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Written Speech Differential Diagnostics of Primary School Children With Speech Deviance

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Abstract

Modern logopaedic examination schemes do not sufficiently reveal the psychological and pedagogical status of primary school children with speech disorder to work out an individual correction route. The question of children condition with writing disorder of psychological level of its organization is not fully studied. The topical question in logopaedics is still the development of a written speech survey, considering the neuropsychological approach. We have modified the traditional logopaedic diagnostics using variants of examination schemes and didactic material from well-known techniques. Diagnostic examination is divided into three stages: preparation, the basis and data analysis. The main stage included three blocks: the examination of sensorimotor, cognitive development and emotional-volitional sphere, the development of oral and written speech. The results of the diagnostics showed that the indicators of emotional-volitional sphere are lower in children of the experimental group than in children of the comparative group. Correction of activity (motive, programming, regulation, communication skills of writing) is allocated in an independent section of logopaedic work, using the method of neurolinguistics programming as a means of psychological correction, personal development, improving the effectiveness of correctional and pedagogical influence.

Keywords: neuropsychological approach, diagnostics, general speech underdevelopment, neurolinguistics programming

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1. Introduction

Modern education is directed to the psychologizing of pedagogic effect including logopaedics, to enhanced studying of children mental development peculiarities. Logopaedics examination schemes do not sufficiently reveal the psychological and pedagogical status of primary school children with oral and written speech deviance to draw up an individual correction program. Children developmental disability is characterized by the great variety of mechanisms, manifestation rate, the structure

and symptoms of it. The problem of a person and his development in special conditions is one of the most difficult problems in the pedagogical and psychological theory and practice. The search of new approaches in diagnostic examination of primary school children is focused on the simultaneous consideration of the intellectual, sensitive, emotional and voluntative spheres. The accent from the method of child examination shifts toward his personality and abilities to which the examination system with concrete aims and conditions is adapted. Logopaedics theory connects children's lack of higher mental functions providing the process of writing, the mechanism of disorder with the deficiency of these or that operations of writing. The dysgraphia conditionality is expressed by the insufficiency or deviance of the speech system functioning, which is reflected in the five type pedagogical classifications of this disorder. Along with the speech mechanisms, the cognitive functions which are involved in the writing process turn to be not formed. (Akhutina T.V., Glozman Zh.M., Semenovich A.V., Fotekova T.A., Tsvetkova L.S., Korneev A.A., Kornev A.N. and others). Akhutina T.V. described one more type of the writing process deviance – regulatory dysgraphia which is connected to the insufficient activity of the third cerebrum section (after Luria A. R.): the disfunction of programming and own activity control.

The question about the condition of the children with the writing process disorder on the psychological level of its organization has not yet fully studied, for example: the ambition rise, the written speech incentive, idea creation, logical program, the common sequence of ideas, activity regulation and control over the actions, written communication. The question of the technologies development for the written speech examination, its psychological level considering the neuropsychological aspect is still the topical one in the logopaedics.

Research hypothesis: personal development of the primary school children with the general speech underdevelopment, having problems with writing, is characterized by the qualitative distinction, and the dedicated psychological correctional work considering the personal peculiarities of pupils will provide the efficiency of the studying process. The personality structure is different. We limited our research by studying of the written speech motivation, emotionality, personal and value orientation, behavioural peculiarities, communicativeness, dialog interaction, self-control over the actions, having marked all these components into 3 parts of the main 2 stages of examination.

The study took place individually in the Research Center for Child Neuropsychology named after Luria A. R. in 2014–2017. We carried out an experimental examination of fifty 8–10-year old children with the general speech underdevelopment having

problems with writing, and fifteen children with the norm of speech and writing development.

The aim of the research is to identify the oral speech level of the primary school children with the general speech underdevelopment and their personal peculiarities, to work out the sufficient technologies for the speech deviance correction.

A variety of examination schemes and didactic material can be found in the well-known works of such specialists as Levina R. E., Lalaeva R. I., Yastrebova A.V., Yefimenkova L. N. and others. We modified the traditional logopaedics diagnostic of Akhutina T. A., Fotekova T.A., 2002; Lalaeva R. I., Venedictova L. V., 1997; Glozman Zh. M., Soboleva A. E. 2014, having used the innovative approach to the examination, taking the maximum information about the child, spending the minimum of time and child and specialist efforts.

The examination was carried out in 3 stages:

1 stage – collection and analysing of anamnestic data; dialog with parents

2 stage – the basic – special children examination with the writing process disorder from 3 parts.

2 stage – special examination

Table 1

Part 1 – sensor-motor function	Part 2 – cognitive function	Part 3 part – emotional –volitional sphere
visuospatial and visual information	oral speech	written speech motivation
auditory information	thought process	emotionality, personal value orientation
kinaesthetic information	memory	behavioural peculiarities
	written speech	communicativeness and dialog cooperation
	type of higher nervous function, (lateralization, way of thinking, neurodynamic)	self-control over the activity

Stage 3– data processing and analysing

During the task performing the assessment was carried out in the system of 3 points.

The speech condition of children with the 3rd–4th level of general speech underdevelopment and logopaedics research of oral speech are described in literature in detail. The average score for all the traditional tasks done you can find in the table. Examining thought processes, we diagnosed the following: the development and dominancy of

Table 2

Sensor-motor function	Experimental group	Comparative group
Visuospatial and visual information	1.7	2.5
Orientation in the environment		
Haed's test	1.96	2.6
Cut pictures (6,7,8 parts)	2.1	2.8
Knowledge of letters (block and cursive)	2.26	2.7
Figures constructing according to the example and image	2.06	2.8
Average score:	9.9.	13.6

Table 3

Noisy letters	1.76	2.7
Poppelreuter figure	1.7	2.8
Distinguishing the similar in shape letters	2	2.9
Reproduction of isolated letters	2.36	2.9
Construction and reconstruction of the block and cursive letters	2.08	2.6
Average score:	9.9.	13.9
Auditory information	ЭГ	СГ
Knocking the rhythm	1.86	2.8
Understanding of words similar in sounds and purpose	2.06	2.8
Audio-verbal memory, words	1.8	3.06
Average score:	5.79	8.66
Kinetic information	ЭГ	КГ
Praxis of the fingers pose	1.8	3.06
Oral praxis	1.6	2.5
Gross motor skills	1.8	2.7
Average score:	1.8	2.7
Group score of sensor-motor function	**5.2**	**7.4**

way of thinking types (creative thinking, verbal and logical thinking), the qualities of thinking: self- sufficiency, activity, understanding of causative-consecutive links, orientation in time, ability to the self-control, characteristic of the cognitive work, motive urge. We estimated the development peculiarities of thinking process considering the leading modality. The research of mnestic functions included tests for audio-verbal, visual and motor memory. According to these tasks we took other assessment criteria, neuropsychological tests with our modifications. (Other material, the order of presentation). The traditional logopaedics children examination is to estimate the

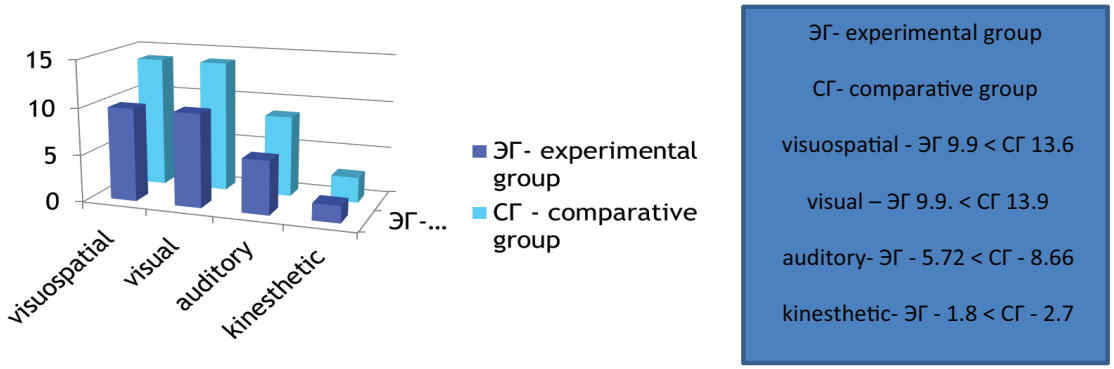


Figure 1: Results of sensor-motor function research.

topical level of the speech development and children speech skills. In logopaedics speech survey procedures with the brain system of its provision, with the condition peculiarities of other psychic functions the personal lateral profile is taken into consideration nominally, it practically does not give us the information for the analyses. To identify the type of the higher nervous activity of a pupil, in other words to determine the dextrocerebral/sinistrocerebral or both types we used the technique of types characteristics of the higher nervous activity by I.P. Pavlov, who presented these types as 'thinking', 'artistic' and 'middle', intermediate. During the survey we observed the neurodynamic indexes: the power of the central nervous system, its mobility and balance. Mental performance and pupils concentration were investigated with one of the variants of correction test and with finding of numbers in Schulte table.

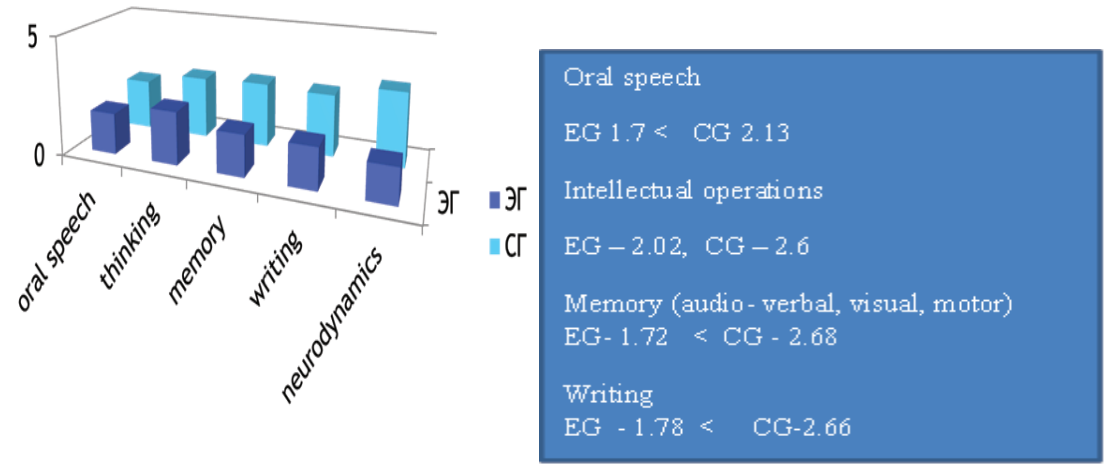
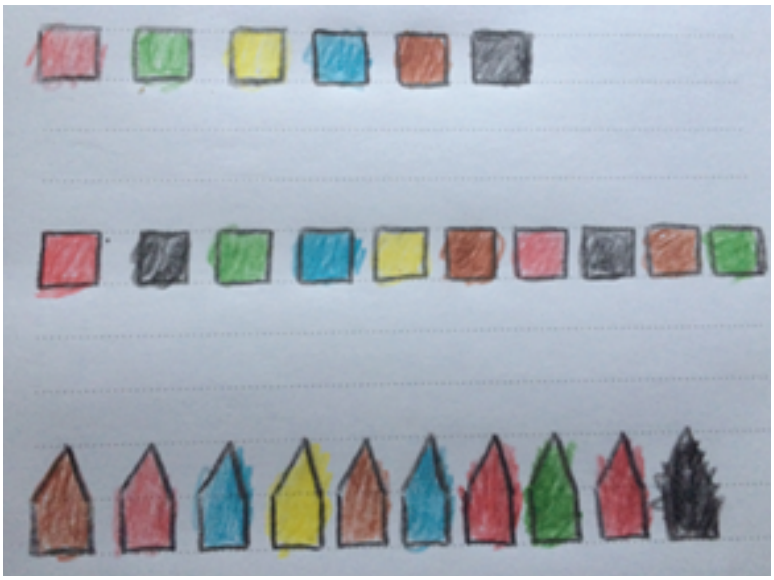


Figure 2: The results of the cognitive function examination.

'Luscher test' the acceptability scale of six colours – gradation of the emotional background.

Table 4

Emotional–volitional function	EG	CG
Motivation (discussion)	45 children – external motivation directed to the encouragement or punishment 5 children – to be interested in studying of written speech	6 children – external motivation 9 children – internal motivation and the interest to studying of written speech
Emotional function: ('Luscher test'– emotional ground)	EG	CG
	19 children – emotionally unstable condition	3 children – unstable condition
Relation to the social emotions (happiness, mourning, justice, offence, friendship, quarrel, kindness, anger, boredom, admiration, expressing through colours)	12 children – happiness and justice, friendship and quarrel, anger and offence were marked with dark colours	2 children – marked the same words with dark colours
Average score	19 children 38% – unstable emotional condition	
School of personal values (to settle owners into the houses, determining their occupation and painting into colours, expressing their relation to this occupation)	28 children 56% – expressed their relation to boring activities such as sleep or meal, simle activities – to walk, play computer, I am a person of anger and power	4 children – expressed their relation first of all to boring and simple activities
Behavioural peculiarities and self-esteem test 'Stairs'	3 children 3% – inadequately inflated self-esteem 11 children 22% – inflated self-esteem 14 children 28% – adequate self-esteem 22 children 47% – deflated self-esteem	2 children 13% – inadequately inflated self-esteem 4 children 27% – inflated self- esteem 9 children 60% – adequate self-esteem 0 – deflated self-esteem
Average score	25 children 50% – inadequate self-esteem	
Communicativeness and dialog Test «Unfinished fairy-tale» «Who is right?» G. Zuckerman methodics	10 children 20% – high level of communicativeness and desire to start the dialog, 25 children 50% – middle level of communicativeness, 15 children 30% – law level of communicativeness 13 children17% – high level of communicativeness 17 children35% – middle level of communicativeness 20 children 48% – law level of communicativeness	4 children 27% – high level of communicativeness, 9 children 60% – middle level of communicativeness and desire to start the dialog, 2 children 13% – law level of communicativeness 5 children 33% – high level of communicativeness, 9 children 62% – middle level of communicativeness, 1 child 15% – law level of communicativeness



At the 2nd stage in the 3rd part of the examination, we put the emotional and volitional sphere into an independent section, studying the psychological and personal characteristics of students for purposeful formation in the correctional work of children's motivation, emotional component and control in writing. Motivation, as a psychodynamic structure is defined by personal components, as self – esteem and anxiety. It is possible to identify another leading component in motivation-speech. Therefore, the children with speech disorders of varying severity, lack of motivation in studying of writing and written speech in general will be the key of importance in studying. According to the concept of A.N. Leontyev, the conditionality of activities changes in the course of those activities, and the main focus should be on maintaining those motives. In the conversation, we asked questions and identified the child's understanding of the importance of writing as a means of communicating with other people. Is there a need to use writing in the process of life? We revealed the psychological state, emotional component, reflecting in the form of direct feelings the process and the results of written speech. After all, exactly the human emotions reveal in the image of the environment (written speech), personally significant elements and motivation in relation to these objects. Patterns of human psychophysiology give him the opportunity to associate colour perception with individual neuropsychological components. Emotions cause changes in the pulse, respiration rates, the same changes cause the effects of different colours, having impact on the body and soul. We diagnosed emotional aspect of children by the method of Lusher. Examining the state of communication, the ability to start a dialogue with students, we identified the development of cognitive interests and initiative of the student, the ability to ask a question. We used the method of 'Unfinished Tale'. Continuing to study communication,

we determined the phenomenon of action formation aimed at considering the position of the interlocutor (partner), having an individual conversation with the child by the method of 'Who is right?' G. A. Zuckerman. Analysing the results of communication tests, we see that EG children have significantly law indicators than children of CG entering into dialogue interaction, being initiators of communication, children experienced difficulties in understanding the position of another character, hardly expressed their thoughts, justifying the answer. This is a consequence of the constant failures of children in the educational process related to speech activities. Children choose to remain silent or to accept the other's point of view without showing their true inner position. This psychological component, as a self-assessment, the purpose of which was to determine the features of the self-assessment of the child (as a General attitude to yourself) and the child's ideas about how it is evaluated by other people, we conducted a test 'Stairs'. We have revealed the disharmony of the emotional-volitional sphere, manifested in the weakness of volitional processes, difficulties in behaviour, instability of the emotional state. The results of the tests showed that 19 children are in unstable, alarming state, expressed by the negative attitude to studying in General, and to the writing process in particular, 25 people showed inadequately inflated or deflated self-esteem, 20 people have low communication.

The survey revealed that children's somatic, mental, speech development is due to the underdevelopment of the speech. Difficulties in organizing of their own verbal behaviour adversely affect their communication with others. The interdependence of speech and communication skills of EG children lead to the fact that such features of speech development as poverty of vocabulary, obvious insufficiency of the verbal dictionary, grammatical imperfections, originality of coherent statement, prevent full communication. We do not dwell on the peculiarities of the speech of children with general speech underdevelopment of 3–4 level, as they are well represented in the literature, and we focus on the psychophysiological and personal characteristics of children with GSU, which the educational activities and writing depend on. Along with the revealed speech mechanisms of writing disorder of EG children, we noted the problems of General functional mechanisms of speech activity: memory, attention, thinking and mental operations, behaviour, regulation and self-control of motives. EG children have problems with HMF in different way: the uneven development of sensorimotor and intellectual functions, personality, emotional States. The lowest rates of EG children are for the auditory and motor memory – 1.66 and 1.72 points, visual –1.78. Children remember less of the material than they were given, reduced volume and slow speed of remembering. Insufficient development of attention, its distribution on

the background of rapid depletion. By the end of doing the Schulte tables, there was an increase in the number of errors. Insufficient development of thinking processes, the lowest indicators are for the tasks 'simple analogies-1.9 points; identification of significant relationships-2.0 points'. The children could not find words by analogy (boat, train, pier, train station). Even after the teacher drew the attention of children to the mistakes, they did not correct them on their own.

Most of the EG children have a law level of development of oral praxis, graphomotor difficulties, gross motor skills, demonstrating the weakness of sensorimotor functions in General. Performing the 'fist-edge-palm' test the children had difficulties in switching from one movement to another, confused the sequence of movements. The disorder of graphomotor skills was found in the notebooks, written works, manifested in a sweeping handwriting, bouncing letters, all these indicate a failure of optic-spatial and visual-motor functions. Children confused the location of objects on the right, left and from themselves and from the object – this is due to the weakness of mental reorientation. This is a heterogeneous group with different levels of development of non-speech functions. We divided the children into four groups:

i. Children with writing disorder and hyperactivity in speech, actions and having personal characteristics.

ii. Children with writing disorder, visual impairment;

iii. Children with writing disorder, hearing loss;

iv. Children with writing disorder, with imperfections of kinetic and kinaesthetic systems.

EG children have low working capacity, self-confidence, communication, manifested in the reluctance and inability to start a dialogue. We carried out specific personal characteristics in the structure of the personality of schoolchildren with writing disorder, that indicate immaturity of behavioural self-regulation, the desire to insist on their own, the trend of disobedience, inadequate self-esteem. Self-esteem of younger students is inadequately inflated, especially in the main academic subjects, or vice versa greatly deflated. The student's activity was characterized by low tempo, lack of focus, low significance pattern. The children had difficulties in retaining the instruction and needed to be explained in detail and showed how it worked. They had problems in planning and monitoring the progress and results of activities, simplification of the program of activities, inability to use effectively the time available to carry out the task.

In conclusion, the EG children, whose indicators of emotional and volitional sphere were lower than their peers with GSU, they had more serious and rough deviances of writing. Therefore, we can assume that providing a personal –oriented impact on a child with general speech disorder during the correction of writing deviance it is possible to eliminate dysgraphia mistakes using such methods as art therapy, psychotherapy and games.

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