

## **Speech-Communicative Function In The Structure Of Predictive Competence Of Young Schoolchildren With Musculoskeletal Disorders\***

Fizaliya Rafisovna TAHAVIEVA, Irina Aleksandrovna NIGMATULLINA  
Kazan State Federal University

**Abstract.** *The urgency of the problem of studying the formation features of speech-communicative function of prognostic competence in children of primary school age with musculoskeletal disorders, without intellectual insufficiency, is determined by the need to identify the emerging communicative difficulties, which can be the predictors of various deviations, and hinder successful socialization of children. This determines the purpose of the research - to study the development of speech and communication skills in primary school-aged children with disabilities of musculoskeletal system, and to identify factors, which adversely affect their prognostic competence. The basic methods of this study are the constructive and comparative analysis of modern works and the experiment, which includes a set of complementary tasks, the quantitative and qualitative method for analyzing empirical information.*

*The results of the research have shown the limitations of communicative abilities of children with musculoskeletal disorders. This problem does not allow the child to fully understand the norms, rules, models of behavior, and implement them in interpersonal relationships, hindering his successful socialization. However, as the analysis of modern domestic and foreign studies has shown, the question of the role, essence, structure of the speech-communicative component of prognostic competence remains open and little studied, especially for primary school-aged children with motor disturbances. The essence of speech-communicative function of prognostic competence is not fully revealed; its structure is not determined; the method of diagnostics is not developed.*

**Keywords:** successful socialization, prognostic competence, speech-communicative function, children of primary school age with musculoskeletal disorders.

### **Introduction**

The socialization of primary school-aged children with disorders of the musculoskeletal system is one of the fundamental problems of special pedagogy and psychology, the relevance of which only increases with the passage of time. Many domestic psychologists consider socialization as the acquisition of social experience, as the entry into the social environment, familiarization with the system of social relations, which are formed in the course of labor activity. They identify pre-labor, labor and post-labor stages of socialization. The most significant, according to G.M. Andreeva, is the pre-labor stage, in particular, the primary school age,<sup>1</sup> in connection with the transition to a new kind of leading activity (from play to learning), acquiring the socially significant status of the pupil with the rights and obligations to the society, where the most significant is the formation of communicative abilities of the child.

Successful socialization of primary school-aged children is directly related with the formation of prognostic competence. To date, a large number of the

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<sup>1</sup> G.M. Andreeva, *Social Psychology*, Moscow, Aspect Press, 2001.

researches, devoted to the study of prognostic abilities, have been carried out in the psychological, medical, psychological and pedagogical areas. The analysis of modern scientific works has shown, that in the structure of predictive competence, many researchers distinguish a communicative component, which includes knowledge of the language system and the possession of language material (speech), as well as observance of social norms of communication, rules of speech behavior, experience of their application. The communicative needs of children with disabilities, including motor disturbances, are described in the works of<sup>2</sup> Summarizing the structural and functional analysis of psychological and pedagogical research on the problem under study, we have identified the essential characteristics of the speech-communicative component of prognostic competence, in the context of the emergence of a socially successful personality. These include: the ability of a person to predict the communicative situation, to orientate in it; to implement a communicative plan, using an adequate speech utterance; accurately and correctly recognize (diagnose) the psychological state of the partner in communication, to understand his ideas and intentions; to foresee the interlocutor's reaction to the emotions and reaction to the words of the partner in communication; the ability to prevent conflict situations, to overcome psychological barriers in communication, emotionally regulate the situation, to distribute own efforts in communication.

At the primary school age, the speech-communicative component of prognostic competence is improved by being included in the educational activity, thanks to which all the psychic properties and qualities of the individual are developed. Such psycho-physiological features of children with musculoskeletal disorders, as insufficient coordination of limbs, limiting free movement in space and manipulative function of hands; disorders of the muscle tonus of the body, face, articulatory apparatus, leading to speech defects; combined visual, hearing and secondary impairment of personality characteristics, expressed in infantilism, aggression, weakness of strong-willed features, isolation, rapid exhaustion and fatigue, certainly lead to a slowdown development of prognostic competence of children, in particular, its communication component. This, in turn, can cause unsuccessful socialization or social maladjustment of children. Many primary school-aged children with disabilities of the musculoskeletal system are not able to build social relationships independently, to master communicative skills, due to the existing speech disorders, social and emotional deprivation, as well as due to the violations of motor functions, limiting the child's interaction with the surrounding world, in communication with adults and peers.

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<sup>2</sup> K. Bunning, "Investigation of practices to support the complex communication needs of children with hearing impairment and cerebral palsy in a rural district of Kenya: a case series," in *International Journal of Language & Communication Disorders*, III (2013), p. 689–702; S. G. Batyreva, "The model of formation of communicative competence of junior schoolchildren in the educational process," in *News of VSPU*, VI (2015), no. 101, p. 28-31; L. N. Bulygina, "Formation of communicative competence of adolescents," in *Innovative projects and programs in education*, III(2014), p. 23-27.

Difficulties in adaptation to new social conditions, lack of consistency in predictive competence, low level of communicative opportunities, inappropriate conditions for the education of primary school-aged children with limited health capacities and the existing malfunctions of physical and mental health can contribute to the development of deviations in adolescence. Unfavorable social conditions (deprivation, conditions of upbringing in the family, pedagogical neglect, antisocial behavior of parents, conflicts and divorce in the family, limited verbal contacts, etc.) cause a reaction in the form of deviant behavior in younger adolescents.

### **Methods**

We conducted an experiment to study the communicative abilities of primary school-aged children with disorders of the musculoskeletal system, with the aim to determine the dependence of the prognostic capabilities of the child with musculoskeletal disorders (MSD) on the level of his communicative abilities. We selected 12 tasks, proposed by<sup>3</sup> 54 pupils of grades 2-4, at the age from 8 to 13, took part in the experiment. They studied at the State budget educational institution "Kazan boarding school №4 for children with disabilities", Kazan, Republic of Tatarstan; and the Municipal budgetary general education institution "Secondary school № 60" Cheboksary, the Chuvash Republic. 2 samples of research subjects were formed: schoolchildren with musculoskeletal disorders and normative development.

The answers of the subjects were entered in the survey protocols. They were estimated according to the point-level system: 12-20 points - low level; 21-28 points - base level; 29-36 points - high level. The high level was ranked at 3 points, the base level - 2 points, the low level - 1 point. The basic level presupposes readiness of schoolchildren to listen to the interlocutor and to conduct a dialogue, state their point of view and argue it, adequately assess their capabilities and the abilities of others. A low level is revealed in cases, when schoolchildren do not show themselves in joint activities, are not interested in taking into account peer opinions, are not able to use speech tools to solve communicative and cognitive tasks. High level corresponds to the ability to organize educational cooperation and joint activities with the teacher and peers, to find a common solution and resolve conflicts, on the basis of positions coordinating and taking into account interests, to formulate, argue and defend own opinion.

### **Results**

The analysis of the obtained results made it possible to reveal features of speech-communicative skills of younger schoolchildren with disorders of the musculoskeletal system (Table 1).

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<sup>3</sup> E. L. Cherkasova, *Speech communication of children of primary school age: study, diagnosis, development*, Moscow, Natsionalny Knizhny Centr, 2011.

Table 1. Level of formation of speech and communication skills in primary school-aged children with normative development and disorders of the musculoskeletal system

The sample of respondents		The levels of speech prediction		
		Low level (persons/%)	Average level (persons/%)	High level (persons/%)
Primary school-aged children with musculoskeletal disorders	8-9 year-old The 2 <sup>nd</sup> grade	6/86	1/14	0/0
	9-10 year-old The 3 <sup>rd</sup> grade	2/29	3/42	2/29
	10-11 year-old The 4 <sup>th</sup> grade	4/31	4/31	5/38
<b>Total</b>		12/44	8/30	7/26
Primary school-aged children with normative development	8-9 year-old The 2 <sup>nd</sup> grade	0/0	2/29	5/71
	9-10 year-old The 3 <sup>rd</sup> grade	0/0	1/14	6/86
	10-11 year-old The 4 <sup>th</sup> grade	0/0	0/0	13/100
<b>Total</b>		0/0	3/11	24/89

The correlation analysis of the studied parameters, carried out with the help of Student's t-test, showed statistically significant differences between the samples, in the formation of speech-communication skills, in primary school-aged children with normative development, and disorders of the musculoskeletal system. So in the group of schoolchildren with normative development, the indicators of speech

communication state ( $t = 8,054, p \leq 0,001$ ) are significantly higher, than in the group of peers with musculoskeletal disorders.

Quantitative and qualitative analysis of the results showed, that the most of pupils of the 2<sup>nd</sup> grade with musculoskeletal disorders, had a low level (86%) of speech-communicative skills formation. Base level was established in 14% of schoolchildren. A high level was not revealed. Second-graders experienced the greatest difficulties in the process of performance of tasks, aimed at finding an explanation in the discussion, and drawing up the continuation of the story. Performing these tasks, schoolchildren showed 100% low level. Children couldn't make a connected meaningful continuation of the story, they did not orient in the text, they could not determine the question in the reasoning, they answered, making multiple grammatical and lexical mistakes. The schoolchildren could not make a coherent narrative continuation of the story, they did not orient in the text, sometimes they did not even try to correct the wrong sequence of replicas, and if they did, the dialogue was not drawn up correctly. Children could not give reasons for their point of view. They understood the text only partially. Pupils also experienced great difficulties in determining the situation of communication. They could not distinguish the official appeal from everyday communication. To perform the task, hints were required in the form of pictures with scenes of the situation, depicted on them, but the children made mistakes after the prompts. Second-graders coped better with tasks in pairs and groups. Most likely, this is due to the fact, that the beginning of schooling leads to a change in the social situation of the child's development; a complex system of relationships with peers and adults is formed. When working in groups, leaders were immediately identified, which controlled the work of the entire team. However, all the children took part in the joint work.

The most of third-grade students with musculoskeletal disorders had the basic level (42%) of the formation of communicative skills. A high level was revealed in 29% of students, and 29% of students had a low level.

The third-graders experienced the greatest difficulties when performing the task of finding an explanation in the discussion. The children either could not formulate the question, or made it incorrectly. When working in groups, there was the leadership of some and passive participation of other students. Most likely, this was due to the fact, that the leaders were the children with developed coherent speech, and more passive children had serious speech disorders.

The most of fourth-grade pupils with musculoskeletal disorders had a high level (38%) of the formation of communicative skills. 31% of the students had an average level, and the same percentage of children had a low level. Many fourth graders did not understand the sequence of phrases in the dialogue, made up the dialogue incorrectly and said they were right. Also, it was difficult for them to make the right question after reading the text. The students also had difficulties in determining the situation of communication, getting wrong informal and official speech. All the students took part in the joint work, even those with poorly developed communication skills. Children quickly agreed and worked together.

When working in pairs, students asked each other questions, supported the conversation.

As it was revealed, a high level of speech-communicative skills is achieved to the fourth grade, as a result of remedial-directed teaching in school. Children in the classroom and during extracurricular activities are taught the skills of interacting with peers, adults, and younger ones. Further, the leader is revealed in each grade (for example, in the third and fourth grades), and in the primary grades all childhood to stand out all. For this reason, quarrels, conflicts, misunderstandings can sometimes arise. The predominance of low level speech-communicative skills in second-graders can be explained by the lack of experience of cooperation, interaction with each other, as well as the presence of coherent speech disorder, the inability to put ideas into words. By the third and fourth grade, the speech of many children is developed, so they have hardly any difficulties with the expression of their thoughts. Children are ready to listen to the interlocutor and conduct a dialogue with him, state own opinion, argue it, adequately assess the own behavior and the behavior of others, use speech tools to solve communicative and cognitive tasks.

Insufficient level of speech and communication skills of primary school-aged children reflected in the state of their prognostic competence. Children, when communicating with peers and adults can not predict the answers of the interlocutor, do not recognize the psychological state of the partner, accordingly they are not oriented in the situation of communication and they can not build a productive dialogue. The low level of speech-communicative skills leads to a delay in the formation of prognostic competence, that deprives children of the opportunity of successful socialization, since it is one of the most important components.

The limit of physical capacities narrows not only the social circle of child, but also their own potentials and prospects. A child without communication with peers has difficulties in prediction, planning his activities, life, and sometimes, it is impossible to imagine life outside home, outside the boarding school. This greatly affects the development of predictive competence, since the child does not need to worry about anything; everything is decided by parents, relatives, teachers.

Speech disorders primarily affect the ability to foresee. Firstly, without a formed internal speech, the child can not realize the internal planning of actions, words, expressions, which he wants to realize. Secondly, the defects in expressive speech do not allow the child to express his or her predictions, the desired results of actions. There again, speech disorders narrows the child's social circle, puts the role of planning to mother. Without insufficient communication, the child does not learn to predict the actions and statements of the interlocutor, accordingly, he has no need to predict own actions and statements. Dependence on other's views, and social deprivation cause the adaptive behavior of children, delay the formation of speech-communicative skills. Children with cerebral palsy prefer to communicate in small groups, often have a grudge against others, fearing of ridicules and

neglecting from them, deliberately avoid social contacts, still more limiting their experience of interpersonal interaction.

Specific for cerebral palsy is the disorder of the motives of social interaction. The motivational level acts as one of the components of the structure of speech-communicative function. The specificity of cerebral palsy often reduces the need for communication in these children, due to the presence of dysarthritic speech disorders, and hyper protection of adults. Speech-communicative function assumes an adequate assessment of one's own psychological potential, as well as the partner's potential, orientation in the situation and task. Problems with the social interaction of children with musculoskeletal disorders lead to underdevelopment of all these components of speech-communicative function. Children have difficulties in expressing their thoughts; and the analysis, evaluation and prognosis of the interlocutor's speech are inconceivable for them.

### Discussion

In the modern literature on the problem of prognostic competence, primary attention is paid to preschool and adolescent<sup>4</sup> age. The contingent of children of primary school age remains without sufficient attention, especially children with disabilities, as evidenced by the findings, presented in modern studies.<sup>5</sup> The results of our experiment are also confirmed by the work of Manijeh Firoozi.<sup>6</sup> The ability of children to reconstruct past events (experience) and to predict the future is studied there. In this work the author says, that children under the age of 7 see the changes in the future only in physical terms. Since the age of 7, they are beginning to realize the changing social role over time. The emphasis on the physical aspect is already ignored. Manijeh Firoozi associates this with the rapid growth of hippocampus from 7 to 12 years, which is involved in the prediction of future events and the reconstruction of past, as well as changing the social interaction of children.

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<sup>4</sup> V. D. Mendelevich, *Psychology of deviant behavior. Textbook*, Sankt Petersburg, Rech, 2005.

<sup>5</sup> B. Karen, "Developing the personal narratives of children with complex communication needs associated with intellectual disabilities: What is the potential of Storysharing((R))?", in *Journal of applied research in intellectual disabilities*, XXX (2016), no. 4, p.743-756; J. Marshall, "Language development, delay and intervention the views of parents from communities that speech and language therapy managers in England consider to be under-served," in *International journal of language & communication disorders*, LII (2016), no. 4, p. 489-500; A. A. Mrachko, "Examining Paraprofessional Interventions to Increase Social Communication for Young Children with ASD," in *Topics in early childhood special education*, XXXVIII (2017), no. 1, p. 4-15; A. Melissa Sreckovic, "Examining the Efficacy of Peer Network Interventions on the Social Interactions of High School Students with Autism Spectrum Disorder," in *Journal of autism and developmental disorders*, IIII (2017), no. 8, p. 2556-2574; A. Sylvestre, "Social participation of children age 8–12 with SLI," in *Disability and Rehabilitation*, XXXVIII(2016), no. 12, p. 1146-1156.

<sup>6</sup> Firoozi Manijeh, "Ability of "time traveling" in children," in *Procedia – Social and Behavioral Sciences*, XXX (2011), p. p. 1515-1518; A. Tvardovskaya, A.I. Akhmetzyanova, T. V. Artemyeva, I. A. Nigmatullina, "Anticipation Phenomenon in the Structure of Deviance: Analytical Research Review," in *International Journal of Humanities and Cultural Studies (IJHCS)*, III (2016), no. 1, p. 418-425.

The results obtained are important both for the work of primary school teachers, and for narrow specialists, dealing with children with musculoskeletal disorders in general educational institutions.

### **Summary**

This experimental study contributes to the confirmation of the opinion, that the development of speech-communicative function of primary school-aged children with musculoskeletal disorders lags behind the age norm.<sup>7</sup> We have established, that the formedness of the ability of a child to predict the communicative situation and to orientate in it, to find an adequate communicative structure and to implement a communicative plan, to understand his own psychological potential and partner's potential, affects his prognostic competence.

### **Conclusions**

The existing in modern studies data on the interrelation between the difficulties of communication of children with musculoskeletal disorders and their socialization give grounds to consider the specific communicative skills of primary school-aged children with musculoskeletal disorders as the predictors of prognostic abilities disorders. This proves the need for further empirical study of specific features of the prognostic competence of primary school-aged children, taking into account the peculiarities of their communication in normogenesis and dysontogenesis. One of the important tasks is the need to create a diagnostic tool, allowing to assess the formation of prognostic abilities, in particular, communicative, with the aim to prevent deviations in the system of psychological and pedagogical support for children with musculoskeletal disorders.

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<sup>7</sup> Socially-perceptive anticipation in children with cerebral palsy // NaukovabibliotekaUkraini (Electronic resource). - URL: <http://www.info-library.com.ua/libs/stattya/2994-sotsialno-pertseptivnogo-peredblchennja-u-ditej-3-tserebrllnim-paralichem.html>), accessed 12. 06. 2017.