

Study of the relationship between forecasting strategies and successful socialization in children with visual pathology

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Abstract. Modern psychological researches emphasize the need to identify the problems of socialization in younger schoolchildren with deficitary dysontogenesis. These studies highlight difficulties that schoolchildren face with in predicting events in communication with peers and adults, in virtual communication, in educational activities and in relation to the disease, imposing restrictions on their successful socialization. This is why it is important to identify the deficit of prediction in schoolchildren suffering from visual, hearing, speech, and musculoskeletal disorders and develop directions for the formation of prognostic competence. 184 schoolchildren aged 8 to 10 took part in the diagnostic survey: schoolchildren with normotypic development (85 children); schoolchildren having disorders of the musculoskeletal system; schoolchildren with hearing impairment; schoolchildren with visual impairment; schoolchildren with speech disorders. The study used the author's diagnostic methodology called "The ability to predict in situations of potential or real violation of social norms." The survey revealed a lack of predictive competence in younger schoolchildren with deficient dysontogenesis caused by low level of regulatory function and the ability to predict events in educational, family and virtual interaction. The study enabled to offer directions of psychological support of schoolchildren with developmental disorders depending on the development of their prognostic competencies in cognitive, regulative and speech-communicative functions and deficiency in significant spheres of relations. Possible effective strategies for schoolchildren accompaniment include the expansion of their social (real) experience and speech communication, the formation of life safety, introduction to social norms, resolving prognostic tasks and fantasy tasks, organizing and maintaining a communicative cooperative situation.

Keywords: Prognostic competence, Junior schoolchild, Developmental disorders, Psychological support.

1 Introduction

Foreign and Russian psychological researches reveal important forecasting mechanisms and patterns. According to Brisson & Sorin [1], Nadin [2], anticipation is a key issue in the developmental psychology. Such risk elements as perception, anticipatory and anticipated emotions associated with the changes in people's intentions and behavior, were noted by Sheeran and et al. [3]. In their study, Lagattuta & Sayfan [4] described how children predicted the character's thoughts about the likelihood of future events, the type and intensity of emotions. Cognitive mechanisms underlying action prediction in children with autism spectrum condition have been studied by Schuwert and et al. [5], noting that children of this category have a lack of ability to predict actions, which leads to a violation of social interaction. Debrabant and et al. [6] discovered that the predictive abilities of motor time increase at the age of 5 to 12 years and correlate with motor skills. The effects of anticipatory processing on cognitive symptoms of social anxiety are reflected in a study by Mills and et al. [7]. Skuse and et al. [8] note that the socio-communicative deficit of forecasting means a lot in terms of adaptation of children's behavior in school.

Successful socialization of younger schoolchildren is provided by prognostic activity, which forms prognostic competence. This fact is confirmed by the researches of A.I. Akhmetzyanova [9], N.P. Nichiporenko [10], L.A. Regush [11]. The difficulties of social adaptation of younger schoolchildren with limited possibilities of health reveal themselves in the disruption of communication with the surrounding social and objective world, in low social mobility, in poverty and the stereotyped nature of social interaction with peers and adults, in limited development of human and national culture [12], [13].

In this research, we study prognostic competence in relation to socialization processes as applied to dysontogenesis. In constructing the definition of prognostic competence of younger schoolchildren, we rely, on the one hand, on the concept of anticipatory consistency which is based on a certain level of development of forecasting as a personality skill. With respect to the younger school age, predictive competence is defined as the ability to predict in certain areas of relationships that are important for the life of the child and affect the process of socialization [14], [15]. The prognostic competence of a younger schoolchild with deficitary development consists of the ability to predict in learning, in relationships with a teacher, with peers, in the family, with adults, in Internet-based relationships, and also in attitude toward one's own health. Each of these spheres of relations is a necessary part of the socialization space; each of them makes special demands for anticipating the future, predicting the consequences of child's own behavior and the actions of other people. Specificity of the social situation of the development of children with disorders, including younger schoolchildren, is characterized by a large involvement in the treatment and rehabilitation process [16].

These representations make it possible to determine the content of the strategy of psychological and pedagogical support for the process of forming prognostic competence in a younger schoolchild with limited possibilities of health, which includes 2 units: diagnostic and formative. The diagnostic stage is represented by a set of methodical tools designed to diagnose prognostic competence of younger schoolchildren with developmental disorders [16]. The formative stage includes the directions of psychological support for schoolchildren with developmental disorders depending on the development of their prognostic competencies in cognitive, regulatory and communicative functions and deficiency in significant areas of relations.

2 Materials and methods

Research Methods

Within the diagnostic stage, the research was conducted in the following educational organizations of Kazan: "Secondary School # 85" (schoolchildren without developmental disorders); Kazan boarding school № 4 for children with disabilities "(schoolchildren with musculoskeletal system disorders); "Kazan boarding school named E.G. Lastochkina for children with disabilities" (students with hearing impairments); "Kazan School No. 172 for children with disabilities (schoolchildren with visual impairments), Kazan Boarding School No. 7 for children with disabilities" (schoolchildren with speech disorders).

Participants

The sample of our study consisted of schoolchildren with normal development - 85 children; with musculoskeletal system disorders - 20 children; with hearing impairment - 27 children; with visual impairment - 16 children; with speech disorders - 36 children.

Materials

The research used methodology called "the ability to predict in situations of potential or real violation of the social norm" [16]. It allows to reveal: general level of the development of predictive competence; functions and criteria of prognostic competence (regulatory function, cognitive function, communicative function); the level of predictive competence in 6 areas of relations that seem important for the younger schoolchildren: attitude towards learning; communication with peers; communication with adults; virtual communication; attitude towards the disorder; relations in the family); the level predictive competence in educational (school) and extra-curricular (out-of-school) situations.

3 The results of the study

Statistically significant differences between samples of schoolchildren were detected using Student's criteria ($p < .001$), they are presented in Tables 1

Table 1. Indicators of prognostic competence in younger schoolchildren.

<i>Prognostic competence indicators (PC)</i>		1		2		3		4		5	
		n=85		n=20		n=27		n=36		n=16	
		M	M	t(105)	M	t(112)	M	t(121)	M	t(101)	
<i>Scales</i>											
<i>Prognostic competence</i>		68.28	47.26	5.66	52.94	4.74					
<i>PC functions</i>	Regulative	30.50	23.37	4.94			25.25	3.88	3.87	3.19	
	Cognitive	15.91	10.21	4.42	10.53	5.69					
	Communicative	21.86	14.17	3.89	8.53	4.49					
<i>PC areas of life</i>	Attitude towards education	11.23	7.40	4.73	4.02	5.09					
	Virtual communication	11.20	8.00	2.98	3.84	2.90					
	Attitudes towards health	10.90	8.00	2.49							
	Attitudes towards family	12.40	7.95	4.86	3.00	3.75					
<i>PC criteria</i>	Mindset on mature // infantile forecasting strategies	8.37	4.91	6.46							
	Prosocial / antisocial behavior						9.62	2.39			
	Optimistic / pessimistic mindset	4.93	2.71	3.59			3.09	3.44			
	Constructing an active / passive position						4.91	4.71			
	Width // narrowness of the social context of forecasting;	0.82	1.50	-1.95	1.76	-2.70					
	Maximum // minimum verbalization of the forecast	8.55	3.96	6.04	3.66	5.83					
	Rational // irrational				2.34	3.86					
	Presence / absence of statements in the forecast of participants				1.67	-4.99					
	<i>Education</i>	31.58	22.30	4.23	8.80	3.92					
	<i>Out-of-school activities</i>	36.70	25.41	5.80	9.59	4.43					

Note:

1. Schoolchildren without developmental disorders
2. Schoolchildren with disorders of the musculoskeletal system
3. Schoolchildren with hearing impairment
4. Schoolchildren with speech disorders
5. Schoolchildren with visual impairments

Almost all groups of younger schoolchildren (except for schoolchildren with hearing impairments) have a weaker regulatory function of predictive competence than in schoolchildren with normal development. Cognitive and communicative functions of prognostic competence are less well formed in children with musculoskeletal disorders and with hearing impairments. In education, schoolchildren with hearing impairments and with disorders of the musculoskeletal system lack a social position, a social "Me". In virtual communication and in family relationships children of two categories also show low indicators, in contrast to their peers without developmental disorders. The distinctive feature of the forecasts of schoolchildren with speech disorders is the formation of passive position, the reflection of antisocial behavior and pessimistic attitude toward the construction of future events in their forecasts. The forecast of schoolchildren with hearing impairment differs in the narrowness of the social context, minimal verbalization of the forecast; the forecasts have no statements of the participants. Students with hearing impairments and with disorders of the musculoskeletal system have difficulties in constructing a forecast both in situations related to educational activity and in extra-curricular situations, in comparison with peers without developmental disorders.

The strategy of psychological support of schoolchildren with developmental disorders

Experimental data show a lack of predictive competence in younger schoolchildren with developmental disorders which proves the need to develop programs for the formation of prognostic competencies, to develop cognitive, regulative and communicative skills of younger schoolchildren.

The main objectives of the formative experiment are:

1. orientation of schoolchildren's mindsets toward mature forecasting strategies, revealing themselves in the variability, rationality, and detailedness of the forecast; toward optimistic construction of the expected image of the future; toward prosocial behavior which takes into account all the breadth of the social context of forecasting;
2. development of skills to construct an active position in the projected situations of the future; to maximize the verbalization of the forecast, using all language means in the forecast of the future category and the statements of the participants;
3. the formation of a positive attitude of schoolchildren to various types of activities (educational, gaming, communicating) and optimizing relations with the teacher, other students, intra-family relations.

When forming the functions of prognostic competence of younger schoolchildren with limited health possibilities, we consider it appropriate to distinguish structural, functional and content components.

Structural component assumes the accounting of prognostic competence formation stages: preparation of the child for forecasting; self-forecasting training; increasing the accuracy of forecasting.

Functional component contains the directions of development of younger schoolchildren prognostic competencies with due consideration of the content of cognitive, regulative and communicative functions. The content component involves the development of technique for the formation of each function of predictive competence with consideration of the identified age-specific features of the formation of prognostic abilities in younger schoolchildren, and includes such methods as the solution of prognostic tasks; design; role games simulating real educational and extra-curricular situations.

- Prognostic tasks assume the construction of a forecast, which sets the purpose of gaining knowledge about the future. Task conditions should contain necessary but insufficient data to obtain an unambiguous outcome; it assumes the introduction of additional data which younger schoolchild will consider necessary. Besides, the problem should reflect the relationship between the data and the answer, which have a probabilistic nature, and thereby simulate the probabilistic nature of the future. The condition and the question of the task do not strictly regulate the direction of the search for a solution which does not have an algorithm; the task makes it possible for each subject to reveal one's individuality, to show the ability to predict the future. Solving of the series of prognostic problems can be considered as one of the effective methods for developing predictive competence of younger schoolchildren with developmental disorders.
 - The next method of developing the predictive competence is designing. This is an ideal construction, or plan, and the practical embodiment of what is possible, or what should be. To turn the goal into a solved task, it is necessary to create the conditions for this goal to be achieved. Designing involves conducting special work with the most important part in the structuring and implementation of the idea embedded in the final expected result. The ability to draw up a plan and then a program of proposed work is very important and relevant in the process of implementing the project. The program should include a clear algorithm of actions to achieve the project goal. In the project, a younger schoolchild with developmental disorders solves a personally significant task, independently constructs one's knowledge and orientates oneself in the information space. Implementation of group projects teaches children to argue and defend their point of view, to negotiate, to come to a common opinion, to understand someone else's view of the situation.
 - To use the potential opportunities for younger schoolchildren with limited health possibilities in the development of predictive ability at its best, it is necessary to correctly organize the educational process and psychological and pedagogical support of schoolchildren, for example, to use of interactive methods. Such methods and techniques can include role play, pair and group work. Role-play represents a short scene played out by the students. Its purpose is to visualize, see, revitalize circumstances or events familiar to the children. Discussions and debates in role-playing games are aimed at ensuring that every child has the opportunity not only to express and justify one's opinion, but also to hear and analyze the consistency of the ideas of other participants of the discussion. The

situation of the discussion develops in such a way that it becomes necessary to build assumptions about the development of the events, relying on the existing experience, analyzed and assimilated in the form of arguments. Younger schoolchildren are also required to correctly form their speech to make the thought correctly be received by the interlocutors.

Interactive methods and techniques of teaching allow to activate cognitive, regulative and communicative skills of schoolchildren. Special psychological assistance may be required if there are difficulties in assessing the reliability and effectiveness of the develop means related to the inability to receive and give equivalent feedback. Here, the group work forms may be very effective – the ones where the children have the opportunity to recheck their views on social situations by comparing the opinions of all members of the group, improving the orientation in the means of actions and forecasts. Observation of various social interactions allows schoolchildren to master the means of regulating their own prosocial behavior, influencing the formation of a system of prognostic actions. An important moment in improving the prognostic competence hides in mental reproduction of one's own behavior in various situations.

4 Discussion and conclusions

The research revealed that schoolchildren with developmental disorders are not always able to adequately assess and predict their actions, as well as the actions of adults and peers [11, 14]. Due to the small life experience resulting from impaired visual, auditory and motor analyzers, younger schoolchildren have difficulties in predicting events in significant areas: attitudes toward education, communicating with peers, communicating with adults, in virtual communication, attitudes toward disorders, family relationships – all of these factors impose restrictions on successful socialization [12]. Deficiency of prognostic competence of younger schoolchildren with developmental disorders is determined by a low level of regulatory function and has a direct impact on the formation of a socially active personality who is able to make one's own deliberate decisions and make predictions in the field of educational, family and virtual interactions [16].

The formation of prognostic competence in younger schoolchildren with developmental disorders involves training in order to build active position in the projected future situations; maximum verbalization of the forecast, using as much language means as possible. Great importance is attached to the formation of a mindset for mature forecasting strategies manifested in the variability, rationality, detailedness of the forecast and the positive attitude to the educational and extracurricular activities and optimization of relations with the teacher, other students, and intra-family relations. Training in these skills in schoolchildren is possible with the use of prognostic tasks, the design method, role-playing games that simulate real educational and extracurricular situations.

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