

Introduction

Autistic Spectrum Disorder (ASD) is defined as a **communicative-social disorder** (APA, 2013). In the past, children with ASD were described as deliberately avoiding social interaction and as lacking any social abilities (Kanner, 1943). Contemporary research has shown that these children do possess social abilities, and that these depend both on the social partner with whom they are interacting as well as the context of interaction. For example, Kimhi & Bauminger-Zviely (2012) found better social skills with a partner defined as ‘a friend’ rather than with a ‘non-friend’ partner. Better skills were also found when this friend was a child with typical development (TD) as compared to a friend who also had ASD (Bauminger-Zviely, 2013). Children with ASD were found to have more reciprocal conversations when talking with other children as opposed to when talking with adults (Nadig et al., 2010). **These findings accentuate the significant impact social partners have on the ability of a child with ASD to execute social skills.**

Sibling relationships are often the longest and most significant relationships in a lifetime, with the potential to deeply influence personality, social and cognitive skills (Boer, Dunn, & Dunn, 2013; Gass, Jenkins, & Dunn, 2007; Noller, 2005). Research on the development of TD young children's social skills highlights the significant role of sibling interaction as one of the most enhancing contexts for acquiring communicative and social skills (Brody, 2004; Dunn, 1992). Considering the fact that communicative-social impairments are fundamental in ASD, **the paucity of research on these children's interaction with their siblings is striking.**

Very few studies have looked at sibling interaction where one child has ASD and compared it to interaction between siblings who were both TD, or where one had a disability other than ASD (Kaminsky & Dewey, 2001; Knott, Lewis, & Williams, 1995; 2007). In such studies researchers concluded that dyads containing a participant with ASD were inferior to both other groups in terms of the intensity, complexity, and reciprocity of their social interaction, and also contained less rivalry between siblings (Knott et al., 1995, 2007). Relationships between siblings in the experimental group were characterized by less intimacy and fewer prosocial behaviors than in the relationships of two TD siblings or sibling dyads containing a child with Down syndrome (Kaminsky & Dewey, 2001). However, **it is difficult to learn about the unique contribution of the sibling relationship to the social skills of a child with ASD when using such comparison groups.** Such methodology highlights the deficits in the siblings’ dyadic interaction– attributed to the disabilities of the child with ASD– instead of highlighting abilities. In our study we utilize a different methodological approach. **Rather than compare groups on the basis of averaged data, our aim was to examine in detail the characteristics of sibling interactions, while identifying variables that require direct attention and measuring those variables in great detail.**

This poster presents the parameters we used in order to examine sibling interactions in an inter-subject design. **The set of parameters we present, as well as the description of the procedures we used while analyzing data with INTERACT software, aims to narrow the gap in the literature regarding sibling interactions in a family with a child with ASD.**

Interaction among siblings that one of them has ASD - parameters for examination



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*Please see bibliography attached

Objectives

***Presenting a set of parameters** which 1) appear in interactions between children with ASD and their TD siblings; 2) Enable comparison of the sibling interaction to the interaction of the ASD children with other social partners, specifically with mothers and TD peers, in an inter-subject design, using INTERACT: a software for collecting and analyzing in detail observational data. ***Presenting data** from 4 case studies analyzed using these parameters.

Methodology

Based on previous literature on TD sibling interaction (Abramovitch et al., 1986; 1987), sibling interaction where one of them has ASD (Knott, Lewis, & Williams, 1995; 2007), peer interaction regarding ASD children (Bauminger-Zviely, 2013; Hauck et al., 1995), and mother-child interaction (Adamson, Bakeman, Deckner & Romski, 2009), the following set of parameters was selected for our study: **Intensity of interaction; quality of interaction; dominance of partners; types of actions; variety of actions; joint engagement.**

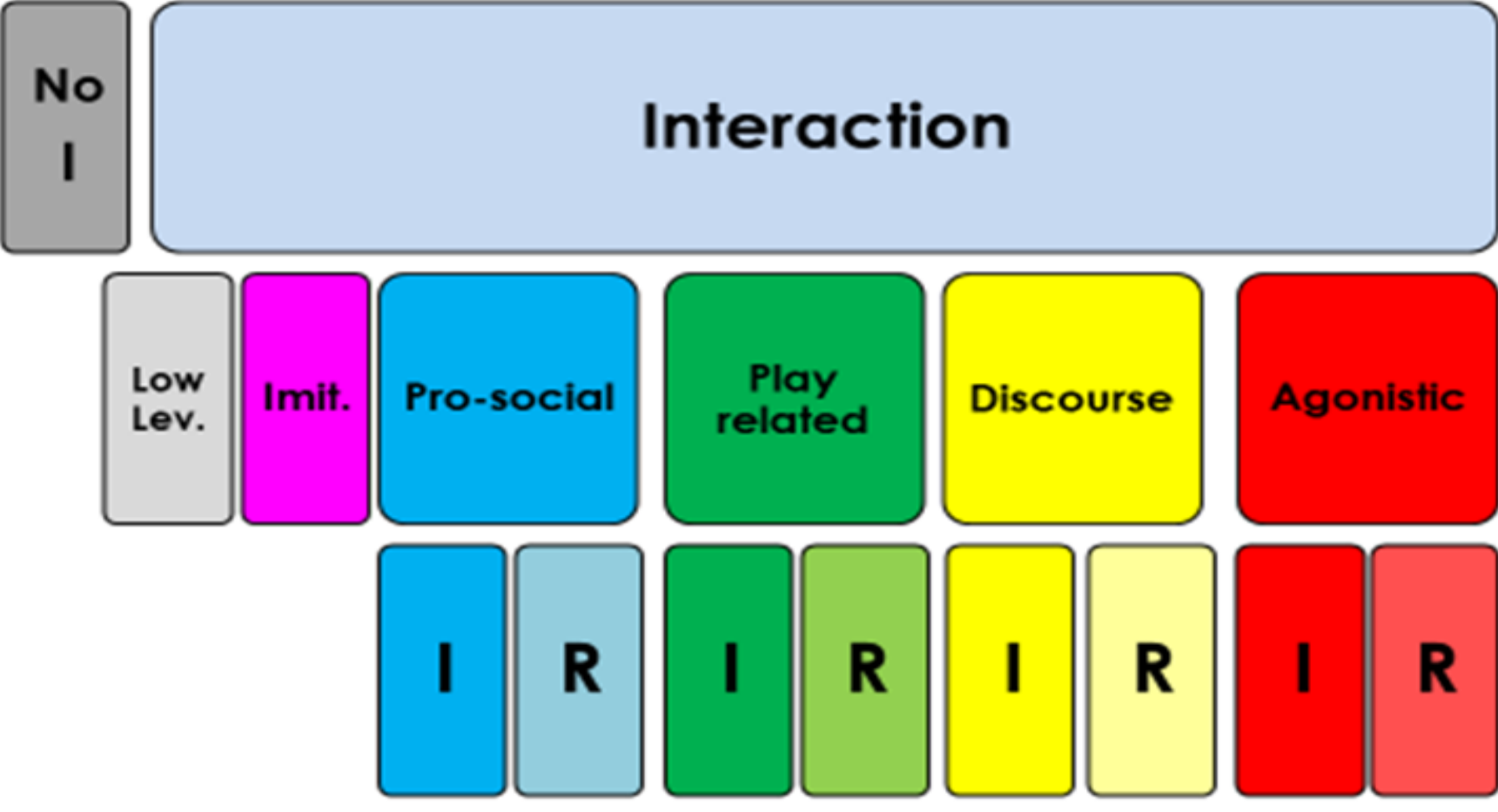
Literature was reviewed in order to find coding systems used to collect data in sibling interaction studies. A coding system that was used to collect data from sibling interactions, peer interactions, and from dyadic sibling interactions involving a child with ASD was chosen as a prototype (Abramovitch et al., 1986; Knott, Lewis, & Williams, 1995). In light of literature on interactions of children with ASD and their TD peers (Bauminger-Zviely, 2013; Hauck et al., 1995), and due to the specific needs of our inter-subject design, small changes were introduced to the system.

In order to evaluate the appearance of the parameters in interactions between children with ASD and their TD siblings, and to test the effectiveness of the parameters in the comparison of the sibling interaction versus the interaction with other social partners, we conducted detailed, frame-by-frame analyses of four case study videos: 2 dyads of mother-child interactions where one child has ASD and one is TD, and the interaction of a child with ASD with his mother compared to his interaction with his sister in an inter-subject design. Figure 1. presents the coding system used in the present analysis. Table 1. presents the behavioral operative definitions for each category. In addition, in order to evaluate joint engagement, for every moment and for each partner, it was coded whether he or she was on task or off task, and synchrony between partners was checked.

The present analysis: *Participants:* **1st dyad:** a preschool-aged TD child (A) and his mother. **2nd dyad:** a preschool-aged child diagnosed with ASD (B) and his mother. **3rd dyad:** a preschool-aged child diagnosed with ASD (C) and his mother. **4th dyad:** the same preschool child diagnosed with ASD (C) and his older 8-year-old sister. *Instruments:* ***A set of stimuli** to encourage interaction during video-recorded observations (a game, a book, free-play session). ***The coding system** designed to collect and analyze data from the observation (see fig.1). ***INTERACT software** developed by Mangold International.

Procedures: All observations were videotaped in the children's homes. Every observation was viewed and analyzed three times: **1)** Starting points and switching from task to task were marked. **2)** For each partner it was coded whether he/she was on task or off task, with reference to qualitative remarks regarding **joint engagement**. **3)** Each new action was coded according to the coding system in order to evaluate the **quality of interaction**. For each action it was coded who is the conducting partner, in order to evaluate **dominance of partner**. All actions were tallied, and the total time (in seconds) was divided in the total sum of actions conducted, in order to evaluate the **intensity** of the interaction.

Fig. 1: categories of the coding system



No I=no interaction; Imit=imitation; Low Lev.=Low Level Interaction; I=initiation; R=response

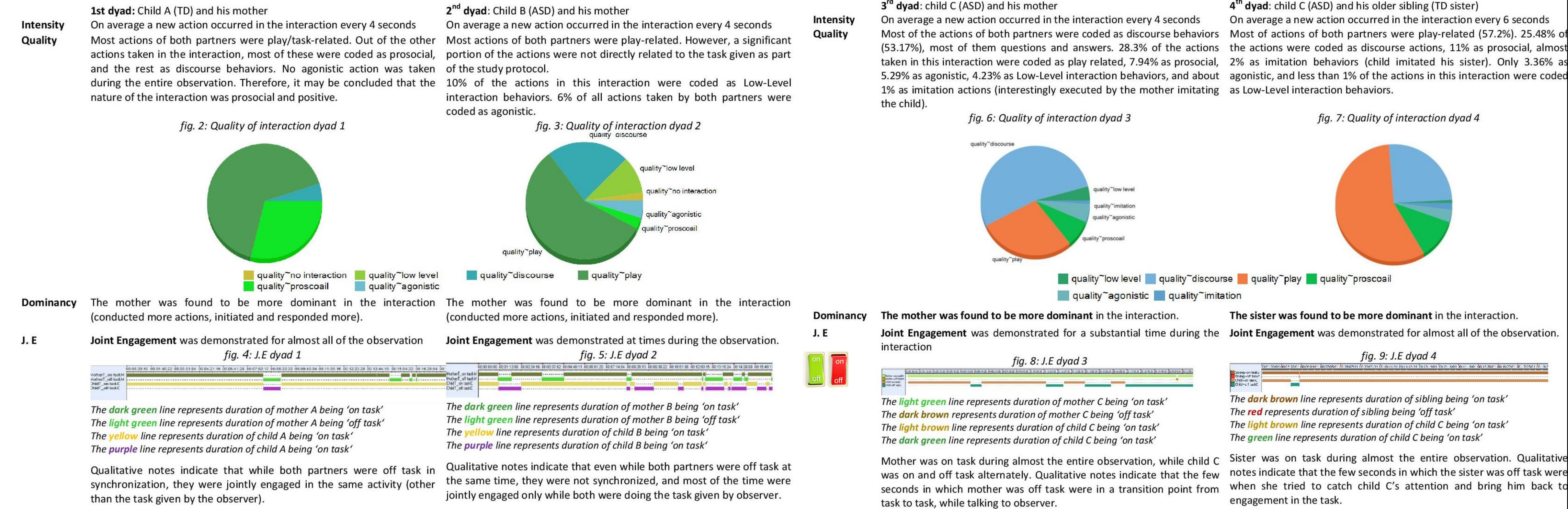
Table 1: Behavioral definitions of the coding system categories

- 1. Low Level interaction:** Verbal or nonverbal behaviors that denote communicative intent to participate in an interaction, however the initiation is not completed: the participant makes it only ‘halfway’, and his partner is not necessarily aware of the initiation: vague looking without eye contact; imitating or verbalizations with no addition of spontaneous social behaviors; echolalia; move into proximity; natural physical contact (physical contact which is not overtly aggressive, affectionate, ritualistic or provocative); ritualized interaction (an initiation that starts a preset specific interaction).
- 2. Imitation:** Following the partner to another room or another area in room; performing the same behavior as partner within 10 seconds (though not if an act is apparently elicited by the environment, such as bouncing a ball).
- 3. Pro-social**
 - 3.1. Initiation
 - 3.1.1. Give/share
 - 3.1.2. Cooperate/help
 - 3.1.3. Request.
 - 3.1.4. Praise/approval
 - 3.1.5. Comfort/reassurance
 - 3.1.6. Physical affection
 - 3.1.7. Laugh/smile
 - 3.2. Response
 - 3.2.1. Positive
 - 3.2.2. Negative
 - 3.2.3. No response.
- 4. Play related**
 - 4.1. Initiation
 - 4.1.1. Initiate play
 - 4.1.2. Initiate rough & tumble
 - 4.1.3. Clowning
 - 4.1.4. Establishing roles
 - 4.1.5. Establishing rules/turn taking
 - 4.2. Response
 - 4.2.1. Positive
 - 4.2.2. Negative;
 - 4.2.3. No response
- 5. Discourse**
 - 5.1. Initiation
 - 5.1.1. Asking
 - 5.1.2. Sharing
 - 5.2. Response
 - 5.2.1. Answering
 - 5.2.2. Taking turns
 - 5.2.3. No response
- 6. Agonistic**
 - 6.1. Initiation
 - 6.1.1. Physical aggression
 - 6.1.2. Object struggle
 - 6.1.3. Command
 - 6.1.4. Insult/disapproval
 - 6.1.5. Verbal threat
 - 6.1.6. Tatling
 - 6.1.7. Competitive statement
 - 6.1.8. Bribing/bargaining
 - 6.1.9. Physical tease
 - 6.2. Response
 - 6.2.1. Submit
 - 6.2.2. Counterattack.
 - 6.2.3. No response



Results

The set of parameters was found to be effective and informative. The coding system was applied successfully into INTERACT, and allowed to analyze the data from 4 dyads and draw some interesting conclusions. Table 2. Present data collected using INTERACT from 4 case studies, focusing parameters: intensity, quality, dominance, joint engagement.



Meticulous analysis of recorded observations using the INTERACT software can contribute significantly to learning about social communication of children with and without ASD.

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Bibliography

Abramovitch, R., Corter, C., Pepler, D. J., & Stanhope, L. (1986). Sibling and peer interaction: A final follow-up and a comparison. *Child Development*, 217-229.

Abramovitch, R., Stanhope, L., Pepler, D., & Corter, C. (1987). The influence of down's syndrome on sibling interaction. *Journal of Child Psychology and Psychiatry*, 28(6), 865-879.

Adamson, L. B., Bakeman, R., Deckner, D. F., & Ronski, M. (2009). Joint engagement and the emergence of language in children with autism and Down syndrome. *Journal of autism and developmental disorders*, 39(1), 84-96.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Bauminger-Zviely, N. (2013). *Social and academic abilities in children with high-functioning autism spectrum disorders* Guilford Press.

Boer, F., Dunn, J., & Dunn, J. F. (2013). *Children's sibling relationships: Developmental and clinical issues* Psychology Press.

Brody, G. H. (2004). Siblings' direct and indirect contributions to child development. *Current Directions in Psychological Science*, 13(3), 124-126.

El-Ghoroury, N. H., & Romanczyk, R. G. (1999). Play interactions of family members towards children with autism. *Journal of Autism and Developmental Disorders*, 29(3), 249-258.

Gass, K., Jenkins, J., & Dunn, J. (2007). Are sibling relationships protective? A longitudinal study. *Journal of Child Psychology and Psychiatry*, 48(2), 167-175.

- Hauck, M., Fein, D., Waterhouse, L., & Feinstein, C. (1995). Social initiations by autistic children to adults and other children. *Journal of Autism and Developmental Disorders*, 25(6), 579-595.
- Kaminsky, L., & Dewey, D. (2001). Siblings relationships of children with autism. *Journal of Autism and Developmental Disorders*, 31(4), 399-410.
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child*, 2(3), 217-250.
- Kimhi, Y., & Bauminger-Zviely, N. (2012). Collaborative problem solving in young typical development and HFASD. *Journal of Autism and Developmental Disorders*, 42(9), 1984-1997.
- Knott, F., Lewis, C., & Williams, T. (1995). Sibling interaction of children with learning disabilities: A comparison of autism and down's syndrome. *Journal of Child Psychology and Psychiatry*, 36(6), 965-976.
- Knott, F., Lewis, C., & Williams, T. (2007). Sibling interaction of children with autism: Development over 12 months. *Journal of Autism and Developmental Disorders*, 37(10), 1987-1995.
- Nadig, A., Lee, I., Singh, L., Bosshart, K., & Ozonoff, S. (2010). How does the topic of conversation affect verbal exchange and eye gaze? A comparison between typical development and high-functioning autism. *Neuropsychologia*, 48(9), 2730-2739.
- Noller, P. (2005). Sibling relationships in adolescence: Learning and growing together. *Personal Relationships*, 12(1), 1-22.
- Rum, Y., Dromi, E. (2016). Interaction among siblings that one of them has special needs – parameters for examination. Paper presented at the 52th Conference of the Israeli Speech, Hearing and Language Association (ISHLA). (Hebrew).