

Speech-communicative Skills in the Structure of Predictive Competence of Young Schoolchildren with Sensory Disorders

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Abstract

The relevance of this research is determined by the fact that, until now, the issues concerning the study of prognostic competence in speech activity of young schoolchildren with sensory disorders have not been sufficiently studied. This determines the purpose of this study: to identify the main directions of development of speech-communicative function of prognostic competence in children of primary school age with sensory impairments with consideration of the identified specific features. The fundamental method of the study is the analysis of researches studying the speech-communicative skills of primary school age children in the structure of prognostic competence as a condition for their successful socialization, the method of experiment, quantitative and qualitative analysis of the obtained data with the use of mathematical statistics. The experiment involved 43 younger schoolchildren with sensory impairments and 50 younger schoolchildren with no disorders. The study was carried out in educational institutions for children with disabilities and for normotypical children located in Kazan. The research used the methodology called “The ability to predict in situations of potential or real violation of a social norm” which was developed by academic staff of the department of defectology and clinical psychology of K(VR)FU.

The experiment revealed that speech-communication function in younger schoolchildren with sensory impairments is formed insufficiently. The answers of respondents are characterized by minimal verbalization of the forecasts in the form of a simple non-extended monosyllabic sentence or in the form of listing of different verbs, be the poverty of speech-language means, by the absence of other participants in the forecasts, and by the use of verbs of present or past tenses. In addition, respondents had low values in almost all spheres of relations, namely in the area of attitudes toward learning, relationships with peers, in the sphere of communication with adults, in virtual communication, in the spheres of attitude towards illness and relationships in the family. These data indicate low level of formation of the speech-communicative function of predictive competence in younger schoolchildren with visual and hearing disorders.

The analysis of data helped to develop the program of correctional work on the development of the speech-communicative function of predictive competence in younger schoolchildren with sensory disorders. The program uses prognostic tasks presented in forms for recording the answers in the form of pictures. All tasks are divided into 6 areas, which turn out to be the most significant ones for younger schoolchildren with sensory disorders. Each unit consists of three prognostic tasks which the subject is offered to complete. The answers are given orally; the experimenter records the answers of younger schoolchildren in the forms.

The results of the research let us to outline the areas for further research in the field of studying the prognostic competence of younger schoolchildren with sensory disorders of the development with consideration of the socialization space structure.

Keywords: predictive competence, young schoolchildren, sensory disorders, speech skills, communication skills.

1. Introduction

1.1 *Predictive competence*

The issue of predictive competence is inherent in all issues of psychological science itself. In recent decades, thanks to the researches of domestic psychologists, the issue of the specifics of predictive competence in children of primary school age has been actively researched. The wide use of such terms as “anticipation”, “anticipation skills” and “predictive skills” has led to the situation when these concepts are used interchangeably, which makes it difficult to distinguish them and leads to the complexity of conceptual differentiation. Therefore, it is necessary to clarify the interpretation and the meaning of these concepts. Classic definition of “anticipation” in psychology is the one proposed by Lomov and Surkov (1980), who interpret anticipation as the ability (in the broadest sense) to act and to take certain decisions to a specific time – spatial anticipation for expected events. According to Nichiporenko and Mendelevich (2006), the content of the concepts “anticipation”, “anticipation skills” and “prognostic skills” coincides. According to Mendelevich (2005), we need to consider predictive competence as the ability of an individual to anticipate the course of events with high probability, to predict the development of situations and one’s own reactions to them, to act with a time-spatial forestalling. If we consider predictive competence as an arbitrary, deliberate, purposeful activity of an individual, then we can conclude that predictive competence is being formed in the process of prognostic activity.

Lomov and Surkov (1980) distinguish three functions of predictive competence: regulatory, cognitive, and communicative which are inseparable in any human activity.

The regulatory function is aimed at regulating actions when constructing a model of the required future. The role of predictive competence in regulation of behavior and actions is great, since people always tend to predict the ultimate goal of their activity.

Cognitive function is expressed in predicting the course of cognitive processes, for example, in the form of a perceptual hypothesis or an anticipatory pattern.

According to Anokhin, Bernshtein, Brushlinsky and Feugenberg, the communicative function of predictive competence helps not only to exchange information, but also to obey certain cultural values of a group. Any communication and interaction between people, the ability to recognize the emotional states of others, readiness to obey social norms – all of these factors are manifestations of the communicative function (Nigmatullina & Kurbanova, 2018).

Researchers consider prognostic skills as:

- the ability to take actions aimed at getting a forecast (Lomov & Surkov, 1980);
- learnt way of performing mental actions that allows an individual to get early information in order to increase the efficiency of an educational process (Mendelevich, 2005);
- possessing a complex of mental and practical actions aimed at solving prognostic tasks based on deliberate application of psychological, pedagogical and methodological knowledge in real life (Nichiporenko, 2007).

Prognostic competence, in turn, is defined as:

- independent universal polyfunctional pedagogical activity aimed at studying possible trends, transformations and development prospects of subjects and objects of pedagogical activity (Nichiporenko, 2007);
- mental actions that provide early information about the object of the study in order to optimally solve the educational tasks and tasks for the further development of each subject of pedagogical interaction (Mendelevich, 2005);

- special mental state that includes positive attitude towards the fulfillment of prognostic functions, appropriate motives, professional knowledge and skills, personal qualities and abilities required to perform this type of activity (Nichiporenko, 2007).

Summarizing the above, it should be noted that the terms “predictive skills” and “predictive competence” form a synonymic row in which predictive competence has a generalizing meaning.

Thus, prognostic competence is a complex psychological, pedagogical and professionally significant phenomenon that has a certain structure. The analysis of various studies has shown that researchers agree on the identification of three components (cognitive, regulatory and communicative) in the structure of prognostic competence.

1.2 Specificity of speech–communicative function in younger schoolchildren with sensory disorders

General dynamics of the development of communicative activity in children with sensory impairments is being formed in the process of leading activities that change each other and follows the same basic laws as in their peers without the disorders of vision. Visual impairments, which manifests itself in reducing sharpness and clarity of vision, reducing the speed of information comprehension, disrupting the span of vision, oculomotor functions and binocularity lead to the appearance of secondary impairments of mental functions that are closely related to the primary pathology of the analyzer, and tertiary, associated with damaged function indirectly – the disorders of behavior and activities (including communicative activity). Due to the specificity of perception of the surrounding world, the poverty of ideas and visual images of objects and phenomena, the level of sensory experience which determines the content of thought, speech and memory images (Mzhel'skaya, 2013) is reduced. This entails difficulties in mastering the means of communication and their inadequate use which may cause misunderstanding during communication (Nigmatullina & Kurbanova, 2018). At the same time, due to a low self-esteem as a subject of communicative activity, people with visual impairments have certain emotional problems, which leads to the feeling insecurity in communication, poor motivation for making contact or lack of activity and initiative in communication (Mzhel'skaya, 2013).

Many children with hearing impairments have specific features of behavior in the form of increased mental exhaustion, emotional excitability, tendency towards negativity, and motor disinhibition. Some of the younger schoolchildren with hearing impairments are emotionally stunted kids who tend to avoid new contacts.

The lack of communicative competence in younger schoolchildren with impaired auditory function do not let them fully satisfy the basic human need — to be included in society and culture, since communicative competence implies the ability to use all types of speech activity, namely reading, listening, speaking (monologue, dialogue) and writing (Barabanov, 2015).

Thus, the development of speech–communication skills in younger schoolchildren emotionally stunted with sensory impairments plays an important role in the process of successful socialization and development of personality of younger schoolchildren with sensory impairments in general. In particular, it influences the formation of their communication with others and their behavioral responses.

1.3 Research objective

The objective of this research is to study the specifics of the development of the speech-communicative function of predictive competence in children of a younger school age with sensory

impairments; to determine the strategies for its formation on the basis of specific features identified by spheres of relations and bipolar criteria.

2. Research methods

2.1 *Research participants*

The study involved 93 younger schoolchildren including: 16 children with visual impairment studying at Kazan State School No. 172 for children with disabilities and 27 children with hearing impairment studying at Kazan state budget school named after E. G. Lastochkina for children with disabilities, 50 children with normotypical development studying in the municipal budgetary educational institution “Secondary school No. 85 with extensive learning of individual subjects”, located in Novo-Savinovsky district of Kazan.

2.2 *Research methods and techniques*

The development of the speech–communicative function of predictive competence was studied with the use of the method called “the ability to predict in situations of potential or actual violation of a social norm”, developed by the members of the Department of Defectology and Clinical Psychology of the Institute of Psychology and Education K (P) FU: A. I. Akhmetzyanova, T. V. Artem'yeva, A. T. Kurbanova, I. A. Nigmatullina and A. A. Tvardovskaya (2018).

In order to measure the level of the development of the speech-communicative skills, the researchers used data processing methods (quantitative and qualitative analysis of the data based on the methods of mathematical statistics).

2.3 *The course of the research*

The research involved a detailed examination of the speech-communicative function of predictive competence of younger schoolchildren with impaired vision and hearing impairment. Speech-communicative component of the predictive competence is presented in the form of information found in speech models which younger schoolchildren use to determine the appropriate options of choosing their own strategies for building the image of the desired future.

Younger schoolchildren were asked to examine each series of storyline pictures one by one, and the pictures were accompanied by some stories – the description of the situation shown in the pictures – after that, the schoolchildren were asked: “What will happen next and why?” The answers were recorded in individual protocols in the form of a full phrase for further analysis.

The information collected in the course of the study was subjected to mathematical processing according to Student’s T-test in SPSS Statistics. The results helped to determine the specificity of the speech-communicative function of predictive competence in younger schoolchildren with impaired vision and hearing, as well as in younger schoolchildren with normotypic development according to the fields of relations and bipolar criteria described in the methodology “The ability to predict in situations of potential or real violation of social norms”.

3. Results

3.1 *The specificity of the speech–communicative function of predictive competence in younger schoolchildren with sensory impairments*

Analyzing the results of the research aimed at determining the level of the development of the speech-communicative function of predictive competence in younger

schoolchildren with sensory impairments according to the areas of relations, we found that indicators in the areas “attitude to learning”, “virtual communication”, “attitude to the disorder” and “attitude to the family” among younger schoolchildren with visual impairment are higher than those of younger schoolchildren with hearing impairment.

In such areas as “communication with peers” and “communication with adults” there is no difference in the average values among younger schoolchildren with impaired vision and impaired hearing, which means that these areas are most highly developed compared to other areas of communication.

Table 1. The results of the study of speech–communicative function of predictive competence in younger schoolchildren with visual and hearing impairment by areas of relations

Scale	Visual impairment (n=16)		Hearing impairment (n=27)		t (43)	p
	M	SD	M	SD		
Attitude to learning	3.67	1.66	1.59	1.23	4.64	< 0.01
Communication with peers	3.31	1.89	2.56	1.74	1.34	> 0.01
Communication with adults	3.13	1.67	2.41	1.97	1.22	> 0.01
Virtual communication	3.88	1.93	2.41	1.85	2.48	< 0.01
Attitude to the disorder	3.86	1.20	2.85	1.86	1.95	< 0.01
Relationships in the family	4.31	1.51	2.74	1.65	3.09	< 0.01

Analyzing the results of the research aimed at determining the level of the development of the speech-communicative function of predictive competence in younger schoolchildren with impaired vision and hearing using bipolar criteria, we found that the values of the criteria “verbalization of forecast”, “speech-language means” and “presence/absence of future tense verbs” in younger schoolchildren with visual impairment are higher than in younger schoolchildren with hearing impairments.

According to the criterion “presence/absence of participants’ statements in the prediction” the average values of indicators in younger schoolchildren with visual and hearing impairments are the same.

Table 2. The results of the study of the speech-communicative function of the predictive competence in younger schoolchildren with visual and hearing impairment according to bipolar criteria

Scales	Visual impairment (n=16)		Hearing impairment (n=27)		t (43)	p
	M	SD	M	SD		
Maximal//minimal verbalization of forecast	6.13	3.01	3.74	2.52	2.79	< 0.01
Abundance/poverty of speech-language means	6.00	2.92	3.74	2.49	2.67	< 0.01
Presence//absence of participants’ statements in the prediction	0.19	0.40	1.00	1.18	-2.67	> 0.01
Presence/absence of a future tense verbs	9.86	3.74	6.04	3.89	3.17	< 0.01

Analyzing the results of the research aimed at determining the level of the development of the speech-communicative function of predictive competence in younger schoolchildren with impaired vision and younger schoolchildren with normal development by areas of relations, we discovered the following: in one of the six areas presented in the study, namely in “attitude to the disorder”, we found difference in average values of younger

schoolchildren with visual impairment and younger schoolchildren with normal development. According to the data collected in the course of the study, the average value in “attitude to the disorder” sphere among younger schoolchildren with visual impairment is higher compared to the one in younger schoolchildren with normotypic development.

Having analyzed the spheres “attitudes to learning”, “communication with peers”, “communication with adults”, “virtual communication” and “relationships in the family”, we can conclude that in the above areas of relations the rate of the development of speech-communicative functions of predictive competence in younger schoolchildren with sensory impairments and normotypical development are about the same.

Table 3. The results of the study of the speech-communicative function of predictive competence in younger schoolchildren with visual impairment and normotypical development by areas of relations

Scales	Visual impairment (n=16)		Normal (n=50)		t (43)	p
	M	SD	M	SD		
Attitude to learning	3.67	1.67	4.14	1.51	1.01	> 0.01
Communication with peers	3.31	1.89	3.26	1.47	- 0.16	> 0.01
Communication with adults	3.13	1.67	3.67	1.27	1.36	> 0.01
Virtual communication	3.88	1.93	2.98	1.27	- 2.15	> 0.01
Attitude to the disorder	3.86	1.20	2.24	1.30	4.45	< 0.01
Relationships in the family	4.31	1.54	3.48	1.57	- 1.86	> 0.01

Analyzing the results of the research aimed at determining the level of the development of the speech-communicative function of predictive competence in younger schoolchildren with impaired vision and younger schoolchildren with normal development by bipolar criteria we discovered that:

According to one of the four criteria of speech-communicative function of predictive competence presented in the methodology, namely, the presence/absence of future tense verbs, the average value of younger schoolchildren with visual impairment is higher than the one in younger schoolchildren with normal development.

Table 4. The results of the study of the speech-communicative function of predictive competence in younger schoolchildren with sensory impairments and normotypical development by bipolar criteria

Scales	Visual impairment (n=16)		Normal (n=50)		t (43)	p
	M	SD	M	SD		
Maximal//minimal verbalization of forecast	6.13	3.00	6.16	2.89	0.42	> 0.01
Abundance/poverty of speech-language means	6.00	2.92	5.92	2.51	- 0.10	> 0.01
Presence//absence of participants' statements in the prediction	0.19	0.40	0.28	0.73	0.48	> 0.01
Presence/absence of a future tense verbs	9.88	3.74	7.42	3.89	2.41	< 0.01

The analysis of the results showed that in such areas of relations as “attitude to learning” and “relationships in the family” there is a difference in average values of younger schoolchildren with hearing impairment and younger schoolchildren with normal development. The values of younger schoolchildren with normal development in these areas are higher than those of younger schoolchildren with hearing impairment.

Table 4. The results of the study of the speech-communicative function of predictive competence in younger schoolchildren with hearing impairment and normotypical development by areas of relations

Scales	Hearing impairment (n=27)		Normal (n=50)		t (43)	p
	M	SD	M	SD		
Attitude to learning	1.59	1.28	4.14	1.51	7.43	< 0.01
Communication with peers	2.56	1.74	3.26	1.47	1.87	> 0.01
Communication with adults	2.40	1.97	3.66	1.27	3.39	> 0.01
Virtual communication	2.40	1.85	2.98	1.27	1.60	> 0.01
Attitude to the disorder	2.85	1.88	2.24	1.30	- 1.68	> 0.01
Relationships in the family	2.74	1.65	3.48	1.57	1.94	< 0.01

Analyzing the results of the research aimed at determining the level of the development of the speech-communicative function of predictive competence in younger schoolchildren with hearing impairment and younger schoolchildren with normal development by bipolar criteria, we found difference in average values of younger students with hearing impairment and younger students with normal development in such criteria as “maximum//minimum verbalization of forecast” and “Abundance/poverty of speech-language means”. The values of these bipolar criteria were higher in younger schoolchildren with normal development compared to younger schoolchildren with hearing impairment.

Table 5. The results of the study of the speech-communicative function of predictive competence in younger schoolchildren with hearing impairment and normotypical development by bipolar criteria

Scales	Hearing impairment (n=27)		Normal (n=50)		t (43)	p
	M	SD	M	SD		
Maximal//minimal verbalization of forecast	3.74	2.52	6.16	2.89	3.66	< 0.01
Abundance/poverty of speech-language means	3.41	2.49	5.92	2.51	3.64	< 0.01
Presence//absence of participants' statements in the prediction	1.00	1.18	0.28	0.73	- 3.31	> 0.01
Presence/absence of a future tense verbs	6.04	3.87	7.42	3.48	1.60	> 0.01

After completing the research, we could develop a strategy for the development of the speech-communicative function of predictive competence in younger schoolchildren with sensory impairments using prognostic tasks.

4. Discussion

The relevance of the issue of creation of strategy for the development of speech-communicative function of predictive competence lies in the fact that successful socialization and integration of younger schoolchildren with sensory impairments is impossible without a developed speech-communicative function since communication is very important for successful socialization of younger schoolchildren with visual and hearing impairment in society and because it helps to form the forecasts.

The goal of the strategy is to develop speech prediction skills in younger schoolchildren with visual and hearing impairments using special techniques and methods for the development

of speech-communicative function of predictive competence. We identified the following objectives for the strategy of the development of the speech-communicative function of predictive competence:

1. to increase the extensiveness of verbal prognosis in younger schoolchildren with impaired vision and hearing, that is, to let them give detailed prognosis consisting of several sentences;
2. to develop the ability to use lexical-grammatical and syntactic constructions according to the age;
3. to develop the use of other participants' statements in the forecast in the form of direct or indirect speech;
4. to teach the use of the future tense in the speech;
5. to develop in younger schoolchildren with sensory impairments the ability to navigate in the proposed textual and visual content when preparing a descriptive story.

The participants of the proposed strategy for the development of the speech-communicative function of predictive competence were chosen among children of primary school age with visual and hearing impairments. The strategy consists of three prognostic tasks that subject need to complete. Answers are given orally. The experimenter records them from the words of younger schoolchildren with sensory impairments in the answer sheets. The predictive tasks in our proposed strategy for the development of predictive competence are presented in the form of picture material and descriptive stories. All tasks are divided into 6 areas of relations which represent the most significance for children of primary school age with sensory impairments.

5. Conclusions

The study revealed that the speech-communicative function in younger schoolchildren with hearing impairments and younger schoolchildren with visual impairment is formed not well enough. After analyzing and comparing the average values in the proposed spheres of relations and bipolar criteria, we made the following conclusions:

1. Younger schoolchildren with impaired vision and hearing use minimum of verbalization in their answers, that is, the answer is more often always given in the form of a simple unextended sentence containing different verbs.
2. The answers given by younger schoolchildren with visual and hearing impairment are mainly characterized by the poverty of using speech-language means, that is, they experience difficulties in using lexical-grammatical and syntactic structures and do not know how to use language means in accordance with given speech situation.
3. In most cases, younger schoolchildren with visual and hearing impairment do not have statements of other participants in their forecasts – only few of them use direct or indirect speech in their answers when talking about other people's statements.
4. The absence of future tense verbs in the answers of younger schoolchildren with impaired vision and hearing – most often they use verbs of present or past tenses.
5. In addition, younger schoolchildren with visual and hearing impairments show low values in almost all areas of relations represented in the forecasting methodology, namely in such areas as attitudes towards learning, relationships with peers, communication with adults, virtual communication, attitudes towards illness and family relationships. These data indicate a low level of formation of the speech-communicative function of predictive competence in younger schoolchildren with visual and hearing impairments.

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