Improving Social Engagement and Initiations between Children with Autism Spectrum Disorder and Their Peers in Inclusive Settings

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Abstract

Children with Asperger's Disorder often have difficulty with peer relationships and socialization. The current study assessed whether peer social interactions would improve in school settings if an intervention was designed that incorporated the children with Asperger's interests. Three children who were fully-included in regular education classes but did not interact with peers prior to intervention participated in this research. Social lunch clubs, open to both the study participants and their typical peers, were implemented twice weekly during regular lunchtime periods. Results showed that all three children increased their time engaged with peers as a result of the clubs. While their initiations greatly improved over baseline levels and approximated their peers, they were often initiating below the level of most of their peers. Implications for improving peer social interactions for children with Asperger's Disorder are discussed.

Keywords

Socialization; ASD; Asperger's Syndrome; Inclusion; Peer Socialization

Introduction

Children with Asperger's Syndrome (AS), an Autism Spectrum Disorder (ASD), face many challenges as they develop. One of the most notable is difficulty with social communicative skills that can persist through the lifespan if not addressed (Howlin, 2000), and may result in difficulties creating stable friendships and relationships with peers (Strain & Schwartz, 2001; Bauminger & Kasari, 2000; Stewart, Barnard, Pearson, Hasan & O'Brien, 2006). The diagnostic criterion for AS include many characteristics that may contribute to social difficulties, such as an impairment in the use of multiple nonverbal behaviors, including eye-to-eye gaze, facial expression, body postures, lack of emotional reciprocity and a lack of seeking to share enjoyments, interests, or achievements with others (DSM IV-TR, 2000). In addition, while their language usually is not delayed, they often have difficulty using communication in a way that results in peer relationships, which may include a preoccupation with topics that do not interest their peers (Klin, Danovitch, Merz, & Volkmar, 2007) and a lack social or emotional reciprocity, such as difficulties responding to peers' questions or difficulty understanding emotions (Koegel & Koegel, 2006).

A number of studies have focused on techniques to increase the quality of social interactions of children with ASD. Many of the successful programs have been based in natural settings,

such as school, and focus around the framework of peers. For example, The Circle of Friends (CoF) programs recruit typical peers to spend lunch or other free times engaged in activities and social interaction with the child who is having social difficulty. Research suggests that, if carefully applied, the CoF technique can improve the communication and social skills of children with ASD and can help them be immersed into mainstream settings (Kalyva & Avramidis, 2005).

In another study, Gonzalez-Lopez & Kamps, (1997) worked with school children with ASD and their typical peers during play. Special education teachers taught the children how to share, imitate, and ask for help while playing with toys. The children with ASD were taught about social areas that would be both effective in many social situations and were appropriate for their age level and functioning level. The typical peers were taught about disabilities and basic behavior management procedures. The researchers concluded that the combination of social intervention and reinforcement was effective in increasing the duration and frequency of peer interactions of the children with ASD.

Peers have also been taught ways to communicate with children on the spectrum such as initiating conversation, responding to conversation, sharing, giving compliments, and maintaining conversations during interactions that were focused around the child with ASD's individual interests. After intervention sessions peers reported higher acceptance of the students, and the peers and students with ASD increased the frequency and duration of their interactions in many different settings (Garrison-Harrell, Kamps, & Kravitz, 1997).

In a similar study Morrison, Kamps, Garcia, & Parker (2001) focused on social areas for children on the spectrum and the effectiveness of peer mediation of skills. Children with ASD were placed into small groups of typically developing peers. Intervention sessions focused on teaching the children appropriate requesting, commenting, and sharing, after which the children could have playtime. Results showed that peer mediation and adult teaching in addition to reinforcement for skill use and student monitoring, increased social interaction time and initiations with peers by the children with ASD.

Priming (practicing or previewing activities in advance) has also be an effective tool for teaching peer socialization to children with ASD. The benefit of priming is it can be used as an antecedent intervention. Priming has been successful for decreasing challenging behavior, improving academic responding (Koegel, L.K., Koegel, Frea, Green-Hopkins, 2003), and increasing socialization in children with ASD (Zanolli, Daggett, & Adams, 1996). Like priming, social stories can be a powerful antecedent teaching method. Researchers found a positive correlation between language, pretend play, sociodramatic play and social competence following social stories (Thorp, Stahmer, & Schreibman 1995).

Using the intense interests of the child with ASD as the theme of playground games is another method of helping children with ASD improves their social skills. Baker, Koegel, & Koegel (1998) showed that intervention that incorporated the children's ritualistic interests dramatically improved the percentage of social interactions. Generalization measures showed that the children with autism also had increases in social interaction in other play activities and social gains remained high at follow-up

As a whole, these studies show that social interventions are most successful when they are implemented in natural and inclusive settings, incorporate both the child with ASD and the typically-developing peers, and incorporate the interests of the child with ASD. Therefore, the purpose of the present study was to assess whether combining successful interventions that incorporated peers and the intense interest of the fully-included child with AS, implemented as clubs, would result in improved interactions between children with ASD and their typical peers in school settings.

METHOD

Participants

Three children participated in this study. All were diagnosed with autism in the preschool years, by an outside agency, and referred to our center for intervention. Although they had language delays as preschoolers, these delays were no longer evident and therefore they qualified for special education services under the category of ASD with a diagnosis of AS. All were verbal, and were able to carry on a conversation with appropriate syntax and semantic intent..

Child 1 was nine years old and entering the third grade at the start of the study. He is fully included in school and was performing at grade level. He demonstrated the use of fluent conversation with adults, although he did not engage in reciprocal social conversation with peers. He exhibited a number of preferred (although not intense) interests, including cartoons (The Simpsons), board games, magic tricks, and joke books.

Child 2 was a female sixth grade student and was 12 years old at the start of the study. She was fully-included into a regular education class at a public elementary school and maintained As, Bs, and Cs. Prior to intervention Child 2 engaged in conversations with adults, and very young children, but did not initiate or respond to peers. During her 45 minute lunch period, she did not sit near or speak to any peers.

Child 3 was a male fifth grade student and was 10 years old at the start of the study. He was fully-included into a regular education class at his neighborhood elementary school. Academically he received Bs and Cs and had some pull-out resource services for math. Prior to intervention Child 3 engaged in conversation with adults but did not initiate or engage in interactions with his peers. Child 3 consistently and regularly went to the library and read by himself with no peer interaction.

Setting

For Children 2 and 3 all sessions took place on their public school campus during lunch period. For Child 1 intervention took place at a summer day camp program and at his public school during lunch period.

Dependent Measures and Recording

Data were collected on two dependent measures: Percent time engaged with peers and Initiations. Percent time engaged with peers was defined as remaining in the area in which the club was being conducted and interacting with peers. Data were collected during

continuous one minute intervals using a (+) if the child remained in the area and engaged with peers and a (−) if the child did not. If the child did not remain in the area or engage in the activity for the full minute, the interval was scored as a (−). Initiations were defined as questions (e.g., "What color are you going to use now?"), comments ("Wow!" That's cool!), or activity directions ("Let's make earrings now.") that were directed toward peers. In order to get an idea of how the initiations compared with the range of typical peers, data were collected for a different peer during each club meeting and were tallied throughout the club meeting.

Materials

Child 1's materials were a variety of games around his interests (e.g. Simpson's-themed Sorry, Sponge Bob-themed Ants-In-The-Pants, Connect Four, cards, etc.). In addition, small candy prizes were provided to the winners of the game.

For Child 2 materials used were art projects, such as friendship bracelets, embroidery, necklace making kits, frame making, baking, origami, and party planning activities (invitations, cookbooks, etc for a party at her home).

For Child 3 a poster was used to recruit other children to join in the game. Other materials included four video game magazines, blank questionnaires for team logo, blank questionnaires for team questions, markers for coloring team logos and filling in questionnaires, and small toys or assorted candy to reward the teams.

Baseline

During baseline the children were free to engage in whatever activities they chose. Although all three children had social goals on their IEPs, no specialized intervention occurred during any of the observations.

Intervention

As mentioned earlier, each child was referred to our program for social intervention by the public school special education staff with parental permission. Next, a graduate or undergraduate University student met individually with each child after baseline measurements, but prior to the start of intervention, to determine highly motivating activities. The University student and the child discussed activities for approximately 15 minutes. In addition, each child's parent was contacted to solicit their input on the child's favorite activities. Then, a club was created using the highly motivating activity as the theme of each targeted child's club. Then at the beginning of each club meeting we either verbally asked the typical peers if they wanted to participate in a club (Child 1 & 2) or walked around with a poster advertising the club (Child 3). Participation was purely voluntary, but many children readily volunteered to participate during all activities for all of the children. Each activity was conducted by one or two adults (University students) and generally lasted the entire 30 minute lunch period, with the exception of Child 2s craft activities that the students occasionally finished in 15 to 20 minutes. Generally, about six to ten typically developing peers in the same grade also chose to participate in the clubs. Individual club activities are described below.

Child 1 enjoyed talking about cartoons and playing board and table games. During the 15 minute interview, he noted several favorite games. These games were purchased and available throughout baseline and intervention. During intervention, children were asked if they wanted to join a game club while they were seated and eating lunch. Following the lunch period, the games were opened on the lawn or picnic tables of the day camp or school playground. The children were encouraged to invite other friends to play.

Child 2 reported that she enjoyed art projects. During the first few sessions we chose activities that Child 2 had selected during our 15 minute discussion. Following the initial few meetings, the girls choose an activity as a group. These included friendship bracelet making, origami, no-bake cooking, and so on. The group was either led by the college student or, on occasion, by a peer while the college student observed. For example, when the students made friendship bracelets, one child taught the others how to make them. Another child brought her own recipe for no bake cookies, and taught all of the students how to make them. For several club sessions the students planned a party where they were going to be the waiters. They chose what food they were going to have, written and passed out invitations to classmates, teachers, their parents, and other friends. They met the night before the party to get ready and decide what outfits they were going to wear, and then passed food at the party which took place at Child 2s house.

Child 3 reported that his favorite activity was playing video games. This was confirmed by his parents who reported that he spent most of his free time playing video games and looking at video game strategy guides. Interestingly, a large number of Child 3's classmates also reported a strong interest in playing video games and reading video game strategy guides. Therefore, for Child 3 and his classmates, we created a "video game trivia challenge." During the first 15 minutes of the lunch period (while the children were still seated at the lunch tables) the University students walked around the cafeteria holding a large descriptive poster to advertise the trivia game. After the children were finished eating lunch, the children came to the table where the club was being conducted. During each session we started out by dividing the children into teams of 2 to 4 children. The children then picked a team name and designed and colored a logo for their team. Next, the college students held up each team's logo and prompted the children to cheer for their favorite logo.

For the actual game, each team began generating questions for the trivia portion of the game. Specifically, each team was given a blank questionnaire to input three questions of their choosing. The players were given the following guidelines: The questions had to come from one of four video game magazines, the teams had to work together to come up with questions, and teams had to identify the page number and name of the magazine used to generate each question. The time allotted for creating questions was approximately 10 minutes. Once all teams had generated three questions, the college students then randomly selected a team to ask the first question. The chosen team would present their question to the others teams along with name of magazine and page number. The first team to find the correct answer in the magazine and shout it out received a point. If a wrong answer was given then all teams were free to shout out answers until the correct answer was given, as determined by the asking team. This procedure was repeated for each team in a clockwise fashion. At the end of the lunch period each member of the winning team selected two small

prizes and other participants selected one prize. Prizes were either toys and/or small wrapped pieces of candy.

Interobserver Agreement

Interobserver agreement was collected by a graduate or undergraduate student for 33 percent of the sessions throughout all phases of the study on both engagement and initiations. Each observer independently collected data and agreements divided by agreements plus disagreements were calculated then multiplied by 100 to yield a percentage. The average percent agreement for time engaged was 99% (range 94% to 100%) and the average percent agreement for initiations was 95% (range 82%–100%).

Results

As can be noted in Figure 1, none of the children spent any time with their peers during baseline. All three completely socially isolated themselves throughout the lunch period. Following the start of intervention Child 1 showed an immediate improvement in his percent time engaged with peers but then for the following 5 intervention sessions he remained at the lunch table eating for either part of all of the lunch period. However, during the final 6 club meetings, when we asked him first if he wanted to participate in the club, and then recruited his peers, he participated with the group throughout the entire club meeting. Child 2 participated with the her peers in the club almost all of the lunch periods throughout the intervention with the exception of two of the 22 meetings when she left the area for brief periods of time (usually to go to the bathroom). Following intervention, Child 3 spent the club meetings engaged with his peers throughout the entire lunch periods.

As can be seen in Figure 2, none of the children verbally initiated with their peers during the baseline lunch recess period. In contrast, all three increased their number of initiations following the start of intervention. Child 1s initiations increased from zero to an average of 6.5 (range 0–9) per club meeting. His typical peers initiated more frequently, averaging 12 (range 6–21) initiations per club meeting. Child 2 did not initiate with her peers during any of the lunch periods. However, following the start of intervention, her number of initiations increased to an average of 3 (range 1–12) per club meeting. Her typical peers averaged 12 (range 3–27) initiations per club meeting. Child 3 also did not initiate with his peers during baseline. However, following the start of intervention, he averaged 10 (range 4–16), and his typical peers averaged 12 (range 8–16). As can be noted, while the average number of initiations were lower for the children with AS, the initiations for all three children reached the level of their peers on some of the sessions.

Discussion

The results of this study showed that older elementary school students with ASD that socially isolated themselves could be encouraged to participate in activities with peers when clubs were designed around their interests. This is consistent with other research showing that repetitive ritualistic interests, used as themes of groups games, results in improved levels of engagement by children with autism (Baker, Koegel, & Koegel, 1998). In this study, children who participated did not have intense interests and had not accumulated vast

amount of information on the topic that was used as the theme of the activity, but they nevertheless, actively participated in the activity with their peers. Although children with ASD often fail to develop peer relationships appropriate to their developmental level (DSM-IV), research suggests that most have a desire for friendships (Jobe & White, 2007; Jones & Meldal, 2001; Jennes-Coussens, Magill-Evans, & Koning, 2006; Howlin, 2000). The present study suggests that clubs may be a promising way to create opportunities for children on the spectrum to increase their peer interactions.

The second finding in this study was that children with ASD greatly increased their number of initiations with their peers as compared to baseline when they did not interact at all. Although their number of initiations was still lower than the average of their peers, some of the sessions were well within the range of their peers. Research has documented the importance of initiations for improved long term outcomes in children on the spectrum (L.K. Koegel, Koegel, Shoshan, & McNerney, 1999). This study demonstrated that initiations improved as a result of social clubs designed around the child with ASD's interest. It is also important to note that no intervention took place in this area. Thus, the activity created a setting where untreated spontaneous initiations occurred. Such interventions that result in positive collateral gains are important.

Next, research suggests that the most successful social outcomes for children on the spectrum occur when both the child and the typically developing peers are targeted (c.f., Pierce & Schreibman, 1997). Because the activities in this type of intervention were both reinforcing to the child on the spectrum and the typical peers, it may have been more successful than an intervention designed solely around the interests of the child on the spectrum.

There are some areas that warrant further research. For example, although the initiations of the children on the spectrum increased, they were still somewhat lower than their peers. Research has shown that a combination of intervention programs is more effective than a single intervention (c.f., Crozier & Tincani, 2005). Perhaps if we had also targeted verbal initiations, the social verbal interactions of the children on the spectrum would have been consistently closer to their peers. Finally, although anecdotally we noted some generalization of social activities on the same days as the clubs occurred, and some of the parents reported increases in after school play dates, we did note that the children often continued to socially isolate themselves on days that the clubs were not conducted. More research regarding treatments that result in widespread socialization without the need for prompting and specific activities is warranted.

In summary, unfortunately, expressive social communicative opportunities are very rarely elicited in public school settings (Chang, 2008). The children who participated in this study were older elementary school ages. Perhaps if intensive multi-component programs for social interaction began earlier in the school years, and targeted both the child on the spectrum and the typically developing peers, older children, adolescents, and adults would have fewer challenges with social interaction. Further research in this area is of utmost importance.

Acknowledgments

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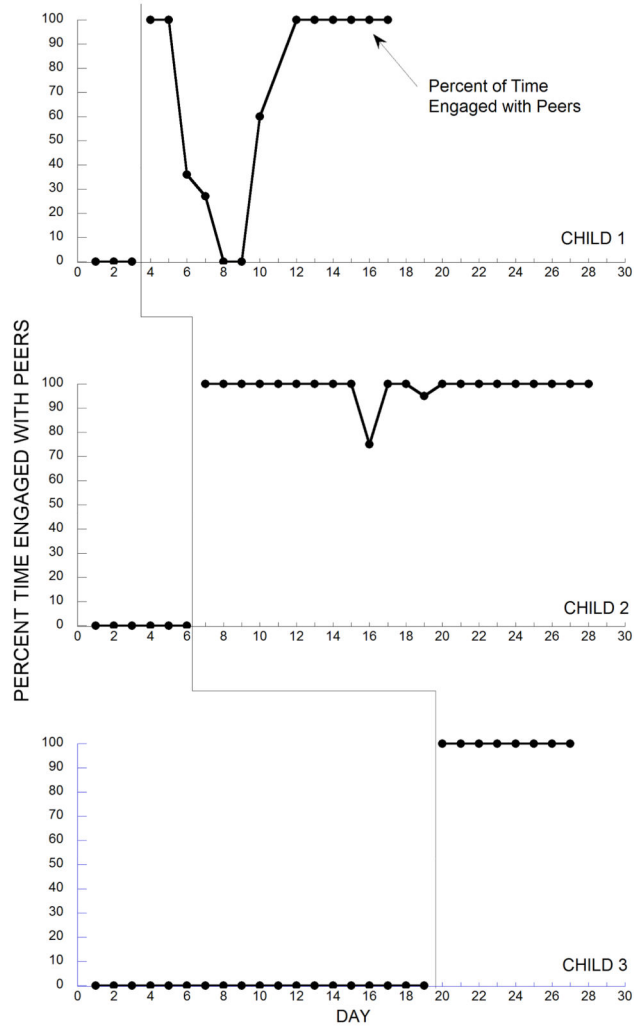
Figure 1.
Figure 1 represents the amount of time the children were engaged with their typical peers.
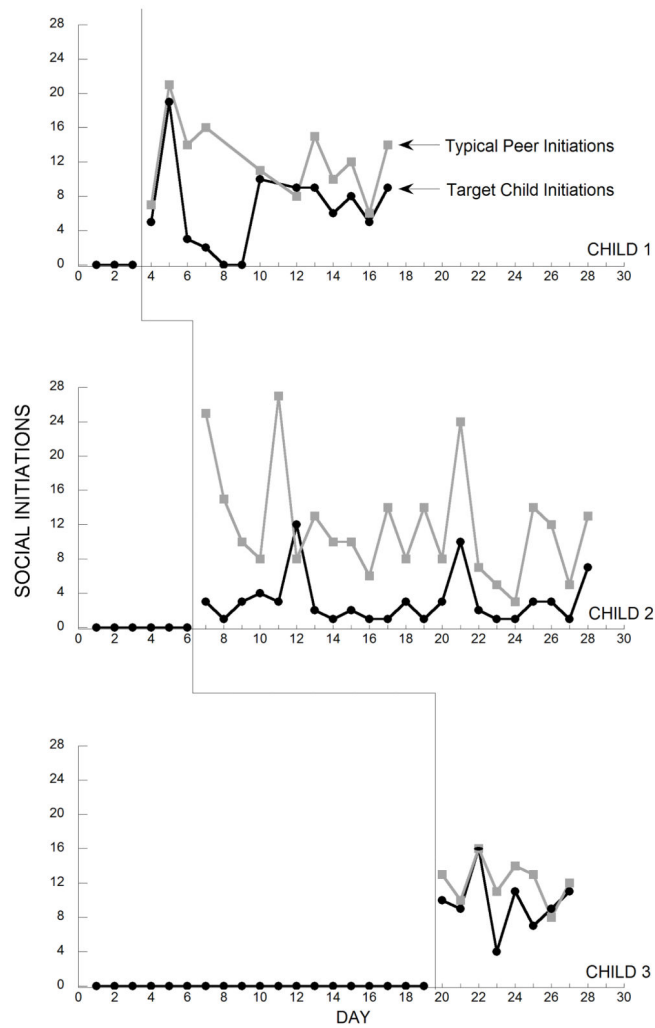
Figure 2.
Figure 2 shows the number of initiations per an activity. The dark circles represent the initiations of the child with autism and the squares represent the number of initiations by randomly selected typical peers.