

BAR-ILAN UNIVERSITY

Promoting Pro-Social Ability of Preschool Children
with High-Functioning Autism with a Cognitive–
Behavioral Computer Mediated Intervention

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Abstract

ASD (Autism Spectrum Disorder) is a congenital neurodevelopmental disorder, whose symptoms are expressed in two central categories: persistent deficits in social communication and interaction, and repetitive patterns of behavior with limited interests and activities (American Psychiatric Association, 2013).

The children who participated in this study are high-functioning on the Autistic Spectrum Disorder range (HFASD). This group is characterized by proper cognition accompanied by the aforementioned symptoms described in the clinical definition of autism, including social difficulty.

The research deals with the social aspect of the disorder and focuses on pro-social behavior, defined as the ability to channel positive feelings and behaviors toward others to their benefit. Pro-social behavior is based on the ability to be aware of others' distress and the desire to care for them. This includes the ability to share, compromise and give in to others, offer help, comfort others, encourage peers, and apologize. Pro-social behavior contributes to creating strong interpersonal relationships, and has a positive effect on the social adaptability, self-image, and psychological well-being of those who exhibit it (Eisenberg, 1992).

There have been few studies that have dealt specifically with pro-social behavior of children with ASD, and the results are not consistent. Some studies point to difficulties and gaps when compared to typical child development (Lin, Tsai, Rangel & Adolphs, 2012; Sigman, Kasari, Kwon, & Yirmiya, 1992; Travis, Sigman, Ruskin 2001), while others conclude that these children show typical pro-social behavior (Bauminger-Zviely, Agam-Ben- Artzi, 2014; Jemeel, Vyas, Bellesi, Roberts, Channon, 2014; Peter, Deschamps, Been, Matthys, 2014). Due to this, the need arose to further investigate the pro-social abilities of children with ASD in general and specifically children with HFASD, and also to develop appropriate interventions.

The current study had three main goals. First, to determine whether there is a gap between children with HFASD and children with typical development in their ability to exhibit pro-social behavior. Second, to compare pro-social behavior of children experiencing a computer-mediated intervention to children experiencing a non-computer-mediated intervention and children with typical development. Finally, to

compare the level of motivation of children who have experienced computer-mediated intervention to children who experienced a non-computer-mediated intervention.

The study was conducted among 58 preschool children, ages 4-7, 28 of whom had HFASD and 30 of whom had typical development. The group of children with HFASD was randomly divided into two groups: one group experiencing computer-mediated intervention and the other group experiencing a non-computer-mediated intervention.

Observations were conducted before and after each intervention and were designed to evaluate the pro-social ability of test subjects (Sigman, Kasari, Kwon, Yirmiya, 1992). Observations included the following four measurements: attention to the distress of others, impact of a social situation on game playing, behavior in response to the distress of others, and facial expression (affect) in response to the distress of an adult.

Each measurement was tested in following three situations: an adult expressing pain after being hit, an adult showing signs of sickness, and an adult showing fear when appearing to be chased by an electronic toy.

Teachers completed Vineland questionnaires measuring pro-social behavior (Vineland Adaptive Behavior Scales). In addition, children with HFASD who participated in the computer-mediated intervention completed a questionnaire measuring IMI (Intrinsic Motivation Inventory) to examine the degree of motivation of participants.

The intervention administered was based on the Cognitive Behavioral Therapy (CBT) model. It is an integrated multidimensional intervention, focused on cognition and combining cognitive learning with active experience. Multiple studies have found this model to be effective in treatment and promotion of social skills in children with HFASD (Bauminger, 2002; Scarpa, Reyes, 2011; Wood et al, 2009).

The intervention consisted of nine sessions of 30 minutes each, once a week, which took place in preschools, over a period of two months. During the intervention, pairs of children went through a step-by-step process learning how to solve social problems. With the help of a specialized computer program, utilizing videos, symbols, images, and accompanied by recorded narration, the children experienced the stages of effective social problem solving; encode a problematic event, interpret

the social cues, formulate a goal and strategies to resolve the incident, evaluate the likely success of potential strategies, and select a behavior (Dodge, 1986).

Next, the children acted out situations depicted in the computer program, actively demonstrating proper responses. These dramatizations were filmed and, with the facilitation of an adult, the children watched the recordings. The second group, which received a non-computer intervention, experienced the same steps using printed images and symbols instead of technology.

Overall, before any intervention, findings indicate gaps in the pro-social abilities of children with HFASD and children with typical development. However, after the intervention the gap between the two decreased. When comparing the two HFASD intervention groups, it was found that the computer-mediated intervention group improved in some pro-social measures compared to the group that received a non-computer-mediated intervention and children with typical development. There was no difference in the motivation of the participants in the two groups that received the intervention.

In conclusion, the study points to the advantage and effectiveness of using a computer-mediated intervention program, based on the CBT model, to promote pro-social abilities in preschool age children with HFASD. To strengthen these findings, determine how they may be applied to new groups, and expand and develop the computer program, it is recommended to further examine the impact of the intervention.