Monitoring of the Success Rate of Socialization in Preschoolers with Developmental Disorders

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Keywords: Socialization, Communication, Social Norms, Forecasting, Children, Developmental Disorders.

Abstract. The review of the studies suggests that children with developmental disorders experience difficulties in social adaptation, but the nature of these difficulties in children with speech, hearing, visual, motor, and emotional impairments (with intact intelligence) has not been revealed. The purpose of the research was to study indicators of socialization of children with dysontogenesis. Monitoring involved 438 children aged 5-7 years with and without developmental disorders who attend preschool educational institutions in Russia. The methods that we used included “The scale of emotional distress and atypical behavior” (Kazmin), “Emotional faces” (Semago), “Determination of the cultural congruence of a younger schoolchild” (Bayanova), a set of methods for determining the level of the development of communicative skills of preschoolers (Veraksa), "Try-to-guess" (Peresleni), surveillance of a child in an organized and free activity (Samokhvalova’s technique). It was revealed that children of all nosological groups have difficulties with social adaptation, obtaining social experience and mastering the rules in a normative situation. Especially high indices of maladaptive behavior were noticed in children with motor and emotional disorders. The lowest indices in all types of activities were found in children with emotional disorders, who have poor interaction with adults and peers and use irrational or random strategies in forecasting. The study allows us to suggest the need for special corrective developmental classes aimed at developing successful social behavior in children with developmental disorders.

1. Introduction

Social competence of children depends on a number of factors that determine social interaction and depend on peers, family and culture (Guralnick, 2010, Akhmetzyanova, 2017). A significant role in research is played by adults who—in the process of interaction with preschoolers—contribute to socialization and transfer of rules that exist in society (Bayanova 2015; Kalyuzhin, 2014). Mikas (2012) notes that the assistance of educators in socialization of a child is primarily related to the development of social competence. Pearl (2014) found a correlation between emotionally-oriented reactions of parents (mothers) and the development of children's social competence. Inability to regulate emotions is one of the most significant factors affecting children's behavior, their appearance of aggression and anxiety. The ability of children to interact with peers according to the rules and norms of behavior generally accepted in the culture allows them to adapt to new social conditions (Ahmetzyanova, 2019). In the process of socialization, peers transfer formal and informal social, emotional and cultural rules and norms that differ from the requirements of parents (Mirabile, 2018).

According to Denisova (2012), the successful socialization of modern preschoolers is hindered by the lack of free communication. Serkina (2018) notes that preschoolers with speech disorders experience difficulties in getting involved in collective activities; she also notes their emotional instability. Children
with developmental disorders find it difficult to recognize the emotional states of peers and adults (Sourn-Bissaoui, 2013; Krupa, 2016).

The development of the ability to anticipate (predict) is considered by many as one of the key areas of the socialization process. Self-awareness and understanding of one’s own mental states and states of other people which form in a preschool age contributes to the formation of thinking about the future (Suddendorf, 2013). Intensive development of prognostic capability in older preschool age makes it an important resource for positive socialization of a child (Regush, 1981). The mechanisms of emotional anticipation of the result of some action by preschoolers were closely studied by E.L. Zhadaeva (2006) who argues that the elements of an emotionally saturated situation turn into emotionally-shaped means of anticipation and begin to make a certain impact on the behavior of a preschooler in various situations.

2. Research Organization

2.1. Sample

The research involved 438 children aged 5-7 years who attend educational institutions of the Republic of Tatarstan in the Russian Federation: 210 children without developmental disorders; 139 children with severe speech impairment; 20 children with motor impairments; 30 children with visual impairment; 20 hearing impaired children, 19 children with autism spectrum disorder. All children had intact intelligence. Researches got parental permission for examination of children. Research activities were carried out in the morning on an individual basis. As a rule, several meetings were required for each child. The examination of children involved educators, psychologists of educational institutions, tiflo- and sardo-teachers.

2.2. Research Methods

The following methods and techniques were used in the research:

• Expert assessment of children's behavior using the method developed by A.M. Kazmin, N.A. Konovko, O.G. Salnikova, E.K. Tupitsina, E.V. Fedina “The scale of emotional distress and atypical behavior” (Kazmin, 2014)
• Surveillance of a child in an organized and free activity (A.G. Samokhvalova)
• N.Y. Semago’s “Emotional faces” technique (Semago, 2005)
• a set of methods for determining the level of the development of preschoolers communicative skills (Veraksa, 2010)
• “Determination of the cultural congruence of a younger schoolchild” (Bayanova, 2015)
• "Try-to-guess" technique (Peresleni, 1982).

2.3. Research Hypothesis

We assume that the indicators of socialization in children with developmental disorders will be significantly reduced compared to their normotypic peers. There will be difficulties in the free communication and the assessment of the consequences of their own actions and the behavior of other people.

2.4. Research Objective

To monitor the success rate of socialization of preschoolers with sensory, speech, motor and emotional disorders based on existing diagnostic tools.
3. Results

Processing the results of the study was carried out with the help of the SPSS 21 statistical program. Differences between the samples of children with and without developmental disorders were revealed with the help of Student's T-test with the significance level $p < 0.001$.

3.1. Analysis of Socialization Indicators in Preschoolers with Developmental Disorders

3.1.1. Children with Speech Disorders

![Graph showing profile of average values for indicators of socialization and forecasting in children with speech disorders.]

Figure 1. Profile of Average Values for Indicators of Socialization and Forecasting in Children with Speech Disorders.

Note: indicator values
Children with speech pathology show average values in all factors of L.F. Bayanova, T.R. Mustafin’s technique “Methodology for compliance of the preschooler with the rules of a normative situation”: “obedience, meeting the expectations of an adult” (Msd = 39.81; Md = 44.54); “Safety” (Msd = 50.91; Md = 56.31); "Self-care, hygiene” (Msd = 34.34; Md = 39.11); "Self-control” (Msd = 29.76; Md = 33.30) are lower than in children with developmental disorders. Statistically significant differences were found in two factors: “safety” and “hygiene”. Not always do children with speech disorders comply with safety rules and requirements aimed at maintaining hygiene and self-care.

Statistically significant differences were noted in the indicator “attitude towards an adult“ (t = 5.13), which indicates that children with speech pathology have difficulties in situations of communication and interaction with adults. Children with speech disorders differentiate emotional states of their peers significantly worse than their normotypic peers (t = 3.22). Significant differences were also revealed in the organized activities of children in the “child-educator” (t = 5.98), “child-peer” (t = 6.50) types of interaction in an free activity.

In children with speech pathology, the average values in all scales of the “Scale of emotional distress and atypical behavior” methodology such as reservedness (Msd = 4.12; Md = 1.75), anxiety (Msd = 3.96; Md = 2.44), depression (Msd = 1.84; Md = 1.02), maladaptation (Msd = 1.08; Md = 0.63), hyperactivity (Msd = 3.57; Md = 2.69) are higher than in their normotypic peers. The “reservedness” indicator turned out to be especially high, which may be possibly explained by the poverty of speech and communication tools of this group of children.
Indicators of prognostic activity in children with speech impairment are lower than in children with no developmental disorders: “forecast making rate” (Msd = 2.41; Md = 2.65); “Articulation of regulation” (Msd = 1.40; Mn = 1.63), however, the differences are not statistically significant, i.e. children hold forecasts in memory well enough, they compare them, and the stability of their voluntary attention is good. Significant differences were revealed in “reproduction” (Msd = 1.94; Md = 2.19) (t = 3.53) and “strategies” (Msd = 3.42; Md = 3.63) (t = 2.95) indicators. Preschoolers with speech impairments are less likely to choose rational forecasting strategies, not always do they successfully apply their experience in new situations.

3.1.2. Children with Hearing Disorders

When it comes to children with hearing disorders, the average values of all factors of the method of preschooler’s compliance with the rules of a normative situation such as “obedience, compliance with expectations of adults”(Mhd = 35.95; Md = 44.54); "Safety" (Mhd = 46.60; Md = 56.31); “Self-care, hygiene” (Mhd = 36.40; Md = 39.10); “Self-control” (Mhd = 30.00; Md = 33.29) are lower than in children with no developmental disorders. Statistically significant differences were found in three factors: “safety” (t = 3.69), “self-control” (2.21) and “obedience” (4.56). Not always do children with speech disorders comply with safety rules; they do worse in controlling their actions aimed at compliance with certain rules of the social space. Preschoolers with hearing impairment are not so successful in social interaction with peers and adults as are their normotypic peers. For all indicators of the method, the average values in children with hearing impairment are lower than those of their peers. Statistically significant differences were found in such indicator as “attitude to peers (t = 2.92), which shows that children with hearing disorder experience difficulties in situations of interaction with peers. Statistically significant differences were found in the organized activities of children with hearing impairment in the “child-caregiver” (t = 1.96), “child-caregiver” (t = 2.52) interaction forms in regime moments.

![Figure 2. Profile of Average Values for Indicators of Socialization of Children with Hearing Disorders.](image_url)

In children with hearing disorders, the average values of all factors of the “Scale of emotional distress and atypical behavior” methodology such as reservedness (Mhd = 3.15; Md = 1.74), anxiety (Mhd = 2.85; Mn = 2.44), depression (Mhd = 2.90; Md = 1.02), maladaptation (Mhd = 1.20; Md = 0.62), hyperactivity (Mhd = 3.30; Md = 2.69) are higher than those of normotypic peers. The values of the “reservedness” indicator were especially high, possibly because of the poverty of speech and communication means of children of this group and also because of the low motivation for communication and interaction with adults and peers. The values of the “reproduction” (Mhd = 2.50; Md = 2.18) and “strategies” (Mhd = 4.45; Md = 3.63) indicators in preschoolers with hearing impairments are higher than those of children without developmental disorders, which indicates that children with hearing disorders use rational strategies and their past experience in forecasting.
3.1.3. Children with Visual Disorders

Statistically significant differences were found in such factors as “safety” (t = 2.14), “self-control” (7.57), “obedience” (5.51) and “hygiene” (t = 6.52). Not always do children with visual disorders comply with safety rules and control their actions in the social space, aimed at compliance with certain rules worse than their normotypic peers, not always do they follow the requirements that imply observance of daily rules.

Significant differences were marked in such indicator as “attitude towards an adult” (t = 0.04), which signals that children with visual impairments experience difficulties in situations of interaction with adults. Children with visual disorders differentiate the emotional states of their peers (t = 2.96) significantly worse than their normotypic peers. In children with visual impairments, the average values are lower than those of their normotypic peers in regime moments of the “child-parent” (Mvd = 67.03; Md = 67.39), “child-carer” (Mvd = 51.53; Md = 66.27), “peer child” (Mvd = 47.80; Md = 65.25) types of interaction. The average values of the indicators of “child-educator” (Mvd = 53.00; Md = 66.48), “child-peer” (Mvd = 48.53; Md = 64.91) types of interaction in organized activities are also lower in children with visual disorders. Indicators of the “child-educator” (Mvd = 50.13; Md = 65.56), “child-peer” (Mvd = 51.90; Md = 65.71) interaction forms in free activity are lower as well. Children with visual impairments are less successful in interacting with adults and peers in all activities.

In children with visual disorders, the average values of all factors of the “Scale of emotional distress and atypical behavior” methodology such as reservedness (Mdз = 4.40; Md = 1.74), anxiety (Mdз = 4.46; Md = 2.44), depression (Mdз = 2.46; Md = 1.02), maladaptation (Mdз = 0.73; Md = 0.62), hyperactivity (Mdз = 4.13; Md = 2.69) are higher than those of their normotypic peers. The “anxiety” and “reservedness” indicators had especially high values, which perhaps might be explained by the poverty of speech and communication means of children of this group, as well as by the increased anxiety during communication and interaction with adults and peers.

The indicators of forecasting activity of children with visual impairments are lower than in children with no developmental disorders: “forecast formation rate” (Mvd = 2.20; Md = 2.65); “Articulation of regulation” (Mvd = 1.26; Md = 1.63), however, these differences are not statistically significant, i.e. children hold forecasts well enough in their memory, they compare them, and their voluntary attention is quite stable.
3.2.4. Children with Motor Disorders

Talking about children with motor impairments, statistically significant differences were found in 3 factors: “safety” (t = 4.30) and “self-control” (2.11) and “obedience” (5.60). Not always do children with motor impairments comply with safety rules, they control their actions aimed at compliance with certain social rules worse than their normotypic peers.

In 3 indicators of the methodology aimed at determining the level of the development of communicative skills in preschoolers (N.E. Veraksa), the average values of children with motor disorders are lower than those of their peers: understanding of tasks given by adults in various interaction situations (Mmd = 2.44; Md = 2.70); their ideas of how to express their attitude towards an adult (Mmd = 2.11; Md = 2.48); and to a peer (Mmd = 1.88; Md = 2.39). Statistically significant differences were found in such indicator as an “attitude towards peers (t = 2.64), which proves that children with motor disorders have difficulties in situations of interaction with peers. Children with motor disorders differentiate the emotional states of their peers significantly worse than their normotypic peers (t = 2.64). In all types of activities, children with motor disorders have lower rates of interaction with adults and peers than their peers with no developmental disorders.

In children with motor impairments, the average values of all factors of the “Scale of emotional distress and atypical behavior” methodology such as reservedness (Mmd = 6.11; Md = 1.74), anxiety (Mmd = 5.22; Md = 2.44), depression (Mmd = 4.88; Md = 1.02), maladaptation (Mmd = 2.66; Md = 0.62), hyperactivity (Mmd = 7.44; Md = 2.69) were statistically higher than in their normotypic peers. This is one of the groups, which showed significant statistical differences in all scales of the methodology. Children with motor disorders are more likely to experience anxiety and depression. Researchers have noted maladaptiveness of these children and their reservedness in communication and interaction with adults and peers. Statistically significant differences were found in “reproduction” (Mmd = 1.55; Md = 2.18) (t = 2.98) and “strategy” (Mmd = 3.00; Md = 3.63) (t = 2.60) indicators. Preschoolers with motor impairments are less likely to choose rational forecasting strategies, not always do they successfully apply their experience in new situations.

3.2.5. Children with Emotional Disorders

Talking about children with emotional disorders, statistically significant differences were found in 3 factors: “safety” (t = 4.95), “self-control” (5.62) and “obedience” (5.72). Children with emotional disorders do not always comply with safety rules, they control their actions in the social space aimed at compliance with certain rules worse than their normotypic peers. Not always do children with emotional
disorders comply with safety rules, they control their actions aimed at compliance with certain social rules worse than their normotypic peers.

In all indicators of the methodology aimed at determining the level of the development of preschoolers’ communicative skills (N.E. Veraksa), the average values of children with emotional disorders are lower than those of their peers: understanding of tasks set by adults in various interaction situations (Med = 0.80; Md = 2.70); understanding of peer states (Med = 1.20; Md = 2.70), and their ideas about how to express one’s attitude towards an adult (Med = 1.00; Md = 2.48); and to a peer (Med = 1.20; Md = 2.39). Children with emotional disorders are significantly worse than their normotypic peers in differentiating emotional states of their peers (t = 7.47). In children with emotional disorders, the average values are statistically lower than in their normotypic peers in regime moments of the “child-parent” (Med = 48.50; Md = 67.39) (t = 6.31), “child-teacher” (Med = 52.70; Md = 66.27) (t = 6.83),” child-peer “(Med = 44.20; Md = 65.25) types of interaction. The average values of the indicators of the ”child - educator” (Med = 52.00; Md = 66.48) (t = 6.28), ”child-peer” (Med = 44.00; Md = 64.91) (t = 8.02) types of interaction in organized activities are lower as well. The same thing relates “child—caregiver” (Med = 51.00; Md = 65.56) (t = 3.98), “child-peer” (Med = 45.71; Md = 65.71) (t = 5.87) types of interaction in a free activity. Thus, we can conclude that in all types of activities, interaction of children with emotional impairment with adults and peers is impaired.

![Figure 5. Profile of Average Values for Indicators of Socialization and Forecasting of Children with Emotional Disorders.](image.png)

In children with emotional disorders, the average values of almost all factors of the “Scale of emotional distress and atypical behavior” methodology such as reservedness (Med = 8.90; Md = 1.74), anxiety (Med = 3.60; Md = 2.44), depression (Med = 5.50; Md = 1.02), maladaptation (Med = 5.10; Md = 0.62), hyperactivity (Med = 11.20; Md = 2.69) were statistically higher in compare to normotypic peers. The examined group showed significant statistical differences in 4 scales of the methodology, especially significant differences were found in “reservedness” and “depression” scales; children showed maladaptation in communication and interaction with adults and peers.
All indicators of prognostic activity in children with emotional disorders are statistically lower than in children with no developmental disorders and these differences are statistically significant: “forecast formation rate” (Med = 0.90; Md = 2.65) (t = 8.41); “Articulation of regulation” (Med = 0.70; Md = 1.63) (t = 4.20). We have also revealed statistically significant differences in “reproduction” (Med = 0.90; Md = 2.18) (t = 6.34) and “strategies” (Med = 1.30; Md = 3.63) (t = 3, 87) indicators. Preschoolers with emotional disorders are more likely to choose irrational or random strategies in their forecasting, they almost never use their experience in new situations, they are not able to keep forecasts in their memory and compare them.

4. Discussion

Our empirical study showed that in children with developmental disorders, the average values of the scales of the atypical behavior methodology such as reservedness, anxiety, depression, maladaptiveness, hyperactivity are higher than their in their normotypic peers. Similar results for primary school children were shown in Rozental’s studies (2016). He discovered that preschoolers with hearing disorders experience difficulties in controlling their behavior in a normative situation. Children with hearing disorders have very low rates in almost all indicators of the method “Compliance of a preschooler with the rules of a regulatory situation”. Children with autism spectrum disorders not always understand and avoid dangerous situations. Children with autism spectrum disorders, with severe speech disorders, and children with motor impairments are characterized by significantly reduced orientation towards interaction with adults and compliance with their expectations. Children with severe speech disorders not always perceive adult prohibitions as a source of their own safety, which in turn leads to impaired behavior.

The communicative skills in relations with peers of children with hearing disorders are developed significantly worse in comperae to their normotypic peers. Children with developmental disorders 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 situations of interaction with peers, which affects their overall socialization. Besides, not in all situations do children with visual disorders preserve self-control; they cannot always comply with the rules of social interaction and control their actions. The lowest indicators in all types of activities were noted in children with emotional disorders who have impaired interaction with adults and peers and impaired ability to understand the states and emotions of people around them. Similar results were obtained in the study conducted by Akhmetzyanova A.I (2019). Studies by R. Brewer (2016) also show that children with autism spectrum disorders have difficulty not only in recognizing other people's emotions, but also in expressing their own emotions. Our research confirmed the results of studies conducted by Vakhobzhonova (2012): children with speech disorders have poorly formed regulatory and communicative skills, they have no motivation to communicate; they also have poorly formed skills of making contacts and interacting. Similar results were shown by the studies conducted by Guralnick (2010): children with visual disorders showed playful behavior, which had mostly individual-search nature, so therefore such kids did not to strive to play collective games.

The research revealed the features of forecasting in preschoolers with developmental disorders. Preschoolers with speech and motor disorders are less likely to choose rational forecasting strategies than their normotypic peers, not always do they successfully apply their own experience in new situations. Such indicators as “reproduction” and “strategies” of preschoolers with hearing impairments were higher than in children with no developmental disorders, which proves the use of rational strategies and active involvement of past experience by children with hearing disorders in forecast making. Preschoolers with emotional disorders often chose irrational or random strategies in their forecast making. The opinions of various authors on the features of forecasting often contradict each other. For example, Terrett (2013) notes that children and adults with autism spectrum disorders have a deficit in terms of cognitive aspects
of thinking about the future. However, Angus (2014) in did not reveal any significant differences in the characteristics of the expected behavior of another person between intellectually safe children with ASD and children with normal development. Children with autism spectrum disorders showed worse results only in their ability to predict their own responses to the questions set by adults. Our research also allows us to suggest that children with intact intelligence suffering from ASD have difficulties with understanding emotions of other people and rational forecasting strategies.

5. Conclusion

Children of all nosological groups have difficulties with social adaptation, obtaining social experience and mastering 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 with adults and peers. Especially high indices for maladaptive behavior were shown by children with motor and emotional disorders—in almost all scales, their average statistically significant values differ from those of children with normotypic development.

Children with developmental disabilities experience significant difficulties in organizing free and organized activities with their peers; they face difficulties in communication with people who are not family members or caregivers. Reservedness of children, their high level of anxiety is also something worth to be noted. Children with emotional disorders are practically incapable of forecasting further events; most of the times they choose irrational or random strategies in their forecasting, they hardly use their experience in new life situations, they are not able to keep forecasts in their memory and compare them.

Acknowledgments

We would like to thank the engagement and involvement of the research participants and their parents.

Funding: 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”

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