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

A.I. Akhmetzyanova, T.V. Artemyeva, R.R. Khakimullina

Abstract. The ability of children to interact with peers and adults according to generally accepted social norms and rules of behavior in society allows them to adapt to new social conditions. Children with visual impairments are characterized by certain features associated with the sensory sphere, which limit their opportunities for getting information from the outside world, lead to changes in the methods and means of communication, and cause difficulties for social adaptation and gaining social experience. The ability of children to predict future events may serve as an indicator of how well they orient themselves in social reality.

The purpose of the study was to identify the correlation between the forecasting capability of children and indicators of socialization of preschoolers with visual impairments. The study involved 249 children aged 5-7 years who attend preschool educational institutions – 210 children with no visual impairment and 30 children with visual impairment.

The results of the current study suggests that children with visual impairments have difficulties with social adaptation, gaining social experience and learning the rules in a normative situation. The limited opportunities for obtaining information from the outside world make it difficult for them to develop means of communication with adults and peers. Children with visual impairments find it harder to master the skills of caring for their things, not always do they follow safety rules in interaction with strangers and in their behavior, and their interaction with adults is often restricted. Children with visual impairments are less successful in free communication with adults and peers; they are less likely to comply with safety rules and systematic requirements and observe daily rules in compare to children with no developmental disorders.

The study suggests the need for introduction of special activities aimed at developing the ability to anticipate future events and developing successful social behavior in children with visual impairments.

Keywords: Forecasting, Socialization, Children, Preschool age, Visual impairments

1 Introduction

Children interact with culture all the time, this interaction determines the success of socialization [1,2,3]. Social situation of development determines social relationships of a child with the people around him, and the main role is played by adults. The more a child is able to overcome natural egocentrism and subordinate one's behavior to cultural standards, the more congruent to the culture his behavior seem in social interaction. Culture gives children the means that allow them to learn and explore the world, to express their feelings and to organize their behavior [4,5]. P.I. Barkhatova states that the culture of behavior is being formed by assimilating universal moral values, ethical norms of behavior, aesthetic culture [6].

Solntseva writes that Children with visual impairments are characterized by certain features associated with the sensory sphere, which limit their ability to get information from the outside world, lead to changes in methods and means of communication, and cause difficulties for social adaptation and gaining social experience. [7]. These factors may impede the assimilation of rules in a regulatory situation. T.Y. Shilina notes that preschoolers with visual impairments are characterized by a poor development of social development components such as understanding of moral norms, awareness of the rules of behavior, self-esteem, value orientations [8].

The danger of misunderstanding and non-compliance with norms and rules of behavior by children with impaired development leads to the development of problematic behavior [9,10,11] and significant disruption in socialization, which may cause secondary isolation of children [12,13,14]. Difficulties in understanding and mastering the norms and rules of social interaction make it difficult for a child with developmental disorders to socialize and adapt to new social conditions.

The ability of children to predict future events may serve as an indicator of how well they orient themselves in social reality. The ability to anticipate indicates a high level of the development of the ability to orient oneself in reality – both in cognitive and emotional-personal components. Intensive development of forecasting capability in preschool years makes it an important resource for positive socialization of children. This is especially important for children with disabilities who lack the ability to predict.

Kalyuzhin, P.V., Sirotkina, T.Y. pay attention to the fact that the peculiarities of emotional and anticipatory images of a possible result influence the whole nature of a child's activity [15]. Studies show that in the preschool period, children begin to construct future scenarios, which allows them to plan and prepare for the future. However, there are many other consequences – such as the role of developing

foresight in anticipating possible dangers – that remain unexplored [16]. Moreover, young children are sensitive both to the goal of forecasting and to strategy they choose [17].

After several empirical studies, foreign researchers have found that children's capability to recall past events and the ability to predict future events develop at the age of 3 - 5 years. It was found that by the age of 4 and 5, children are fully capable of reporting on events that took place yesterday and will happen tomorrow [18].

It has been also discovered that by the age of 4 children acquire basic cognitive components necessary for the mental construction of specific future events [19]. Prediction of an emotional response to future opportunities implies the ability to model situations mentally. Young children gradually master the ability to represent future events at the age of 3 – 5 years (Atance & Jackson, 2009; Atance & Meltzoff, 2005; McCormack & Atance, 2011; Redshaw & Suddendorf, 2013; Suddendorf & Moore, 2011) [20, 21, 19, 22], Although this skill continues to evolve in subsequent years, it is precisely the end of the preschool period when children undergo important events in a number of areas, such as self-awareness and reasoning about mental states that help to develop future-oriented thinking (Payne, Taylor, Hayne & Scarf, 2015; Suddendorf & Redshaw, 2013) [19]. General understanding of emotions is very important for effective forecasting, and at about 5 years of age, some significant events occur again – children start to realize that a person’s current emotions can be formed by a memory of the past or anticipation of the future (Lagattuta, 2014; Lagattuta, Wellman & Flavell, 1997) [23]. Reuter’s study shows that children can use several sources of information to predict subsequent words and revise forecasts before new linguistic information arrives [24].

2 Materials and methods

Research Methods

Within the diagnostic stage, the research was conducted in the following educational organizations of Kazan: "Secondary School # 85", "Secondary School # 110", "Secondary School # 340", "Secondary School # 217", "Secondary School # 55", "Secondary School # 62", "Secondary School #27" (schoolchildren without developmental disorders); "Kazan School No. 172 for children with disabilities (schoolchildren with visual impairments).

Participants

The study involved 249 children aged 5-7 years who attend preschool educational institutions. These include 210 children with no visual impairment and 30 children with visual impairments (strabismus, amblyopia, astigmatism).

Materials

Expert assessment of children's behavior was carried out using the method called "Psychological distress and atypical behavior scale" developed by A.M. Kazmina, N.A. Konovko, O.G. Salnikova, E.K. Tupitsina, E.V. Fedina.

- Monitoring of children in organized and free activity (A.G. Samokhvalova).
- Exploration of the specifics of communication and interaction of children with peers and adults, their social and emotional intelligence involved the "Emotional

faces" method developed by N.Y. Semago. (Evaluation of adequacy, accuracy and quality of identification of the emotional state) [25].

- A set of techniques for determining the level of the development of preschoolers' communicative skills (N.Y. Veraksa): their understanding of the tasks set by adults in various situations of interaction; their comprehension of the state of peers and ideas about the ways of expressing their attitude towards adults and peers) [26].
- The technique "Determination of cultural congruence of the younger student" developed by L.F. Bayanova, T.R. Mustafina was used to determine the level of preschoolers' understanding of social norms and values ("Obedience, meeting the expectations of an adult"; "Safety"; "Self-care, hygiene"; "Self-control") [27].
- The study of the features of prognostic activity involved the technique called "Try to guess" created by L. I. Peresleni and V. L. Podobed [28].

3 The results of the study

The results of the empirical study of forecasting indicators and skills of children with visual impairments are presented in Table 1.

Table 1. Descriptive statistics on indicators of socialization and forecasting in preschool children with visual impairments

Techniques	Indicators of techniques	Min	Max	SD	M	
					Hearing impairments	No hearing impairments
Cultural congruence	Obedience	15,00	54,00	10,09	**35,76**	**44,54**
	Safety	28,00	70,00	10,48	**51,56**	**56,31**
	Hygiene	10,00	47,00	10,47	**26,96**	**39,10**
	Self-control	4,00	39,00	7,81	**23,70**	**33,29**
Communicative skills	Understanding of tasks	0,00	3,00	,.959	2,33	2,70
	Understanding of states	1,00	3,00	,56	2,63	2,70
	Attitude towards adult	0,00	3,00	,77	**2,13**	**2,48**
	Attitude towards peer	1,00	3,00	,64	2,26	2,39
Samokhvalova's	Regime moments, c-p	28,00	81,00	11,91	57,03	67,39

questionnaire	Regime moments , c-e	26,00	79,00	13,79	51,53	66,2
	Regime moments , c-peer	22,00	72,00	14,75	47,80	65,25
	Organized activity, c-e	26,00	74,00	13,26	53,00	66,48
	Organized activity , c-peer	19,00	72,00	14,41	48,53	64,91
	Free activity, c-e	25,00	73,00	14,10	50,13	65,56
	Free activity , c-peer	24,00	72,00	13,54	51,90	65,71
Atypical behavior	Disassociation	0,00	17,00	4,21	4,40	1,74
	Anxiety	0,00	20,00	4,48	4,46	2,44
	Depression	0,00	13,00	3,26	2,46	1,02
	Maladjustment	0,00	8,00	1,62	,73	,62
	Hyperactivity	0,00	15,00	3,64	4,13	2,69
Forecasting	Forecasting errors	1,00	3,00	,80	2,20	2,65
	Distraction errors	1,00	2,00	,44	1,26	1,63
	Reproduction	1,00	3,00	,63	2,06	2,18
	Strategies	2,00	4,00	,6	3,46	3,63
Semago's technique	Emotions	0,00	10,00	2,50	**5,76**	**6,86**

Note: indicators which represent statistically significant differences using Student's t-test are marked in bold (p <0.001)

It was discovered that there are statistically significant differences (Student t-test, p <0.001) among children in all indicators of the "cultural congruence" technique: "Obedience" (t = 5.51); "Security" (t = 2.14); "Hygiene" (t = 6.52); "Self-control" (t = 7.57). "Attitude towards adults" indicator of communicative development (t = 3.04) in children with visual impairments was also statistically lower than in normotypical children. Children with visual impairments understand and differentiate emotional states worse than their normotypic peers (t = 2.96).

We found a correlation between the "Prediction Errors" indicator – which reflects the efficiency of generating adequate forecasts as well as the ability to keep forecasts in mind, compare them and make inferences – and the "hygiene" indicator (r = .41) with understanding of the tasks set by adults in various situations of interaction (r = .52).

We have also revealed correlation links between the speed of forecast formation and indicators reflecting the level of communicative development which manifests itself in interaction with parents, caregivers and peers in regime moments (r = .42, r = .38, r = .43).

The “distraction error” indicator, which reflects the stability of volitional attention, correlates with obedience (r = .53): if child’s behavior meets expectations of an adult, he will be more focused on the thought that runs through the monologue or dialogue, he will carefully regulate communicative predictions; with self-care, hygiene (r =. 63), with self-control (r = .50): if a child fulfills the requirements of an adult in hygiene standards and if he controls himself, he will not be distracted and will predict the course of communication and analyze further speech actions, he will think before shouting out or doing something; with indicators reflecting the level of communicative development, which manifests itself in interaction with educators and peers in regime moments (r = .52, r = .59), in organized activities (r = .51, r = .56), in free activities (r =. 49, r = .46): a child can regulate the forecasting in these situations and it has a positive effect on communication skills.

The “reproduction” indicator is associated with a long-term memory, it is connected with the level of communicative development in interaction with peers during regime moments (r = .46): if a child engages in dialogue, interacts with peers during a walk or a wash, than he is more able to remember and reproduce previously predicted thoughts and rely on past communication experience.

The indicator is connected with child obedience (r = .45), hygiene (r = .42), with indicators of the level of communicative development in interaction with parents, caregivers in organized activities (r = .46) and free activity (r = .45).

4 Discussion and conclusions

Compliance with safety rules is a part of the culture of modern children which requires from them certain conformity and congruence with the culture. According to Obukhova L.F. in preschool years, controlled actions begin to dominate over impulsive ones [29]. Firstly, self-control is associated with the emergence of the subordination of motives, and secondly – with the beginning of the development of voluntary behavior in children, which means that a child of preschool age is able to control his behavior in a situation of social interaction. This thesis is confirmed by the results of our study. Children with no developmental disorders showed high results on the "Self-control" factor – it proves the ability of children to control their emotional reactions and behavior in social situations.

The results of our study suggest that children with visual impairments have difficulties with social adaptation, gaining social experience and learning the rules in a normative situation. Limited opportunities for obtaining information from the outside world make it difficult for them to develop means of communication and with adults and peers.

In terms of socialization of children with different types of dysonogenesis, the researchers point out the specific features of assimilation and reproduction of social connections and relations. A study by Guralnick [30] found that it is very difficult for visually impaired children to keep good interaction with their peers since

there are certain limitations in their behavior caused by difficulties in obtaining information through vision. Studies have shown that children with visual impairments demonstrate playful behavior, which has primarily individual-exploratory nature, i.e. these kids do not seek to engage in collective games. Studies have revealed that children with developmental disabilities experience difficulties in social interaction – their behavior does not always meet the expectations of adults, they often violate the norms and rules of interaction in a situation of interaction with peers, which affects socialization of children. In addition, not in all situations do visually impaired children maintain self-control – they cannot always follow the rules of social interaction and control their actions.

Studies of Smirnov [31], Corsaro [32], Denham [33], Mirabile [34] emphasize the importance of friendly relations between children of preschool age, since they form the basis for understanding the rules of relationships and the ability to find adequate ways of expressing attitudes towards peers, which, under certain conditions of upbringing, develop into real motives and encourage children to take socially valuable behavior towards others. This study confirmed that the ability for self-control of children with visual impairment in social interaction is significantly lower in compare to their normotypic peers [35].

Empirical study helped to discover that in children with no developmental disorders, values of indicators for all factors of the methodology which reflect the level of cultural congruence and compliance with social norms and rules are significantly higher in compare to their peers with visual impairments. Children with normative development showed the highest results in the “Obedience” indicator, which reflects the congruence of children's behavior to the expectations of adults regarding typical rules of interaction in a normative situation. Children usually demonstrate honesty, respect for adults, they also organize their behavior in accordance with the requirements and expectations of adults. High results in the “Self-Control” indicator reflects the compliance of children's behavior with the rules providing for careful execution of tasks, accuracy, self-control of emotional reactions, attentiveness and restraint.

The study revealed that children with normative development show higher average values in all indicators of techniques. However, children with visual impairments showed higher average values on such scales as disassociation, anxiety, depression, disadaptiveness, hyperactivity in compare to their normotypical peers. Children with visual impairments showed lower results in the following indicators: “understanding of tasks”; “organized activity in a “child-peer” interaction situation; in “free activity in a “child – educator” situation of interaction; “reproduction”.

Child forecasting turned out to be determined by the child’s understanding of the rules and social norms: the better the child distinguishes and analyzes the task, the faster he is able to predict speech actions, answers to questions from an adult. The speed of forecast formation depends on the indicators reflecting the level of communicative development of a child, his interaction with parents, caregivers in organized and free activities.

Acknowledgments: The research was carried out with the financial support of the Russian Foundation for Basic Research under research project No. 19-013-00251

“Prediction as a resource for socialization of children with disabilities: the structural-functional model”.
We would like to thank the engagement and involvement of the research participants and their parents.
Conflicts of Interest: The authors declare no conflict of interest.

References

1. Akhmetzyanova, A.I.; Artemyeva, T.V.; Tvardovskaya, A.A.: Specific aspects of forecasting and perception of the norm by juniour schoolchildren with developmental disorders. Integration of Education 21 (3), 489 –504 (2017).
2. Bayanova, L.F.; Tsivilskaya, E.A.; Bayramyan, R.M.; Chulyukin, K.S.: A cultural congruence test for primary school students. Psychology in Russia 9 (4), 94-105 (2016).
3. Bayanova, L.F.: Psychology of a preschooler in a normative situation; Kazan university publishing house: Kazan, Russia, 128 p.(2017).
4. Veraksa, A.; Almazova, O.; Bukhalenkova, D.; Bayanova, L.; Popova, R.: Features of executive functions development in Moscow and Kazan preschoolers. European Proceedings of Social and Behavioural Sciences XLIII, 648–658 (2018).
5. Vygotsky, L.S.: Developmental psychology as a phenomenon of culture,"Institute of practical psychology" Publishing house NPO MODEK: Moscow, Russia, 512 p. (1996).
6. Barkhatova, P.I.: Developing the culture of behavior. Preschool education 11, 18 – 25 (2009).
7. Solntseva, L.I.: Psychology of children with visual impairment: children's typhoid psychology, Classic Style: Moscow, Russia, 256 p. (2006).
8. Shilina, T.Y.: Socialization of children of senior preschool age with visual impairment. Actual issues of social work with various categories of population, The collection of articles of the IV international scientific-practical conference, Kirov, Russia, 232-234 (2017).
9. Rozental, S.; Akhmetzyanova, A; Artemyeva, T.: Predicting Future Behaviors among Disabled Children: An Empirical Study on Schoolchildren. Journal of History Culture and Art Research 7(4), 124-131 (2018).
10. Akhmetzyanova, A.I.: Anticipatory-prognostic mechanism of sociopsychological adaptation in disruptive behavior. The European proceedings of social & behavioural sciences 44, 508-515 (2018).
11. Akhmetzyanova, A.I., Artemyeva, T.V.: Modeling of prognostic competence as a resource of socialization of a younger student with deficient development. Bulletin of SUSU. 11 (1), 68-74 (2018).
12. Bellini, S.; Hume, K.; Pratt, C.: Early intervention for young children on the autism spectrum: Parent’s perspective. The Reporter 11(2), 1-4 (2006).
13. Chereneva, E.A.; Volodenkova, E.A.: Influence of parent-child relationships on manifestations of aggressive behavior in children of primary school age with an autism spectrum disorder: monograph. Krasnoyarsk state pedagogical university named after V.P Astafiev: Krasnoyarsk, Russia, 172 p. (2017).
14. Maltinskaya, N.A.: The development of educational behavior in children with ASD. Bulletin of pedagogical innovations 2 (42), 67-74 (2016).
15. Kalyuzhin, P.V.: Psychological and pedagogical features of the development of an emotional anticipation mechanism of the result in preschoolers. Methodology, theory and practice in modern pedagogy, psychology, philosophy: materials of the III International Scientific and Practical Conference (Novosibirsk, April 21, 2014). - Novosibirsk: TsSRNI LLC, 78-95 (2014).

16. Suddendorf, T.: The Emergence of episodic foresight and its consequences. Child development perspective, 11 (3). 191-195 (2017).
17. Thevenow-Harrison, J.T., W. Kalish, Ch.: Learning from non-representative instances: children's sample and population predictions. Journal of experimental child psychology 152., 335–342 (2016).
18. Busby, J., Suddendorf, T.: Recalling yesterday and predicting tomorrow. Cognitive Development 20, 362 – 372 (2015).
19. Suddendorf, T., Redshaw, J.: The development of mental scenario building and episodic foresight. Annals of the New York Academy of Sciences 1296 (1), 135-153 (2013).
20. Atance, C.M., Meltzoff, A.N.: My future self: Young children's ability to anticipate and explain future states. Cognitive Development 20, 341–361 (2005).
21. Atance, C.M., Jackson, L.K. :The development and coherence of future-oriented behaviors during the preschool years. Journal of experimental child psychology 102 (4), 379-391 (2009).
22. Sourn-Bissaoui, S. Le, Aguert, M., Girard, P., Chevreui, C.L., Laval, L.V.: Emotional speech comprechension in children and adolescents with autism spectrum disorders J. Com. Disord. 48, 309–320 (2013).
23. Gautam, S., Bulley, A., von Hippel, W., Suddendorf, T.: Affective forecasting bias in preschool children. Journal of Experimental Child Psychology 159, 175-184 (2017).
24. Reutera, T., Embersona, L., Rombergb, A., Lew-Williamsa, C.: Individual differences in nonverbal prediction and vocabulary size in infancy. Cognition Issue 176, 215-219 (2018).
25. Semago, N.J.: Theory and practice of assessing mental development of a child. Preschool and primary school age. [Text] / N.Y. Semago. - St. Petersburg: Ryech ,. 384 (2005).
26. Veraksa, N.E .: Diagnostics of a child's readiness for school [Text]: A Handbook for Preschool Teachers. - Moscow: Mosaica-Synthesis 231 (2010).
27. Bayanova, L.F.; Mustafin, T.R.: Methodology for the study of preschooler's compliance with the rules of a normative situation. Philology and Culture №3 (41), 325-332 (2015)
28. Peresleni, L.I.: Study of forecasting activity for description of the level of mental development [Text] / L.I. Peresleni, V.L. Podobed. Defectology 6, 11-17 (1982).
29. Obukhova, L.F.: Developmental psychology: textbook for bachelors; Yurayt Publishing House: Moscow, Russia 460 p (2013).
30. Guralnick, M.J.: Early intervention approaches to enhance the peer-related social competence of young children with developmental delays: A historical perspective. Infants & Young Children 23, 73-83 (2013)..
31. Smirnova, E.O., Kholmogorova, V.M.: Interpersonal relations of preschoolers: diagnostics, problems, correction, VLADOS: Moscow, Russia 160 p. (2003).
32. Corsaro, W.A.: Interpretive reproduction in the «Scuola Materna». European Journal of Psychology of Education 8, 357–374 (1993).
33. Denham, S.A.: Dealing with feelings: How children negotiate the worlds of emotions and social relationships. Cognition, Brain, Behavior 11(1), 1–48 (2007).
34. Mirabile, S.P; Oertwig, D.; Halberstadt, A.G.: Parent emotion socialization and children's socioemotional adjustment: when is supportiveness no longer supportive? Social Development 27, 466–481 (2018).
35. Artemyeva T.V.: Normative behavior of adolescents with intellectual disabilities: a qualitative study. international journal of environmental & science education 11(7), 1551-1558 (2016).