

BAR-ILAN UNIVERSITY

**Characteristics of Social interaction in
Preschoolers with High-Functioning ASD
in Different Social situations with Their Peers
in Relation to ASD Severity, Social Disability, and IQ.**

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Abstract

Peer interaction is a significant milestone in children's development and plays an important role in fostering the cognitive and emotional development and the growth of interpersonal skills. The literature on the peer interaction of children and adolescents reveals that they tend to isolate and distance themselves from their peer group during spontaneous and unstructured social situations such as recess, yard play, free time in class. These children show a low level of involvement in interactions with their peer group and tend to occupy themselves with solitary activities (Brown & Whiten, 2000; Hauck, Fein, Waterhouse & Feinstein, 1995). Children on the high functioning autism spectrum (IQ>75) exhibit greater social involvement than that of children with classical autism but lower than that of their peers with typical development (Bauminger, Shulman, & Agam, 2003; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011; Lord & Magill-Evans, 1995; Macintosh & Dissanayake, 2006).

Research shows that a significant factor in the social interaction of children with autism is the level of structure of the social environment (Gunn, Trembath, & Hudry, 2013; Hauck et al., 1995; Humphrey and Symes, 2011; Kasari et al., 2011; Lord & Magill-Evans, 1995; Sigman & Ruskin, 1999). Spontaneous interactions that take place in the course of unstructured social situations are the most challenging ones for children on the autism spectrum. During free time, children on the autism spectrum, even high functioning ones, often partake in non-social, solitary activities, wander about aimlessly, are unengaged, and are observed to behave in a way that lacks purpose and clear intent. At the same time, situations which are overly structured, such as academic classes are often completely devoid of any social interaction (Bauminger-Zviely, 2013).

Our purpose in the current study is to explore the characteristics of peer interaction among 3-6 years old children with high functioning autism (HFASD), who have an IQ above the level of intellectual disability, during free and undirected interactions with their peer group, while taking into account the various levels of

structure of the social situation (free situation: free play; semi-structured situation: cooperative puzzle building activity). In addition, in order to examine individual difference between the children during social interaction, the correlation was examined between cognitive development characteristics and the characteristics of the social interaction, as well as the correlation between the various sources reporting on the interaction (parents and teachers).

In relying on the literature, the first hypothesis was that differences would be found among the characteristics of peer interaction in situations with various levels of structure, in the following manner: that in comparison with unstructured situations (free play), the semi-structured activity (cooperative puzzle building) would include a greater number of social interaction characteristics, or in other words, that there would be a higher incidence of behaviors which characterize social interaction (such as cooperative behaviors), expression of emotion (like mutual laughter), as well as a greater level of overall tendency towards cooperation (such as the level of reciprocity, working in coordination with the partner and the length of the interaction). We further hypothesized that there would be a link between the characteristics of the peer interaction and the severity of autism (the first hypothesis), the cognitive level (the second hypothesis), and the severity of the social disability (the fourth hypothesis) such that the lower the level of autism and of the social disability and the higher the IQ, so would there be an increase in the frequency of the peer interaction and its quality. The fifth hypothesis posited that a positive correlation would be found between parental and teacher evaluation of the severity of the social disability as evaluated by the Social Responsiveness Scale (SRS).

The hypotheses in the current study were tested as part of a wider study that took place at Bar Ilan University, which examined an intervention program to facilitate social competence of preschoolers with HFASD. Sixty-five children ages 37-69 months (60 boys and five girls) took part in the study. The background variables (severity of autism, severity of social disability, and IQ) were collected at evaluations conducted at the beginning of the study. Two observations were taken in order to

evaluate the characteristics of peer interaction: a free play situation and a semi-structured cooperative building activity (the game Castle Marbleworks) was observed. The observations were recorded on video and later coded according to the "peer interaction coding scale" composed of: a. social interaction behaviors; b. expression of emotion; c. general variables for evaluating the interaction.

Consistent with the first research hypothesis, significant differences were found between the two social situations, such that social interaction characteristics were exhibited at a greater frequency in the semi-structured situation (construction game) than in the free play situation. In both situations the peer interaction behaviors were found to have a similar distribution profile: both were characterized by a high frequency of behaviors aimed at creating basic interaction (such as imitation) followed by positive social interaction behaviors that seek to create cooperation (such as suggest/ respond to an action), followed by ineffective behaviors (e.g., stereotypical behaviors), and finally followed by negative interaction behaviors (e.g., verbal /) which were least frequently observed. The second hypothesis physical aggression with regards to the link between peer interaction characteristics and IQ was only partially proven. Only a small number of these correlations was found significant, mostly in relation to the semi-structured situation: a linear relation was found between the IQ level and, the frequency and quality of interaction. The third hypothesis, positing a correlation between peer interaction characteristics and the severity of the autism was only partially verified: only a small number of these correlations were verified, mostly in the free play situation: the lower the autism severity, the higher the frequency and quality for of the interaction. The fourth hypothesis, theorizing a correlation between the social interaction characteristics and the severity of social disability as evaluated by the SRS was also only partially proven: the study results present a complex picture due to the high number of correlations that varied according to the type of situation (free or semi-structured) and the evaluator (parent or teacher). In general, there were correlations found between the peer interaction characteristics in the free situation and the evaluation of the severity of social disability as evaluated by

the parents and the teachers. Furthermore, it was found that the highest number of correlations occurred between the characteristics of peer interaction in the semi-structured situation and the severity of the social disability as evaluated by teachers. The correlations discovered in the two situations and among the two evaluator types prove that the hypothesis theorizing that the lower the severity of the social disability, the higher the frequency and quality of the peer interaction, was true. The fifth hypothesis theorizing a direct correlation between parental and teacher evaluation of social disability severity was refuted as no such correlation was discovered other than one positive correlation in evaluating social motivation.

The conclusions arising from the study have important theoretical and practical implications for the work done with young children with HFASD. Up till now, the effect of peer interaction characteristics in relation to the structured level of the situation of this population was not sufficiently investigated. The study's result contributes relevant knowledge that can be used in developing interventions for interaction and inclusion of young children with HFASD. The results support a conclusion that in order to increase social behavior during free time (such as free play, recess, etc.) a more structured social framework should be created. In addition, the results paint a complex picture of correlation between peer interaction characteristics and the disability and developmental characteristics. This picture reflects the complexity and difficulty in understanding the social interaction characteristics of HFASD children, characteristics which change and are affected by many factors. In order to create an intervention, there must be a wider view taken of the child's interaction characteristics, in a variety of contexts and from a variety of sources. One important source of knowledge, whose importance was borne out by the results of the current study, was the teacher evaluation. It was found to contribute significantly to the extent that the characterization of the behavior and social interaction of children on the autism spectrum was understood and processed.