Journal of History Culture and Art Research (ISSN: 2147-0626)
SPECIAL ISSUE

Tarih Kültür ve Sanat Araştırmaları Dergisi
Revue des Recherches en Histoire Culture et Art
مجلة البحوث التاريخية والثقافية والفنية

Vol. 7, No. 4, November 2018

http://kutaksam.karabuk.edu.tr

DOI: 10.7596/taksad.v7i4.1809

Citation: Rozental, S., Akhmetzyanova, A., & Artemyeva, T. (2018). Predicting Future Behaviors among Disabled Children: An Empirical Study on Schoolchildren. Journal of History Culture and Art Research, 7(4), 124-131. doi:http://dx.doi.org/10.7596/taksad.v7i4.1809

Predicting Future Behaviors among Disabled Children: An Empirical Study on Schoolchildren

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Abstract

The problem of socio-psychological adaptation and socialization among the children with developmental disabilities in society is actively studied by researchers. As the resource for the successful socialization of children with developmental anomalies, they regard the ability to anticipate that allows children to plan their own actions, avoid psychotraumatic situations and to prevent behavioral disorders and deviant behavior. The purpose of this study was to identify the specifics of future event prediction by the children with speech, sight, hearing impairment, motor disabilities and to develop an algorithm future event prediction ability in the areas of relationships with adults and peers. The authors performed an empirical study of 184 schoolchildren at the age of 8-10 years without developmental disorders and with speech, hearing, vision and motor impairment. Using the technique "The ability to predict in the situations of potential or a real violation of the social norm", a low level of the regulatory function of forecasting was revealed in the areas of learning, family and virtual interaction among younger schoolchildren with developmental disabilities. The authors developed an algorithm to develop the ability of future event prediction by the children with developmental disabilities. The algorithm includes 2 directions: the development of forecasting in the areas of educational and extracurricular activities. The system of work for each criterion of prognostic competence includes 6 stages and has a certain sequence: from individual tasks, during which A student learns the correct forecasting strategies to group forms of work that allow to consolidate the acquired skills and learn the way of their application in life conditions close to reality.

Keywords: Forecasting, Future events, Junior schoolchild, Developmental disabilities.

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Introduction

The research laws and mechanisms of forecasting is actively conducted in Russian and foreign science. Prediction is a key issue in the field of developmental psychology, according to Brisson & Sorin (2016) and Nadin (2015). The study of perception, anticipated and expected emotions associated with the changes in the intentions of people and their behavior was carried out by Sheeran et al. (2014). Schuwerk et al. (2016) studied the cognitive mechanisms underlying the predictions by children with autism spectrum disorders, noting that the children in this category have a lack of ability to predict activities and this leads to the disruption in social interaction. Lagattuta & Sayfan (2013) described in their study the way children predicted the character's thoughts about the likelihood of future events, the type and intensity of emotions. Prognostic abilities are improved at the age of 5 - 12 years and are correlated with motor skills, according to Debrabant et al. (2012). The effects of an early treatment into the cognitive symptoms of social anxiety are reflected in the study by Mills et al. (2014). Skuse et al. (2009) note that the socio-communicative deficit of forecasting is important in terms of children behavior adaptation at school.

A successful socialization of junior schoolchildren is provided by prognostic activity, in the process of which prognostic competence is developed. This fact is confirmed by the studies of A.I. Akhmetzyanova (2016), N.P. Nichiporenko (2007) and L.A. Regush (2003). The difficulties of social adaptation among younger schoolchildren with disabilities are manifested in the disruption of communication with the surrounding social and objective world, in low social mobility, in poor and stereotyped nature of social interaction with peers and adults, in the limited development of human and national culture (Denisova et al., 2012; Artemyeva, 2016).

In the framework of this study, we consider prognostic competence in relation to the processes of socialization as applied to dysontogenesis. During the development of the prognostic competence definition of a junior schoolboy, we rely, on the one hand, on the concept of anticipatory consistency, which is based on a certain level of forecasting development as a personal ability. In the case of junior school age, predictive competence is defined as the ability to predict the areas of relationships that are important for the life of a child, which capture the process of socialization (Akhmetzyanova, 2017; Garanina & Artemyeva, 2018). The prognostic competence of a junior schoolchild with developmental disabilities consists of the ability to predict in learning, in the relationship with a teacher, with peers, in the relationships in the family, with adults, in the relationships that are implemented in the Internet space, and in relation to one's own health. Each of these spheres of relations makes special demands for anticipating the future, predicting the consequences of one's own behavior and the actions of other people. The specificity of the social situation of a disabled child development, including a junior student, is characterized by a large involvement in the treatment and rehabilitation process (Akhmetzyanova, 2017; Akhmetzyanova et al., 2017).

Purposes of the Study

In this study, two tasks were solved consistently.

1. The study of prediction specifics among the children of primary school age with developmental disabilities: speech, hearing, vision and motor impairments.

2. The development of an algorithm to develop the ability of children with developmental disabilities to predict future events in the areas of educational and extracurricular activities.

Methods

The empirical study was conducted in Russian schools. The study involved 85 primary school children without developmental disabilities; 20 schoolchildren with motor impairments; 27 schoolchildren with hearing impairment; 16 schoolchildren with visual impairments; 36 schoolchildren with speech disorders.

The study used the technique "The ability to predict in the situations of potential or real violation of social norms" (Akhmetzyanova, 2017). It allows to reveal the general level of predictive ability development; the functions and the criteria for predictive competence; the level of ability to predict in 6 areas of relations: the attitudes toward learning; the communication with peers; the communication with adults; virtual communication; the attitude towards the disease; the family relations; the level of ability to predict in educational and extra-curricular situations.

Results

The results of the empirical study are shown in Table 1 and Table 2. The average values for prognostic competence indicators are presented, between which statistically significant differences were found by the Student's test ($p < .001$).

Table 1. Mean values according to the indicators of predictive competence among younger schoolchildren.

Samples	Prediction competence functions			Spheres of relationships				Activity type	
	Regulative	Cognitive	Speech	Learning	Virtual communication	Health	Family	Learning activity	Extracurricular activity
Pupils without disabilities	30.50	15.91	21.86	11.23	11.20	10.90	12.40	31.58	36.70
Schoolchildren with motor impairments	4.87	4.13	6.76	7.40	8.00	8.00	7.95	22.30	25.41
Schoolchildren with hearing impairments		4.53	8.53	7.05	9.33		10.16	24.85	28.42
Schoolchildren with speech disorders	25.25								
Schoolchildren with visual impairments				3.87					

Table 2. Mean values according to the criteria of prognostic competence among younger schoolchildren

Samples	Prediction competence criteria							
	1	2	3	4	5	6	7	8
Pupils without disabilities	8.37	4.33	4.69	6.85	0.82	8.55	8.91	0.20
Schoolchildren with motor impairments	4.90	2.71			1.50	3.96		
Schoolchildren with hearing impairments					1.76	4.20	6.98	1.33
Schoolchildren with speech disorders			3.09	4.91				
Schoolchildren with visual impairments								

Note:

1. Attitude on mature // infantile forecasting strategies

2. Social / antisocial behavior

3. Optimistic / pessimistic attitude

4. Development of an active / passive position

5. Latitude // narrowness of the social context of forecasting;

6. Maximal // minimal verbalization of the forecast

7. Rational // irrational

8. Presence / absence of participant statements in a forecast

The study found that the schoolchildren without developmental disorders, have better regulatory, cognitive and speech-communicative functions of prognostic competence than among the schoolchildren with developmental disorders.

Among younger schoolchildren with motor impairments, the anticipation of events related to such criteria as the maturity / infantility of the forecasting strategy, the optimistic / pessimistic attitude toward the development of an expected image of the future, the maximum / minimum verbalization of the forecast is much worse than among the peers without developmental disabilities. However, during the prediction, the children with motor impairments make a prediction taking into account broader social relations and relationships.

Weak-hearing schoolchildren often use broad social connections in forecasts; they use direct speech in their statements.

The differences between schoolchildren without developmental disorders and the schoolchildren with visual impairments are revealed only in the regulatory function, in relation to studies.

The schoolchildren with speech disorders have a weaker ability to predict future events and to control events from the emotional-motivational aspect than that of their peers. The schoolchildren with speech impairments are more likely to be attuned to an unfavorable outcome of events.

Discussion

The empirical study confirmed our assumption of a low level of predictive ability among the children with developmental disabilities and allowed us to develop an algorithm to develop the ability to predict future events.

This algorithm is based on the theoretical propositions by L.A. Regush (2003) that during the younger school age the emergence of anticipatory images is influenced by the differentiation of memory and imagination representations. The prediction at the level of memory representations, based on the experience of direct perception, is more accessible to a younger pupil than the prediction in the imagination representations, requiring the transformation of images and their rethinking (Sheeran et al., 2014). They developed the algorithm to develop the prediction ability among the children with developmental disabilities, including individual and group forms of work, consisting of several stages (Figure 1)

Individual Form of Work:

Stage 1. A schoolboy is presented with a visual image of a situation, accompanied by a verbal explanation. In the process of this task fulfillment, the pupil develops an idea about different variants of event development that reflects the polar aspects of each criterion in the forecast. A junior schoolchild, with the help of a psychologist, learns to choose the most rational variant of the forecast.

Stage 2. A junior schoolchild is presented with a visual image of a situation, accompanied by a verbal explanation. In the process of this task a student learns to analyze the presented variants of the forecast independently and choose the most rational one.

Stage 3. A junior schoolchild has a visual image of a situation, accompanied by a verbal explanation. In the course of the assignment performance, a student learns to analyze a situation, highlight significant relationships, and build his own forecasts on their basis, explaining his position.

Stage 4. A junior schoolboy has an incomplete story. In the course of the assignment, the child represents the situation described in the story, analyzes the situation and describes the further development of events. Then there is a complete reading of the whole work by the student and the discussion of this variant of event development with a pedagogue-psychologist (Akhmetzyanova, 2017).

***Group Mode of Work*:**

At this stage, visual material is presented only at the beginning of the work, and then a verbal description of the situation is used in the process. Thus, the transition from visual-figurative to verbal-logical (conceptual) thinking takes place.

Stage 5. Younger schoolchildren discuss the situation in groups, analyze it, derive several variants of possible event development. Next, each group reads their options, and another group agrees or refutes the forecast, explaining their point of view. This is necessary for the development of communication and cooperation skills, the ability to analyze the behavior of other people, different points of view. As the result of group work, the schoolchildren will express their position and justify it, and will also predict the consequences of the presented actions (Artemyeva, 2016).

Stage 6. Junior students analyze the situation in groups, determine a possible scenario, then stage it. Thus, a speech therapist needs to organize a psychologically comfortable situation for self-disclosure and creative self-expression of students, to reveal their imagination. You can use any previously considered situation or a literary work used during previous lessons for staging.

Table 3. The algorithm developing the ability of children with the developmental disabilities to future events prediction.

	Individual form of work
1st stage	The work on the development of ideas about different scenarios, reflecting the polar aspects of each criterion in the forecast. A teacher-psychologist helps a student to choose a right option.
2nd stage	The work on the development of the ability to analyze the presented variants of the forecast independently. A pupil chooses a necessary variant of the forecast independently.
3rd stage	The work on the development of the ability to analyze the situation independently. A pupil develops the forecast variant independently, explaining his position. The support is presented by the visual image of the situation.
4th stage	The work on the development of the ability to analyze the situation independently, relying on a verbal description (a story). A pupil develops the forecast option independently, explaining his position.
	Group mode of work
5th stage	The work on the development of skills to offer several options for the development of events working in groups. The development of the ability to analyze the forecasts of another group, expressing their opinion. The reliance on verbal description of the situation, a visual image is excluded. Pupils are divided into groups, each group forms several variants of the forecast independently. They read out the forecast options for another group that expresses an opinion with respect to these forecasts.
6th stage	The work on the consolidation of forecasting skills, through the staging of predicted situations in groups. The reliance is on verbal description of a situation, a visual image is excluded. Pupils are divided into groups, each group independently analyzes the situation, forms a variant of the forecast, then stages it.

Conclusions

Almost all groups of junior schoolchildren (except for the schoolchildren with hearing impairments) gave a weaker regulation function of predictive competence is weaker than among the schoolchildren with no disabilities in development. Cognitive and speech-communicative functions of prognostic competence are developed weaker among the children with motor impairments and with hearing impairments. In the sphere of teaching, the schoolchildren with hearing impairment and motor disabilities do not have a social position. In the sphere of virtual communication and in family relations the children of two categories also have low indicators, in contrast to their peers without the disruption in development. The peculiarity of schoolchild forecast with speech disorders is the construction of a passive position, the reflection of antisocial behavior in the forecast and a pessimistic attitude toward the development of future events. Among the schoolchildren with hearing impairment, the forecast has the narrowness of the social context, minimal verbalization of the prognosis, and there are no statements of the participants in the forecast. The schoolchildren with hearing impairments and motor disabilities have difficulties in forecast development both in the situations related to educational activities and in extra-curricular situations.

The mechanism has been developed for developing the ability to predict future events for the children with developmental disabilities, which includes the solution of the following main tasks: the formation of an attitude toward prosocial behavior strategies; the formation of an attitude toward mature behavior strategies; the development of an optimistic attitude towards a desired image of the future development; the development of an active position in a projected future situation; the development of variability,

detail in a forecasted situation; the development of the breadth of the social context for forecasting; the formation of rational models of behavior; the formation of speech-communicative skills.

The main areas of work are highlighted: the development of forecasting in the field of educational activities and in the field of extracurricular activities.

The work on the development of the ability to predict in the academic and extracurricular sphere relies on the following criteria: the attitude toward a social behavior; the attitude towards mature forecasting strategies; an optimistic attitude towards forecasting; the development of an active position in a forecasted situation; the attitude on forecast details; the breadth of the social context of forecasting; the attitude on a rational forecast. The work on the variability criterion is carried out in parallel with the process of working on each of the abovementioned criteria (steps 1,2,5). The work on the formation of criteria for maximum verbalization of the forecast, the completeness of the speech language tools, the categories of future time are also carried out in parallel. The development of predictive ability will allow the children with developmental disabilities to control their own activities and the activities of possible participants in a forecasted situation consciously, to implement socially approved behavior, and to form a social position.

Acknowledgments

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University. The research was carried out with the support of the Russian Foundation for Basic Research and the Government of the Republic of Tatarstan within the framework of the research project № 17-16-16004-OGN "Prognostic competence of younger schoolchildren with disabilities in the prevention of deviations".

Disclosure Statement

No potential conflict of interest was reported by the authors.

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