Place of employment: Associate Professor of Department of Logopedics and Clinics of Dysontogenesis, Institute of Special Education, Ural State Pedagogical University, Ekaterinburg, Russia.

E-mail: yaroshea@mail.ru.

About the author: Korotkova Tat'yana Aleksandrovna, 1st Category Music Teacher.

Place of employment: Revda Municipal Public Preschool Education Institution "Kindergarten No 2" of Sverdlovsk Oblast.

E-mail: anytka46@yandex.ru.

The processes of reformation in the political, economic, cultural and social sphere in our country have stimulated activization of the measures aimed at reorganization of the educational system on the whole, including its initial level – preschool education. The modern educational space should create the conditions for maximum development of children taking into account their individually personal and psycho-physical developmental specificity. In view of this, the problem of inclusive education of preschoolers under the conditions of general-purpose preschool education institutions deserves special attention.

In accordance with the Federal State Educational Standards, inclusive education should focus on "the acquisition by the children with disabilities of the Program, and their all-round development taking into account their developmental and individual peculiarities and special educational needs and social adaptation" [10].

In order to organize inclusive education at a preschool education institution, it is necessary to ensure the special conditions: to create a developing educational environment, a proper psycho-pedagogical support for the children, and to guarantee the participation of qualified specialists (logopedists, defectologists, PT instructor, music teacher, psychologist, etc.) in the complex rehabilitation of the child with disabilities.

The problem of inclusive education of preschool children with severe speech disorders remains to be urgent and does not allow generalized interpretations in the modern socio-cultural situation, which is associated, on the one hand, with optimization of the network of preschool education institutions with the aim of creating additional places for children via refusal to create special (rehabilitation) groups for children with speech disorders, and, on the other hand, with realization of the necessity of optimal inclusion of the children with disabilities in the process of education. Preschool age is the best period for psycholog-

ical functions rehabilitation. That is why preschool inclusive education is the first important stage in the development of children and in rehabilitation of, and compensation for speech disorders. In this connection, the solution of the problem of creation of inclusive educational space in preschool education institutions becomes part of the professional activity of the specialists who take part in the organization of integrated educational environment.

In general-purpose preschool education institutions, a broader approach to inclusion is practiced, according to which the integrated educational environment, in which each child feels comfortable, includes all children, but not only those with severe speech disorders. Such inclusion is called upon to help each learner to reveal and develop their individual properties and to compensate for speech development disorders. It is this interpretation of inclusion that is the most productive under the conditions of the general-purpose kindergarten groups uniting children with speech disorders with their peers without such impairments.

Practical work and statistical research show that 20-40% of children of general-purpose groups in the city borough of Revda have speech disorders of various degrees of severity, and about 90% of them suffer from dysarthria of various degrees of severity. Dysarthria is a disorder of the articulatory aspect of speech caused by organic lesions of the central region of the verbal-motor analyzer and the consequent impairment of articulatory muscles innervations [7].

E. N. Vinarskaya, L. S. Volkova, E. F. Sobotovich and other specialists have investigated dysarthria manifestations. Dysarthria may involve sound articulation disorders (distortions, replacement of sounds, connected with deviations in the articulation motor skills development; mixing up acoustically similar phonemes associated with immaturity of the phonemic perception processes), phonation disorders, as well as speech tempo, rhythm and intonation impairments [2; 7; 12].

Depending on the lesion localization in the central or peripheral nervous system, on the time of defect onset and its degree of severity, disorders are manifested in various degrees and combinations. Articulation and phonation disorders leading to specific impairments of oral articulate speech constitute the primary defect, which may later cause the emergence of secondary disorders finally complicating the total structure of defect.

A deeper study shows that apart from speech defects proper, the children of the given category demonstrate impairments of the nonverbal functions preventing them from real communication both

with peers and adults in various communication situations. Alongside phonetico-phonemic problems, children with speech disorders often have violations of the emotional-volitional sphere manifested in emotional lability, reduced stress resistance, and fear of communication in an unfamiliar situation [6].

As long as these children attend general-purpose groups, it is naturally believed that they have been involved in the process of inclusive education. But this mechanical inclusion is not enough to achieve optimal results of speech disorders rehabilitation and compensatory reserves activization of this category of children. The work with each child should be purposive and facilitating their further self-realization. In this case, the search for more efficient forms of realization of the inclusive approach becomes especially urgent.

The following forms of activity with children can be used for the realization of the given approach in the light of the suggested interpretation of inclusion at a preschool education institution: integrated festivals, developing classes, game-based rehabilitation-educational exercises, communicative game-based situations of various kinds, an inclusive drama unit, etc.

A well-organized process of preschool educational inclusion allows the educators to markedly reduce the number of junior school age children with severe speech disorders, and creates the conditions necessary for the prevention of written speech disorders and difficulties with school adaptation. The experience of the city borough of Revda in the organization of inclusive education at preschool education institutions testifies to this fact.

The city borough of Revda is a center of a wide and effective project of festival movement for children with speech disorders and the specialists who organize support for this category of children named "Music. Speech. Movement". The festival movement was organized by the Department of socio-psychological practices and support of the Territorial psycho-medico-pedagogical commission of the municipal state institution "Center for Speech Development".

The **tasks** of the festival movement are:

– to facilitate the development of the process of social adaptation and creative self-realization of children with disabilities (speech development disorders) by means of music therapy, logorhythmics, kinesiotherapy, fairytale therapy, and rhythmic movement therapy under the conditions of inclusive educational space of a general-purpose preschool institution;

– to provide the children of the given category with a chance to realize their creative and intellectual potential;

– to attract the children with disa-

bilities to various arts with the purpose of social adaptation and integration in society;

– to involve the children with speech disorders in scenic arts facilitating the harmonious development of the personality;

– to reveal the most creative families and the pedagogues working with the children of the given category.

The festival participants are 5-7 year old children of senior and preparatory groups of the preschool education institution, parents (legal representatives), and specialists (teachers-logopedists, PT instructors, music teachers, caregivers). The festival is held on the base of preschool education institutions that have logopedic facilities in their structure.

An inclusive kindergarten drama unit is one of the areas of the festival activity. An inclusive kindergarten drama unit at a general-purpose preschool education institution is a comparatively new and progressive form of work towards organization of a comfortable inclusive educational space for all-round communicative, speech and emotional development of children facilitating activization of compensatory reserves of children with disabilities. The inclusive drama unit makes it possible to consolidate the efforts of all specialists (music teacher, teacher-logopedist, pedagogue-psychologist, PT instructor, caregiver), and in each inclusive performance, the nature of such interaction may be different depending on the goals and tasks set [1].

The inclusive drama unit also presupposes more effective cooperation with the parents. The parents take part in the dramatic performance as active participants. It is very useful for the children because it creates, on the one hand, an unusual new educational environment for activization of different communicative processes in the children (they learn to adapt to the changes of the communicative situation), and, on the other hand, the variable communicative situation due to the parents' participation becomes comfortable for the children and is no longer fearful to them, which stimulates increase of the verbal activity.

It is also interesting for the parents, because they can see their child in various communicative situations and get a really "active" piece of advice from the specialist how to behave themselves in a certain situation with the child, how to react to their speech errors without damaging the child's self-esteem. All this allows the parents not only to look at their child from a different angle but also to better understand their real achievements and results and to evaluate potential problems and, together with the specialists, to figure out the ways for overcoming them.

The Municipal preschool education institution “Kindergarten No 2” has interesting experience of creation of a children’s inclusive drams unit. The idea of realization of this form of activity emerged in connection with reorganization of the network of preschool institutions and creation of logopedic facilities at general-purpose preschool education institutions. The project devoted to realization of the ideas of inclusive theatre at this education institution has been in progress for 5 years.

The unique nature of theatrical activity consists in the fact that it integrates the person’s behavior, and, being properly organized, it can be targeted at the development of the reflexive type of behavior. In the process of cultural-historical development, theatre emerged as a social institute of reflexivity. Theatre facilitates the development of the processes of reflexivity of all members of the integrated group, providing deep foundations for their interaction. In theatrical activity, the solution of particular problems of development, correction of psychological and motor functions and speech development can take place in the process of solution of a more significant problem of working out a reflexive type of behavior in a child. This problem is urgent for any child [14].

Theatrical activity is rather useful for children with speech disorders. It helps them lift emotional tension and relax; it forms various communicative skills, raises self-esteem, allows them to form correct phonation in different communicative situations and to develop nonverbal means of communication (facial expressions, gestures, body movements, intonation, etc.).

The aim of realization of the given form of activity was to create an inclusive educational space for activization of compensatory reserves and rehabilitation of speech disorders in preschool children via their involvement in various communicative interactions within the children’s inclusive drama unit activity.

To reach this aim, the following **tasks** have been set:

– to study special theoretical and methodological literature on organization of interaction between specialists within the framework of the children’s inclusive theatre activity;

– to work out the content of complex interaction between specialists on overcoming verbal and nonverbal disorders in the children of the category under study under the conditions of inclusive educational space created with the help of children’s inclusive drama unit;

– to assess the effectiveness and to reveal the dynamics of verbal and nonverbal processes while using the children’s inclusive drama unit as a means of activization of compensa-

tory mechanisms in children with severe speech disorders.

The specialists worked along **the following lines**:

1) development of reflexive forms of behavior (acquisition of bodily-affective and emotional self-regulation);
2) development of various kinds of perception;
3) development of nonverbal forms of communication (movements, facial expressions, gestures, intonation, etc.);
4) reinforcement of correct pronunciation of sounds and usage of lexico-grammatical constructions in various communicative situations;
5) development of dialogic and monologic forms of speech;
6) development of assurance and active speech; formation of adequate self-esteem;
7) development of the skill to take active part in various communicative situations, to adapt to them using adequate situations and verbal and nonverbal means of communication and information translation;
8) development of the skill to interact with peers and adults;
9) development of creative abilities, and specifically in terms of verbal communication activating the processes of verbal creativity, word form derivation and word formation.

The above-mentioned lines of activity we realized stage-by-stage.

Stage 1 – preparatory, including the study of special literature on organization of inclusive theatre activity at a preschool education institution; preparatory talks with children, parents and specialists; organization of diagnostic tests of verbal and nonverbal functions in children with speech disorders.

Stage 2 – basic, presupposing integrated activity on the project realization by the specialists and the parents:

– *caregivers* (viewing children's performances, organization of a permanent information corner for the parents "Playing together with Children", "Young Actors"; holding plot-driven role games with children "We Go to the Theater", "We Are Actors"; equipment of a common room of various kinds of theatres and theatre property (finger theatre, shadow theatre, puppet theater, etc.) in the developing environment, inclusion of developing games on expression of emotions, development of facial expression, rhythmic movements, reading children's books, learning poems, funny verses, watching videos about the history of the theatre and theatrical costume in educational activity;

– *parents* (visiting the theatre together with the children, participation in the staging of a fairy tale; preparation of stage props, costumes; personal participation in performances);

– *teacher-logopedist* (breathing gymnastics, articulation gymnastics, finger gymnastics, gymnastics for development of fine and gross motor skills, staging poems, exercises aimed at development of speech intonation, correction of sound pronunciation, development of lexico-grammatical aspect of speech);

– *music teacher* (rehearsing holidays, performances, stage presentations, games with children aimed at development of movements, facial expressions, etc.);

– *pedagogue-psychologist* (developing exercises on rehabilitation of the emotional-volitional sphere, formation of adequate self-esteem, creation of the situation of success, etc.);

– *PT instructor* (development of general motor skills, movements, movement coordination).

Stage 3 – final, including control testing of verbal and nonverbal processes and a public performance.

Dramatization is well enough described by special psychologists, psychotherapists and defectologists as an effective means of rehabilitation of psycho-emotional, speech and motor disorders. The realization of the project "Children's Inclusive Theatre" allows achieving the following **results** designated by the requirements of the Federal State Educational Standard of preschool education in the development of preschool children:

– formation of a spiritually rich personality of the child;

– formation of creative potential, of the active, independent, emotionally open, and socially competent personality of the preschooler;

– formation of the skill to express one's own vision of the plot and the essence of the character (in movement while playing);

– formation of morally-communicative and volitional properties (communicability, politeness, kindness);

– development of initiative, wit, and independence;

– development of a spiritually rich personality of the child as an active participant of the project;

– development of the positive motivation towards participation in communication in various situations [10].

Thus, preparation and execution of joint participation of specialists and parents in the creation of the children's inclusive theatre at a general-purpose preschool education institution makes it possible to realize the inclusive approach in the form interesting both for the children and adults. This form allows the pedagogues to take into account age-related and personal peculiarities of the children, and to create a psychologically comfortable environment, in which each child has a chance both to overcome the existing issues in speech development and to realize the potential compensatory reserves.

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A. B. Pal'chik, V. V. Privorotskaya, A. E. Ponyatishin
St. Petersburg, Russia

NON-EPILEPTIC PAROXYSMAL EVENTS IN CHILDREN: STRUCTURE AND PHENOMENOLOGY. III. MASTURBATION

Abstract. The present research continues the description of non-epileptic paroxysmal events (NEPE) emerging in early childhood and confusing the parents, pedagogues and doctors due to their unusual manifestation. Masturbation has been studied for many centuries and has been subject to controversial interpretation in various religious confessions and medical, psychological and pedagogical schools. The authors have studied the incidence of complaints about NEPE at the specialized neurological department of the city children's hospital in 2016-2017. The state of 57 children (18.7 %) out of 500 toddlers hospitalized with various paroxysmal disorders of consciousness and movements was diagnosed as NEPE. The phenomenon of masturbation widespread in the general population was diagnosed in the hospital in only three children. Masturbation (or benign idiopathic infantile dyskinesia) had a specific clinical but uniform enough neurophysiological manifestation in the children under observation (domination of the theta rhythm with the amplitude of about 80 mV without zonal differences and epileptiform activity). The article discusses the question of semantic unity of conscious and subconscious masturbation and the expediency of using this term with reference to the children at an early age. The authors suggest using the term "benign idiopathic infantile dyskinesia" to denote the state under consideration for specifically psychological and social reasons.

Keywords: non-epileptic paroxysmal events; masturbation; motor acts; pediatrics; infantile dyskinesia; neuro-physiological disorders.

About the author: Pal'chik Aleksandr Beynusovich, Doctor of Medicine, Professor.

Place of employment: Department of Psychoneurology, Faculty of Post-Graduate and Supplementary Professional Education, St. Petersburg State Paediatric Medical University of the Ministry of Healthcare of Russia.

E-mail: xander57@mail.ru.

About the author: Privorotskaya Valeriya Valer'evna, Neurologist, Post-graduate Student.

Place of employment: Department of Psychoneurology, Faculty of Post-Graduate and Supplementary Professional Education, St. Petersburg State Paediatric Medical University of the Ministry of Healthcare of Russia.

E-mail: funnypost@list.ru.

About the author: Ponyatishin Andrey Evstakhievich, Candidate of Medicine, Associate Professor.

Place of employment: Department of Psychoneurology, Faculty of Post-Graduate and Supplementary Professional Education, St. Petersburg State Paediatric Medical University of the Ministry of Healthcare of Russia.

E-mail: aponyat@mail.ru.

A significant place among non-epileptic paroxysmal events is occupied by the phenomena that do not only have a narrow medical and pedagogical interest but have also acquired special historical and social significance over many centuries of observation. A certain part of them have been referred to as “bad habits” and behavioral deviations (this concerns, first of all, finger sucking and masturbation). The phenomenon of masturbation is characterized by a multitude of controversial interpretations. The term “masturbation” originates from the Latin words “manus” – *hand*, and “stupracio” – *desecration*.

Masturbation has been known from ancient times and has been given different descriptions and interpretations in fiction and in religious, anthropological and medical literature. Most religious denominations forbid masturbation.

In Judaism, it is a deadly sin, because, according to Torah, it is forbidden to discharge semen in vain. In Christianity, masturbation is also considered to be a sin, which has its origin in a Biblical story about Onan who was punished with death for “spilling his semen on the ground” (Genesis 38:9). The sinful nature of masturbation is reflected in the deuterocanonical books of the Old Testament (specifically, in the Wisdom of Solomon) and in the First Epistle of Paul the Apostle to the Corinthians (1 Cor. 6:9). In the Orthodox tradition, masturbation, or malakia, is referred to the “sins against oneself” equal to same-sex

sexual intercourse (unnatural fornication), which is most vividly shown in the writings of Saint Ignatius (Brianchaninov) and Saint Theophan the Recluse (Zatvornik). Masturbation (istimna) is also forbidden in Islam.

Nevertheless, in the Middle Ages and Renaissance, there was tolerable attitude to children's masturbation because it was believed that the child could not control himself.

Intolerance to masturbation got a new impulse in the 18th century, after the publication of the work by a Swiss doctor Samuel Auguste André David Tissot "Onanism", the author of which believed that loss of semen from the body in great amounts would cause migraine, seizures and brain tissue reduction. Numerous publications of this book formed "onanophobia" in European countries at that time.

In his lectures in the Collège de France in 1974-1975, one of the leading contemporary French philosophers Michel Foucault argued that in the late 18th – early 19th centuries, there formed the ideas about abnormal personalities: human monster, incorrigible individual and child-masturbator. The field of emergence of the child-masturbator is the family, and in a more narrow sense – the bed, the body, the family as witnesses and the doctor. Considered as universal, masturbation practice is closed, or hardly admitted, i.e. such a practice that is not spoken about. Masturbation is a common secret, shared by all but confessed by no one. "Practically no one knows about what is done by practically everyone" (M. Foucault, 2004 [4]).

E. Holt [*see*: 1] notes that the worst children's habits are finger sucking, nail biting, bedwetting and masturbation. Fight against masturbation has led to serious changes in the family and social everyday life: separate bed, special clothes and toys, diet, special furniture.

In the mid 19th century, some enterprises began to produce and sell remedies for masturbation (cornflakes, rectangular crackers). Bestsellers about terrible diseases in store for masturbators were published. The parents were advised to bandage the children's genitals, put them in cages, tie up their hands, and subject boys to circumcision without anesthesia. During this period, special anti-masturbation devices (bandages) were invented and produced. Intensive exercise, sleep on a hard wooden bed and diet (little meat and a lot of cereal) were suggested as preventive measures [2].

As different from foreign doctors, Russian specialists displayed a tolerable attitude towards children's masturbation, called it a "baby sin" and believed that only in adults it could be looked upon as disorder.

A. K. Leung and W. Robson, in their co-authored work (1993) expressed an opinion that masturba-

tion is registered in almost 90-94% of boys and 50-60% of girls. True revealability of this phenomenon is not clear because it is not identified by family members and caregivers when the actions are not connected with genitals, which happens not infrequently [7; 6; 1].

Home video recording is necessary in order to prove the presence of masturbation. 31 cases of masturbation (11 boys and 20 girls) were registered and detailed on the basis of the data obtained in a Glasgow outpatient clinic in the period from 1972 to 2002 [8]. The usual sources of information about masturbation include differential diagnostics of paroxysmal events in children allowing specialists to single out a group of children with this phenomenon on the basis of complex examination. Such cases were described by a team of researchers including M. L. Yang in 2005; according to this publication [10], 12 girls with masturbation, examined in connection with unusual dystonic attacks were revealed in several children's hospitals of various states of the USA.

The onset of masturbation falls on a broad age-range from 3 months to 5.5 years. The average onset age of masturbation is 12.5 months. The time of diagnosing this phenomenon as masturbation varies from 5 months to 8 years (on average about 2 years). On average, masturbation episodes take place daily (varying from once a week to 12 times a day) and last from 30 seconds to 2 hours (on average 2.5 minutes). The situation and the baby's position in which masturbation begins may vary, but in 11 children, this disorder was revealed when they were in a special child car seat. Masturbation was also registered during sleep, in walkers, in a high chair, while lying on the floor, changing diapers, and defecation. In some cases masturbation began when the children were tired. Masturbation episodes are stereotypical in character, but vary in length. They are usually accompanied by quiet mooing vocalizations, reddening and sweating of the face, tension of the perineal group of muscles with a typical position of the lower limbs, turning, sculpture postures, and are characterized by preservation of consciousness and end in relaxation. In some situations, masturbation leads to the baby's exhaustion and fatigue, sometimes it makes him sleepy. There descriptions of episodes with cyanosis, paleness, steadfast gaze, trembling, giggling, and fright. Physical examination and laboratory tests reveal no deviations in such babies [8; 10].

In its marked form, from an evolutionary event, masturbation turns into a pathological phenomenon and may cause lengthy excitation, behavioral disorders, impairment of interfamily relations, relationships

with the peers and formation of self-consciousness, and development of sexual perversions. This approach dominates among psychologists, sexologists and psychotherapists.

At present, specialists distinguish masturbation as conscious self-stimulation and infantile masturbation, the onset age of which can hardly allow regarding it as "a conscious act", and which is denoted in the English language literature as *gratification* (the state of being pleased or satisfied). Gratification consists in reiterating rhythmic movements of the limbs, especially hip adduction, accompanied by additional removed movements or change of facial expression [9]. The given form of masturbation can disguise abdominal pains, paroxysmal dystonia or dyskinesia. It is especially difficult to differentiate this kind of state in cases when the genitals are not touched. In English speaking countries, the parents prefer the term and diagnosis of "gratification" or "benign idiopathic infantile dyskinesia" to "masturbation" due to salient social and psychological reasons [ibid.].

The aim of our research is to determine the role of masturbation in the structure of non-epileptic paroxysmal events in children under the conditions of a specialized hospital.

Materials and Methods

Over the period from January 1, 2016 to December 31, 2017, 500 children up to 3 years of age were admitted to the neurological department of the City Children's Hospital of Saint Olga (Saint Petersburg) with paroxysmal consciousness and movement disorders. All children were tested with the help of generally accepted schemes of somatic, neurological, and ultrasonographic examination. Electroencephalography was carried out on "Mitsar-EEG-201" according to the standard procedure during wakefulness using age-related functional tests. Video EEG was carried out on "Mitsar-EEG-201" in the functional diagnostics room, and on the base of Dr. Berezin's Diagnostic and Treatment Center *International Institute of Biological Systems*.

Results

On the basis of our observation, the disorder was diagnosed as epilepsy, epileptic encephalopathy, or singular epileptic attack that took place for the first time in the child's life in 302 children. In 198 children no data corroborating epilepsy were found at the time of examination. This number included children with non-epileptic paroxysmal events (NEPE), neurotic disorders (tic hyperkinesias), situationally bound paroxysmal events, as well as manifestations of perinatal hypoxic ischemic brain lesions in the form of pathologic paroxysmal movements and torso dystonias. From among all cases, we have singled out 56 children satisfying the NEPE

criteria. The general information about the children under examination is presented in Table 1.

The structure of the diagnosed NEPE is presented in Table 2.

Table 1. Characteristics of children with NEPE

Parameter		M ($X_{min.}$ — $X_{max.}$)
Sex	boys	25.0
	girls	31.0
Gestational age, months		38.7 (29—42)
Postnatal age, months		8.6 (1—36)
Optimality of the course of pregnancy, %		83.1 (70—94)
Optimality of the course of birth, %		81.9 (61—100)
The Apgar score 1’		7.25 (1—9)
.....5’		8.1 (4—9)

Table 2. Character of paroxysmal consciousness and movement disorders in children under observation

Character of paroxysmal disorders	n	Percentage, %
NEPE differentiated into:	34	60.7
– breath-holding spells	6	10.7
– Fejerman syndrome	6	10.7
– benign paroxysmal eye phenomena	5	8.9
– benign paroxysmal torticollis (retrocollis)	5	8.9
– benign nocturnal alternating hemiplegia	1	1.7
– mild hyperekplexia	2	3.5
– **masturbation**	**3**	**5.3**
– benign sleep myoclonus	1	1.7
– spasmus nutans	1	1.7
– sleep apnea	1	1.7
– paroxysmal dystonia attacks of the body	1	1.7
– startle response	1	1.7
– oral automatisms	1	1.7
Undifferentiated NEPE	22	39.2

The research results showed that 23.2% of children with paroxysmal disorders typified as NEPE did not have neurological deviations; the other infants demonstrated various causal deviations of the neurological status; 14.3% of children had multiple deviations. Neurovisualization showed normal brain structure in the majority of children (55.4 %);

mild brain ventricular expansion was predominant among the deviations observed (21.4 %).

Neurophysiological examination revealed normal indicators of routine EEG and/or video-EEG monitoring in 54 cases (96.4 %); two children showed delay of bioelectrical activity formation.

In the structure of NEPE, masturbation (benign idiopathic infantile dyskinesia) was diagnosed in 3 children (5.3%).

The clinical features of the course of benign idiopathic infantile dyskinesia are given in Table 3.

Table 3. Characteristics of the course of benign idiopathic infantile dyskinesia in children under observation

Parameters	Boy E. (3 months old)	Girl K (2.5 years old)	Boy M (2.5 years old)
The Apgar score, points 1' 5'	 7 9	 8 9	 8 8
Manifestation	Paroxysms in the form of forced inhalation with a short breath-hold and tonic tension of the limbs without losing consciousness, duration up to several seconds, up to 10 times a day	Tonic tension of the hip and abdominal muscles with a fixed gaze without losing consciousness, duration up to 10-15 seconds	Tonic tension of the lower limbs lasting up to 20 seconds, in series up to 1.5 hours twice a day before sleep, accompanied by marked sweating of the scalp
Development	In accordance with age	Psycho-motor underdevelopment	In accordance with age
Accompanying diseases	None	Epilepsy	None
Neurovisualization	Neurosonography: normal	Magnetic resonance imaging of the brain: without pathology	CT scan of the brain: retrocerebellar cyst (clinically insignificant)
EEG, video EEG	Theta rhythm with the frequency of 3-4 Hz and amplitude up to 80 mV is registered on the EEG. Zonal differences are preserved. Pathological activity is not registered.	Dominant theta rhythm with the frequency up to 5 Hz and amplitude of 70-80 mV is combined with runs of high amplitude delta waves registered on front leads. Zonal differences are preserved. Occipital gradient is poorly expressed. Epileptiform activity is not registered.	Video EEG monitoring with paroxysmal events recording: theta rhythm with the frequency of 5-6 Hz combined with runs of high amplitude delta-like activity in posterior brain is recorded on the EEG. Zonal differences are preserved.

Parameters	Boy E. (3 months old)	Girl K (2.5 years old)	Boy M (2.5 years old)
			Occipital gradient is expressed. Epileptiform activity is not registered. **Note:** During recording, the child demonstrated regular paroxysms (crossing hips and raising legs accompanied by abdominal muscles tension and sweating) without accompanying pathological electrographic pattern.
Therapy	Elcar	Depakine, Keppra	Phenybutum

It is seen from the table that masturbation in children under observation had various manifestations on a similar neurophysiological background.

Conclusion

The phenomenon under consideration has a dramatic history of research. Being a widespread disorder (according to Doctor Oscar Berger, 99% of men and women masturbate, the remaining 1% conceal the truth [*see*: 1]), this phenomenon is still characterized by controversial interpretations. It is not conceptually clear whether conscious masturbation of senior children and adults and unconscious masturbation of infants are one and the same phenomenon. In this connection, and for ethical and psychological considerations, it is more correct to use the term "benign idiopathic infantile dyskinesia", as long as there is no Russian term analogous to "gratification" in English.

It should be noted that it is difficult to determine the true incidence of benign idiopathic infantile dyskinesia because it is not always revealed and/or reported by the parents and the medical and pedagogical staff.

It is worthwhile mentioning the opinion of M. Foucault (2004) [4] once again that masturbation is a common secret shared by all. In the present research held under the conditions of a specialized hospital, it totaled to 5.3% of NEPE and to 0.6% of all paroxysmal disorders of consciousness and movements. Nevertheless, the words of Sigmund Freud (1915) are still urgent: "We are unanimous in the opinion that the theme of onanism is absolutely inexhaustible" [*as cited in*: 3].

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E. N. Soroko
Minsk, Republic of Belarus

MODERN APPROACHES TO TEACHING COMMUNICATION SKILLS TO CHILDREN WITH SPECIAL PSYCHOPHYSICAL DEVELOPMENT AND VERBAL COMMUNICATION DISORDERS

Abstract. Most children with special psychophysical development are characterized by a significant underdevelopment of speech or its complete absence. This leads to difficulties in communication, the presence of undifferentiated and socially unacceptable communicative signals, interpretation of which is possible in specific situations and only if closely observed by the surrounding people. As a result, social adaptation and integration of children into society of typically developing people becomes more difficult, and the quality of life of these children deteriorates. Globally, supportive and alternative communication is widely used with reference to children with special psychophysical development and verbal communication disorders. Consequently, acquisition of knowledge and skills in the field of teaching augmentative and alternative communication skills should become one of the constituents of the professional competence of a modern teacher-defectologist. The article deals with the problem of teaching communication skills to children with special psychophysical development and verbal communication disorders, in particular children with severe and/or multiple developmental disorders. The article defines the importance of supportive and alternative communication as a means of improving the quality of life of children with severe and/or multiple developmental disorders. The article describes the approaches to diagnosing the level of development of communicative behavior of children. It presents the requirements to the design of an individual program of teaching supportive and alternative communication. The article describes the principles of formulating the topics of the classes (lessons) devoted to teaching supportive and alternative communication. The author describes the approximate structure of combined lessons of

teaching communication to children with severe and/or multiple developmental disorders.

Keywords: supportive communication; alternative communication; children with impairment of psychophysical development; children's communication; children's speech; speech development; non-verbal communication; means of non-verbal communication.

About the author: Soroko Ekaterina Nikolaevna, Candidate of Pedagogy, Associate Professor.

Place of employment: Head of Department of Rehabilitation Technologies and Development, Institute of Inclusive Education, Maxim Tank Belarusian State Pedagogical University.

E-mail: prokopik_e@mail.ru.

Introduction. According to statistical data, the number of children with special psychophysical development, and specifically with severe and/or multiple developmental disorders has been rapidly growing over recent years both in Belarus and in other countries.

The majority of such children demonstrate significant impairments of the verbal communication skills. Their communicative signals are hard to interpret and quite often socially unacceptable. Suffering from lack of understanding and being constantly rejected by the surrounding people, such children become unpredictable, unbalanced, whimsical, aggressive, and socially and psychologically lonely. In most cases, social contacts with children with severe and/or multiple developmental disorders are limited to satisfaction of their vitally important needs: the child is fed, given water to drink, has their clothes changed, is taken for a walk, helped to change the position of the body, perform hygiene procedures, etc. As a consequence, the surrounding people deprive such children of an opportunity to make even the slightest choice, infringe on their rights to express their needs, physical and psychological state, etc. [7; 9; 11; 14].

Practical experience and analysis of psycho-pedagogical research show that the traditional methods of speech and communication skills formation used in rehabilitation work for concrete nosology are not effective enough with reference to the majority of children with severe and/or multiple developmental disorders [7; 9; 11; 13; 14]. In this connection, the search for new ways in the sphere of education of the children with various combinations of developmental disorders and provision of an accessible system of communication becomes especially urgent.

Research. In 2016, the Republic of Belarus ratified the UN Convention on the Rights of Persons with Disabilities adopted by the UN General Assembly Resolution 61/106 on 13 December 2006 (*hereinafter*: the Convention) [4]. In accordance with the National Plan of action on the realization of the Convention provisions for 2017-2025, our country is to realize its prescriptions by taking corresponding measures [8].

Under Article 21 of the Convention "Freedom of expression and opinion, and access to information" the states parties are to accept and facilitate "the use of sign languages, Braille, augmentative and alternative communication, and all other accessible means, modes and formats of communication of their choice by persons with disabilities in official interactions". In accordance with Article 24 "Education", the states parties "shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community". "To this end, the States Parties shall take appropriate measures, including … facilitating the learning of Braille, alternative script, augmentative and alternative modes, means and formats of communication and orientation and mobility skills, and facilitating peer support and mentoring" [4].

Globally, methods and technologies of teaching augmentative and alternative communication are widely used with reference to children with severe and/or multiple developmental disorders with the purpose of improving the quality of their life and creating the conditions for proper interaction with the surrounding people in accordance with their abilities [10; 13].

Analysis of home and foreign research shows the diversity of interpretations of the notion "augmentative and alternative communication".

The American Speech–Language–Hearing Association (ASHA) defines augmentative and alternative communication as "the sphere of research in clinical and educational practice including attempts to teach and (if necessary) to compensate for temporal or permanent limitations of life activity of persons with severe impairments of expressive and/or impressive speech" [3].

According to the German pedagogue S. Rabe, augmentative and alternative communications are different kinds of pedagogical and therapeutic assistance provided for persons with absence or serious impairments of oral speech with the purpose of optimization of their communicative abilities [6].

Psycho-pedagogical literature contains other definitions of the term "augmentative and alternative communication":

– a communication method other than speech;
– a group of procedures and processes ensuring effective communication;
– a number of tools and strategies application of which resolves everyday communication problems;
– a communication method complementing the traditional methods of teaching oral and written speech in case of their impairment;
– support for or substitution of oral and/or written speech;
– methods of communication serving as an addition or alternative to oral speech and including gestures, picture communication symbols, alphabet, and computers with speech synthesizers [3; 13].

According to L. S. Vygotskiy's theory of cultural-historical development of personality, augmentative and alternative communication is a specially created cultural auxiliary system facilitating normalization of communication of the so-called "persons without language" [1].

Thus, analysis of various interpretations of the notion shows that the non-verbal character, provision of speech support or alternative, and improvement of communication effectiveness are the common and significant features essential for the definition of augmentative and alternative communication.

It is necessary to differentiate the notions "augmentative communication" and "alternative communication". Thus, augmentative communication is needed by persons with severe and/or multiple developmental disorders who demonstrate oral speech underdevelopment. As a result of this, they need the corresponding additional support in oral communication. Alternative communication is resorted to when the person is absolutely unable to communicate with the help of oral speech. In this case, it is necessary to teach the person to use a completely different system of communication [6].

Teaching augmentative and alternative communication presupposes the use of a wide range of non-verbal means.

In her writings, T. V. Gorudko classifies the means of augmentative and alternative communication, dividing them into technical and non-technical devices.

According to T. V. Gorudko, non-technical devices comprise object- and picture-based calendars, communicative maps, boards, tables, books and eye-gaze frames to indicate choices, which support expressive communication of the children with the help of tactile and graphical symbols.

Technical communication devices have oral or written information output. The author refers here devices for playback of separate utterances, devices for playback of several utterances, devices with dynamic display, devices for order-

ing images, and devices for converting written speech to oral one [2; 3].

K. M. Stas'ko reports that the augmentative and alternative communication means may be represented by two groups: low-tech devices (communicative books, maps, cards, passports, visual timetable, E-Tran frames), and high-tech devices (computers and tablets with special software installed, glance operated devices (EyeGaze systems), VOCAs devices with different sets of words) [3].

We believe that the augmentative and alternative communication means may be provisionally divided into two groups. The first group is made up of non-verbal means typical of any person: vegetative base responses (perspiration, salivation, skin redness, blue nails, tears, etc.), facial expressions, body movements and gestures, look. The second group includes auxiliary means of communication: tactile symbols (real objects, their parts, miniature copies, etc.), graphic symbols (photos, pictograms, picture communication symbols, bliss-symbols, loeb-symbols, rebus-symbols, etc.), and technical devices ("buttons", "talking" photo albums, "Super Talkers", "Go Talk", tablets adapted for communication, etc.) [11; 12].

Practical pedagogical work and scientific research outcomes show that it is possible to single out three groups of augmentative and alternative communication users.

The first group comprises people who understand speech addressed to them, but due to certain limitations cannot use oral speech as a means of communication. For example, here belong persons with the locomotion functions disorders, who can pronounce only separate sounds as a result of articulation and facial muscles innervation impairment. In this case, non-verbal means of communication serve as alternative expressive means.

The second group is composed of persons who understand speech addressed to them, more often in a contextual situation, but their own oral speech is comprehensible only with the help of additional means, such as gestures or graphic images. In this case, non-verbal means of communication function as support for both impressive and expressive speech.

Persons incapable of using oral speech as a means of communication make up the third group. This group more often includes children with severe and/or multiple developmental disorders. For them, non-verbal means of communication serve as an alternative to both expressive and impressive speech [3; 6].

It should be noted that people with one and the same nosology may be included in any of the three groups. This fact testifies to the necessity to realize individual differential approach to teaching aug-

mentative and alternative communication.

Selection of the means of augmentative or alternative communication adequate to the child with severe and/or multiple developmental disorders' needs and abilities, as well as the strategies and tactics of teaching depends on the quality of the psycho-pedagogical examination of the level of development of the communicative behavior of the child.

Two approaches to the organization of testing of the level of development of the communicative behavior of children with verbal communication skill impairments are singled out.

The ontogenetic approach is aimed at the study and assessment of the child's communicative skills at certain stages of speech development in accordance with the children's speech ontogenesis, acquisition of communication forms, etc.

The environmental approach focuses on the study of the child's social interaction and the nature of their functioning in the environment. Assessment of the level of development of the communicative behavior in accordance with this approach presupposes the study of environments and sub-environments of the child's life activity and constitutes the following sequence of actions:

– meetings of the team of specialists and the child's legal representatives during which they discuss the anamnestic data and the experience of the child's interaction with close people, peers, etc.;

– study of the child's behavior in the typical environments and sub-environments (flat, playground, etc.);

– analysis of the child's actions performed in the typical environments and sub-environments;

– distribution of actions by their significance (hierarchy from more significant to less significant ones);

– determination of the potential environments and sub-environments;

– composition of a "communicative portrait" of the child;

– planning work (design of an individual learning program) towards the child's preparation for maximum independence in everyday life, including communicative interaction (choice of a communicative partner and assistant, selection of the means of augmentative or alternative communication, fixing the time and place of the initial stage of teaching communication, design of individual communicative supports, etc.) [3].

Planning work on teaching children with severe and/or multiple developmental disorders augmentative and alternative communication is a long enough and tedious process characterized by the following distinctive features.

Firstly, the individual program of teaching augmentative and alter-

native communication is made up and realized by all subjects of the psycho-pedagogical support functioning as acting and potential communication partners.

Secondly, the communicative needs of the user of augmentative and alternative communication may change, their social contacts may widen, and new topics and situations of dialogic interaction may spring up in the course of training. In this connection, the goal, tasks and content of work will be made more concrete and adjusted. That is why planning work on teaching augmentative and alternative communication should be short-term (for about 3 months).

Thirdly, realization of the individual program of teaching augmentative and alternative communication does not presuppose strict regulation in formulation and study of topics.

Teaching augmentative and alternative communication to preschool children with severe and/or multiple developmental disorders is carried out in the form of a group session, and to schoolchildren – in the form of a lesson. If a child with verbal communication skills impairment goes to a mainstream school (a group of integrated learning and upbringing, or an inclusive group) teaching communication should be realized at rehabilitation lessons, and reinforcement – in the process of performance of everyday routine procedures.

Various formulations of the topic of the session (lesson) on teaching augmentative and alternative communication are possible. Let us give some examples.

Variant 1. The topic "Fruit". In the course of the session (lesson) the teacher-defectologist should figure out such activity content that would allow solving the communication problems, but not the problems of actualization of the children's knowledge about various fruits, their form, color, etc.

Variant 2. The topic "Walk". At the given session (lesson), the teacher develops and reinforces the skills to conduct and carry on dialogue, and to use certain communicative habits and skills in the process of interaction with the pedagogue and other children during a walk.

Variant 3. The topic "Picture-Symbol 'I am hungry'". In this case, a non-verbal means of communication is chosen as the topic of the session (lesson). In the course of the session (lesson), a new symbol is introduced; in this case it is "I am hungry". The vocabulary of images is thus expanded.

Variant 4. The topic "Request". The topic formulation presupposes the formation or reinforcement of a certain communicative function, which determines the practical orientation of the session (lesson).

Variant 5. The topic “Gesture ‘Constructor’. Choice”. In the course of the session (lesson) the teacher-defectologist realizes the activity content aimed at reinforcement of a concrete means of communication in the child’s “vocabulary” and formation or perfection of the skill to interact with the surrounding people, and specifically to choose the needed thing [3].

Depending on what topic formulation principle is used by the pedagogue, what problems they are going to solve at the session (lesson), it is possible to single out the following forms of organization of teaching augmentative and alternative communication to children with severe and/or multiple developmental disorders: diagnostic session (lesson), session (lesson) – acquaintance with communication means, session (lesson) – training, session (lesson) – dialogue, combined session (lesson).

The scheme suggested by T. V. Lisovskaya [5; 7] is used in Belarus to work out the structure and the content of combined sessions (lessons) of teaching augmentative and alternative communication to children with severe and/or multiple developmental disorders. Here is a modified variant of the session (lesson) scheme.

Stage 1 “Greeting”.

Aims:

– formation of the skill to greet other people with the help of non-verbal means;

– formation of the skill to establish positive interaction.

Stage 2 “Imitation”.

Aim: formation of the skill to perform actions imitating the actions of an adult.

Stage 3 “Formation”.

Aim: presentation of the non-verbal means of communication.

Stage 4 “We communicate”.

Aims:

– formation of the skill to comprehend non-verbal messages of the surrounding people;

– formation of the skill to express one’s wishes with the help of non-verbal means of communication.

Stage 5 “Leave-taking”.

Aim: formation of the skill to say good bye with the help of non-verbal means.

Conclusion. Thus, in order to prepare children with special psycho-physical development and disorders of verbal communication skills, including children with severe and/or multiple developmental disorders, for life with maximum independence, and to create the conditions for realization of their rights to information access and expression of their needs, wishes and thoughts, it is necessary to create the conditions for their acquisition of an accessible system of communication. For the majority of such children, augmentative and alternative communication is the basic, and often the only form of communication possible.

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APPENDIX

Submission Guidelines for Prospective Authors

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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.

All submitted articles are tested by the "Antiplagiat" system. If the text of the article violates the norms of originality and contains borrowed ideas without reference to the source of citation the article shall be rejected in accordance with the norms of the scientific community.

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**.**
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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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Separate files should be created for pictures (black-and-white, no halftones): in vector formats - AI, CDR, WMF, EMF; in raster formats - TIFF, JPG with the resolution not less than 300 dpi in true size; diagrams from the programs MS Excel, MS Visio and so on are to be submitted together with the original file, containing the data. If pictures in raster formats contain text they should be submitted in separate MS Word file for purposes of text editing.

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