PARENTS AS PLAY DATE INTERVENTIONISTS FOR CHILDREN WITH
AUTISM SPECTRUM DISORDERS

by

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ABSTRACT

Teaching children with autism to interact with their typically developing peers can be a challenge. Previous research has documented that there are many effective ways to teach social interaction; however, these interventions were implemented almost exclusively by trained professionals. The purpose of this study was to assess the effectiveness of parent-implemented contextually supported play dates. Specifically, two parents were taught to use mutual reinforcement and to design cooperative arrangements to help their child with autism to interact with a typical peer in their homes. Two independent reversal designs were used to demonstrate a functional relationship between parent-supported contextually supported play dates and an increase in synchronous reciprocal interactions for both participants. Social validity was also high for both parents; however, there was no consistent impact on participant, confederate, or parent affect. The results are discussed with reference to previous research, future directions, and implications for practice.

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CHAPTER 1

Pervasive Developmental Disorders

According to the definition set forth in the DSM-IV-TR (American Psychiatric Association, 2000), the Pervasive Developmental Disorders (PDDs) share common characteristics including difficulty in social relationships and communication, and restricted repetitive and stereotyped patterns of behavior, interests and activities. The term PDD is often used synonymously with "autism spectrum disorder" (ASD), which will be used throughout this manuscript.

All of the ASDs are neurological disorders that are usually evident by age 3. There are five disorders on the autism spectrum: Rett's Syndrome, Aspergers Syndrome, Childhood Disintegrative Disorder, Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS), and Autistic Disorder (i.e., autism). The estimated prevalence of the ASDs is 58.7 per 10 000 (Chakabarti & Fombonne, 2005).

Autistic Disorder

Until recently, scientists thought that autism was relatively rare, with an incidence of approximately 5 in 10,000 children (Lord & Rutter, 1994). However, more recent reports suggest a much higher prevalence, ranging from 0.1-0.2% (Gilberg & Wing, 1999; Croen, Grether, Hoogstrate, & Selvin, 2002). The DSM criteria for Autistic Disorder are:

(I) A total of six (or more) items from (A), (B), and (C), with at least two from (A), and one each from (B) and (C)

(A) Qualitative impairments in social interaction, as manifested by at least two of the following:

1. marked impairments in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction

2. failure to develop peer relationships appropriate to developmental level

3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people, (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)

4. lack of social or emotional reciprocity

(B) Qualitative impairments in communication as manifested by at least one of the following:

1. delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime)

2. in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

3. stereotyped and repetitive use of language or idiosyncratic language

4. lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level

(C) restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least two of the following:

1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

2. apparently inflexible adherence to specific, nonfunctional routines or rituals

3. stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)

4. persistent preoccupation with parts of objects

(II)   Delays or abnormal functioning in at least one of the above areas, with onset prior to age 3 years, that is not better accounted for by Rett's Disorder or Childhood Disintegrative Disorder

Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS)

PDD-NOS is a diagnosis by exclusion. It is assigned if a child presents with impairments in social interaction, communication, and/or restricted repetitive and stereotyped patterns of behavior, interests and activities, but does not meet the pattern of symptoms necessary for other ASD diagnoses.

The severity of any autism spectrum disorder can be determined by the number and strength of the symptoms listed above. All children on the autism spectrum have in common difficulty with forming social relationships and social communication. These challenges have significant implications for development early in childhood and throughout the lifespan.

<div align="center">Difficulty with Peer Social Interaction</div>

Research with typically-developing children indicates that positive peer relationships are associated with important developmental outcomes (Hymel, Vaillancourt, McDougall, & Renshaw, 2002; Parker & Asher, 1993). Friendships serve a variety of important functions for children, including social support (e.g., assistance in accomplishing tasks, facilitating entry into social networks), opportunities for social learning (e.g., practicing social skills),

advocacy (e.g., providing statements and actions to promote self-worth), and affirmation (e.g., belonging, support, competence) (Strain & Schwartz, 2001). Poor social skills can lead to many undesirable developmental outcomes including an increased risk of acquiring behavior problems that result from not having the social skills needed to engage in appropriate interaction, and increased maladaptive behavior later in life (Frea, 1995).

Research suggests that differences in social development are present in children with autism before the age of 2 (Dawson, Osterling, Meltzoff, & Kuhl, 2000; Wimpory, Hobson, Williams & Nash, 2000). Children with autism often experience a lack of communication and play skills, have difficulty forming friendships with typical peers, and are at risk for social isolation (Bauminger & Kasari, 2000; Wolfberg & Schuler, 1999). Research suggests that children with autism consistently make fewer social initiations, respond to fewer social initiations, and engage in shorter periods of social interaction with peers than typical children of the same age (Kennedy & Shukla, 1995). For example, Sigman and Ruskin (1999) conducted an longitudinal study and concluded that, compared to children with Down syndrome and other disabilities, children with autism spent a larger amount of time engaged in nonsocial play (i.e., solitary or parallel play, or proximal on looking) and a smaller proportion of time engaged in direct social play with peers. Bauminger, Shulman, & Agam, (2003) conducted observations in unstructured, natural settings (i.e., recess, snack time) and found that, compared to classmates matched for IQ, chronological age, and gender, children with autism spent only half as much time engaged in social interaction, and reported higher degrees of loneliness.

Reciprocal interactions with peers may be especially difficult for children with autism because of delays or differences in core social skills such as joint attention, spontaneous

imitation, or emotional responsiveness. Skills such as joint attention may also be important to the development of higher-level social cognition skills, such as intersubjectivity (Mundy & Hogan, 1994) and theory of mind (Baron-Cohen, 1995). Deficits in social cognition may contribute to the difficulty that children with autism experience with the social nuances involved in entering and coordinating joint play, as well as interpreting social initiations offered by others (Wolfberg & Schuler, 1993). Similarly, deficits in core social skills may account for the lack of flexible, imaginative, and spontaneous play commonly observed during peer interaction (Wolfberg, 2003).

Various "problem" behaviors often compete with social play behavior for children with autism. Compared to typically-developing peers, children with autism display higher rates of repetitive non-functional movements (i.e., stereotypic or self-stimulatory behavior) and higher rates of self-injurious behavior (Lord, 1993). There is some evidence of an inverse relationship between the amount of stereotypic or self-injurious behavior and social interaction behavior for children with autism (McConnell, 2002).

In consideration of the challenges that children with autism face and the implications of failure to develop peer relationships, it is important that research focuses on the development of effective interventions for children with autism spectrum disorders to improve social interaction.

Interventions to Improve Social Interaction Skills with Peers

Previous models of social skills interventions for children with ASD have drawn from sociocultural theory and the concept of "guided participation" -- that is, supporting children to participate actively in culturally valued activities (e.g., play) alongside competent companions who provide guidance and support (Rogoff, 1993). Furthermore, many

researchers have built upon Vygotsky's (1966, 1978) discussion of the critical role of play as a social and cultural activity for acquiring social knowledge and interpersonal skills (Wolfberger & Schuler, 1993).

Several different types of interventions have been created to support children with autism to develop peer play skills. These can be broadly categorized as child-centered, peer-mediated, or adult-mediated. Child-centered interventions involve teaching the child with autism target social skills and providing reinforcement contingencies for social interaction. Peer-mediated interventions involve reinforcing typical children as they engage in specific behaviors (e.g., asking questions, commenting) that enable them to engage their peers with autism in positive interactions. Finally, adult-mediated interventions involve teaching adults to prompt or reinforce social behaviors displayed by the child with autism, and/or to structure opportunities in the environment that facilitate peer interaction (McConnell, 2002). While most social skill interventions have been designed for school settings, some recent studies suggest that home settings may also be promising environments in this regard (Wolfberg & Schuler, 1999; Yang, Wolfberg, Wu, & Hwu, 2003).

Child-with-Autism-Centered Interventions

Many different interventions have been designed to teach children ASD peer play skills. Researchers have used a variety of methods for teaching, including structured behavioral interventions, video modeling, and social stories.

Structured behavioral interventions. Some interventions focus on teaching target social skills to children with ASD through systematic instruction. For example, Garfinkle and Schwartz (2002) conducted an intervention focused on improving imitation skills in an inclusive preschool classroom with three children with ASD. All of the children learned

imitation skills in small groups, receiving prompting and reinforcement as appropriate. Following the intervention, improvements were noted in both imitation skills and social behavior (e.g., proximity to peers and number of interactions).

Baker, Koegel, and Koegel (1998) taught children with autism how to play games that were created by the researchers based on each child's obsessive interest (e.g., for a child who was obsessed with maps, the game included a giant map game board). Improvements were noted in peer social interactions with classmates and in children's ability to play novel games during intervention and at 1 and 2 month follow-ups. Baker (2000) repeated this strategy at home by teaching game playing with siblings that incorporated the child with autism's thematic ritualistic interests. Improvements were noted in joint attention, social interaction, and affect. The improvements in social interaction also generalized to other games and settings.

Video modeling. Recently, the use of video modeling techniques to improve social skills with peers has been explored in a variety of experiments. For example, Maione and Mirenda (2006) used a video modeling and video feedback procedure to increase social language skills for a 5-year-old child with autism. Appropriate unscripted verbalizations directed towards a peer increased across three different play activities. Taylor, Levin, and Jasper (1999) also used video modeling techniques to increase play statements with siblings; however, only scripted statements were acquired by the participants in this case.

Social stories. Other research has addressed the use of social stories to improve social interaction with peers. For example, Scattone, Tingstrom, and Wilczcynski (2006) conducted a multiple baseline design across three participants using social stories as the sole intervention. Improvements in social interaction with peers occurred for 2 of the 3

participants. Similarly, Delano and Snell (2006) successfully used individualized social stories to improve peer interaction skills including seeking attention, initiating comments and requests, and making responses in three elementary-age students with autism.

Peer-Centered Interventions

Current best practice supports the inclusion of children with autism in typical educational settings based on the understanding provided by social learning theory that peers can model and reinforce appropriate social behavior (Bandura, 1977; Kamps, Barbetta, Leonard, & Delquadri, 1994; Kohler, Strain, Hoyson, & Jamieson, 1997). However, social inclusion is unlikely to occur unless children with autism encounter receptive peers with whom to interact (McEvoy & Odom, 1987; Myles, Simpson, Oremsbee, & Erikson, 1993; Pierce & Schreibmann, 1997b). Thus, some intervention strategies focus on using peer influence to encourage social engagement. Some promising strategies include teaching social skills to peers (Kohler et al.,1990), including children with ASD in peer networks (Garrison-Harrell, Kamps, & Kravitz, 1997; Kamps, Potlucek, & Lopez, 1997), pairing children with ASD with peer buddies (Laushey & Heflin, 2000), and teaching social skills to siblings (Tsao & Odom, 2006).

Teaching target skills to peers. Some peer-mediated interventions focus on teaching peers specific skills they can use to interact with children with autism. For example, Morrison, Kamps, Garcia and Parker (2001) conducted an intervention in which four students with autism and non-disabled peers were taught to use and monitor target social skills such as requesting, commenting and sharing, and to practice these skills during game play. Results indicated improvements in these target skills, as well as an increased number of social initiations and improved interaction.

Phillip Strain and his research group have conducted numerous experiments confirming the efficacy of using peers as interventionists for play skills (Strain & Schwartz, 2001). In each study, Strain and his group taught peers social behaviors to engage children with autism in social interactions. For example, Strain, Shores and Timm (1977) taught two typically-developing peers several verbal and motoric behaviors to engage their classmates with autism (e.g., teaching the peers to say "let's play ball," and to roll the ball to the child with autism). In a follow-up study, Strain, Kerr and Ragland (1979) expanded the intervention to include reinforcement in addition to the verbal and motoric behavior (e.g., the peer would say "good job!" after rolling the ball to the child with autism). Each of these interventions yielded significant improvements in peer interactions. Strain, Kohler, Storey, and Danko (1994) added a self-monitoring component to the intervention. Peers at school and siblings at home were taught how to use and monitor three key social skills including how to give play ideas, share and suggest, and offer assistance. After each target skill was demonstrated, the target child received a token that could be exchanged for an edible reward for both himself and his peer/sibling. Results indicated that the number and length of social exchanges as well as the target's child response to his peer's social initiations improved considerably across home and school environments.

Other researchers have also examined the roles of siblings as peer intervention assistants. Tsao and Odom (2006) taught typically-developing siblings of four young children with autism ways to socially engage their brothers. Improvements were noted in joint attention as well as modest changes in social behavior; however, these results had limited generalization to other settings.

Odom and Watts (1991) focused on the role of adult prompting using two groups of peers. The authors taught both groups specific strategies to initiate social interactions with the target participants with ASD. Then, one group of participants was provided with teacher prompts to initiate interaction, and in the other group, no prompts were provided. Results indicated that peer social interaction increased only in the group in which teacher prompts were provided.

Other researchers have combined teaching social skills to peers with a group-contingency system. Group contingencies require that all children in a group engage in a specified behavior to earn a reinforcer; these contingencies can be helpful for teachers to more efficiently manage large groups (DiSalvo & Oswald, 2002). For example, Kohler et al. (1990) combined teaching social skills and a group-oriented contingency to promote social interactions between three preschoolers with autism and their peers. The students were taught to initiate and extend their play to include others, to respond positively to initiations, and to be persistent in their use of strategies. Each student earned happy face stickers each time they used a strategy, and could earn a prize if everyone in their group also earned enough stickers. Results indicated that the intervention was successful in increasing social interaction with peers for all three children with autism.

Peer networks. Peer networks are based on the premise that an enhanced understanding of disability will promote increased interaction. Peer networks are designed to create a group of peers with such understanding who provide support to the target child with autism. For example, Garrison-Harrell et al. (1997) used the approach with three first grade students with autism. Fifteen typically-developing peers were divided into three networks of five peers for each target child. Peers were taught target skills such as the use of

augmentative communication systems, initiating and responding in conversation, sharing, and providing instructions. Each network spent 20 minutes in three different settings, individualized to the target child's interests. Improvements were noted in the frequency and duration of interactions across settings; however, improvements did not generalize to other settings.

Peer buddies. Other researchers have designed interventions to examine the effects of pairing students with ASD with typically-developing peers in various settings in addition to teaching social skills. For example, Laushey and Heflin (2000) designed a "buddy system" in which children with ASD were paired with a different member of their kindergarten class each day for buddy time. Before the buddy system began, the children received a lecture on being a good buddy, including playing with, staying with, and talking to your buddy. Results included increased social interactions with peers, as well as improvements in social interaction for other students without disability.

Buddy systems can also be combined with other structured activities. For example, Kamps et al. (1994) paired school-aged students with autism with typically-developing peers in the classroom who were designated as tutors for reading skills. Each pair participated in specific reading instructional sessions designed by the research team, then spent 15 minutes together in unstructured free-time activities. Results indicated both improvements in reading skills as well as increased social interaction during the 15 minute free time periods.

Adult-Mediated Interventions

The final category of peer play interventions for children with ASD includes interventions in which researchers teach parents, teachers and other adults specific strategies to facilitate social interaction between children with ASD and their peers. Adult-mediated

interventions have taken place with small groups of peers (e.g., playgroups or circles of friends; Wolfberg & Schuler 1993, 1999; Whittaker, Barratt, Joy, Potter & Thomas, 1998), in classrooms (Kohler, Anthony, Steighner & Hoyson, 2001), at summer camps (Brookman, Boettcher, Klein, Openden, Koegel, & Koegel, 2003) and at home (Strain & Danko 1995; Strain et al, 1994; Koegel, Werner, Vismara & Koegel, 2005).

Teaching target skills to adults. One type of adult-mediated intervention involves teaching parents, teachers and others specific target skills which they use to promote interaction between children. For example, Brookman et al. (2003) described a social skills program implemented in a community summer camp. The intervention had a variety of goals, unique to each participant, many of which involved improving social interaction with peers (e.g., increasing appropriate initiations, improving social conversation, etc.) Full-time adult aides were trained to facilitate social conversations and encourage interaction across camp activities. Positive feedback was received by campers, camp staff and parents regarding the experience.

Teachers in school settings have also been taught strategies to facilitate peer social interaction. For example, Kohler et al. (2001) taught preschool teachers naturalistic teaching strategies to facilitate interaction amongst classmates with and without autism. These strategies involved helping to engage the child with autism in an activity, then creating opportunities for peer interaction within the activity. Results indicated that the preschool teachers could be taught to successfully promote peer interactions, and that social interaction with peers improved for 3 of the 4 students with ASD.

Finally, parents and caregivers have also been taught target skills necessary to implement social skills programming in their homes. Strain and Danko (1995) taught parents

and caregivers to implement a previously validated classroom-based social skills intervention in their homes to improve interactions between three children with autism and their siblings. Parents taught their typically-developing child several skills, including how to get their sibling's attention, how to give play ideas, how to help, and how to offer positive comments during play. Results indicated improvements in sibling social interaction, and parents rated the intervention as easy and enjoyable to implement.

      Integrated play groups. Integrated Playgroups (IPGs) are a peer group play-centered intervention developed by Pamela Wolfberg and her research team. Integrated playgroups involve grouping one or two "novice players" (i.e., students with autism or other social impairments) with four or five "expert players" (i.e., typically-developing peers with strong play skills.) IPGs meet regularly (usually weekly) and students participate in schedules and routines involving games, crafts, and other activities chosen by the group. The playgroup leader is an adult who is knowledgeable in the concept of "guided participation": that is, structuring opportunities for novice and expert players to interact while challenging and supporting the emerging social skills of the novice players. Playgroups take place in a natural integrated setting, within play spaces that are carefully structured with materials to promote interaction. The group leader interprets the behavior of the novice players and helps peers to initiate and maintain engagement. The leader also encourages the target child to initiate and maintain interaction, sometimes with the use of prepared cues (such as posters). As much as possible, integrated playgroups aim to provide a supportive environment to optimize interaction rather than using intrusive adult directions. Several studies have documented the efficacy of IPGs for improving social interaction (Wolfberg & Schuler, 1999; Wolfberg & Schuler, 1993; Yang, Wolfberg, Wu, & Hwu, 2003)

Circle of friends. The circle of friends approach is similar to Integrated Play Groups in that a child with autism is paired with a group of students to support positive social interaction through weekly meetings led by a trained adult group leader. However, circle of friends groups incorporate a problem-solving focus during weekly meetings, and set weekly goals related to the social skills of the target participant. The circle of friends approach has been used with individuals with autism from preschool to high-school age, with activities adapted to the appropriate age level. Whittaker et al. (1998) described the outcomes of six circles that were established for children with ASD grades 3 to 10 in several mainstream schools. Circle leaders reported more social integration and higher levels of peer contact for the child with autism, in addition to reduced anxiety and improved behavior. Circle members reported increased empathy and improved understanding, as well as enhanced self-esteem. Whittaker (2004) described the impact of the circle of friends intervention on ten children with severe autism. For these groups, the peers were also provided with instruction on how to encourage play and how to communicate effectively. Results indicated higher levels of shared play; however, levels of social initiations continued to be low for the children with ASD.

Play dates. Another promising play intervention is the home-based supported play date. Research suggests that typical children regularly invite friends to play at home (Frankel & Myatt, 2003); however, only one empirical study to date has examined this context as a possibility for intervention for children with autism spectrum disorders. Koegel et al. (2005) evaluated the impact of contextually supported play date interactions between children with autism and typically developing peers. In their study, contextually supported play dates involved two components: mutually reinforcing activities (i.e., activities both the child with

autism and the typically developing peer were highly motivated to experience), and cooperative arrangements (i.e., structuring activities in such a way that both participants were required to participate). Examples of mutually reinforcing activities included bowling, cookie decorating, painting, and playing board games. Examples of cooperative arrangements included having one child hold the measuring cup while the other poured the ingredients during a baking activity, or having one child cut out pictures while the other glued them to the paper while making a collage. Cooperative arrangements were facilitated by a graduate student interventionist in cooperation with the child's parent. The facilitator ensured that access to materials that were necessary to complete the activity was contingent on interaction between the children; for example, one child may need to ask the other for pieces of the game, or for ingredients needed to finish baking a cake.

The dependent variables were unprompted, synchronous reciprocal interactions and child affect. Synchronous reciprocal interactions were defined as "both children engaging in social communicative behaviors related to the other child's current interest" (Koegel et al., 2005, 96). Social communicative behaviors included verbal initiation, verbal responses, nonverbal eye contact, facial expressions, and gestures related to engagement in a joint activity. To be coded as synchronous and reciprocal, one child's verbal and/or nonverbal behavior was directed towards the other child, and the other child responded. For example, synchronous reciprocal interaction could be coded if one child asked the other a question (e.g., "What are you drawing?"), made a comment (e.g., "That's a cool picture!"), or provided assistance (e.g., by passing a marker or helping with the drawing), and the other child responded (e.g., answered the question, smiled, or used the marker). If the other child did not respond, left the activity, or was prompted to respond, the interaction was not coded.

Child affect was assessed using scales adapted from previous research (Koegel, Bimbela &

Schreibman, 1996; Koegel & Egel, 1979; Schreibman, Kaneko, & Koegel, 1991). Children

were rated as having positive affect (i.e., appearing to be enjoying themselves, smiling,

showing interest, etc.), neutral affect (i.e., appearing neither happy nor unhappy, not showing

clear enthusiasm), or negative affect (i.e., appearing discontent or avoiding participation).

The research design was a multiple baseline across two participants, with an

additional reversal conducted for the first participant. Results demonstrated that there were

more 30-second intervals that included synchronous reciprocal interaction in contextually

supported play dates as opposed to play dates that did not include contextual support.

Participant affect ratings were also more positive in contextually supported play dates.

Supplemental measures also indicated a substantial increase in the number of social

invitations (e.g., sleepovers, birthday parties, play dates) received by each child over a one

year follow-up period.

Therefore, the initial research exploring contextually supported play dates as a means

of increasing social interaction yielded promising results. Social interaction improved

significantly, both play date participants were happy and appeared to enjoy themselves, and

the number of social invitations each child with autism received over the following months

increased substantially.

Given the severe lack of empirical research involving play dates, the proposed

research aims to further examine the potential of play dates for improving social interaction

between young children with autism and their typically-developing peers. The current study

further contributes to the literature by combining the previous play date model with a parent

training component, and by exploring the use of the intervention with a younger population.

Parent Involvement

Why Involve Parents?

Some researchers have argued that the most important goal of parent training interventions is to maximize learning opportunities by improving the child's experience across as many settings as possible (Crockett, Fleming, Doekpe, & Stevens, 2007). Schopler and Reichler (1971) first examined the possibility of having parents as "co-therapists" for children with autism. Their research efforts were based on the premise that parents could not support their children effectively because of confusion about their child's unresponsive behavior, and that support from professionals could improve the situation at home for parents and children. These authors conducted a 5 year project during which parents observed various professionals modeling effective techniques for engaging and teaching their child with autism. Parents were also assigned a home consultant who helped to design programs for each parent to implement at home, and provided support and supervision for implementation. Results indicated that parents were able to acquire effective behavior management skills and many improvements were noted in the children. After demonstrating that parents could be powerful intervention agents with supportive instruction, the authors argued that it was essential for researchers and professionals to stop blaming parents for their children's problem behavior, and to recognize that instead parents could be supported to help improve child outcomes.

Since that time, parent training has been regarded as an important component of early intervention programs for children with autism to improve quality of life for both children and adults (Harris, 1994). Research has made it clear that interventions that increase parental feelings of confidence and control are critical because autism can be associated with stress

and significant challenge for parents (Herring, Gray, Taffe, Sweeney & Einfeld, 2006; Howlin, Goode, Hutton, & Rutter, 2004). Characteristics of many children with autism, such as verbal expressive difficulties, cognitive inconsistencies, and behavior problems, can make parenting particularly challenging (Baker, Blacher, Crnic, & Edelbroack, 2002; Floyd & Gallagher, 1997; Moes, 1995). Additional caregiving tasks, such as researching and attaining appropriate support and interacting with the service system, can also place exceptional demands on family's time and financial resources, increasing the need to create interventions that help parents to cope (Bebko, Konstantareas, & Springer, 1987; Koegel, Schreibman, Loos, & Dirlich-Wilhelm, 1992).

There is growing evidence to suggest that parental adjustment improves after involvement in teaching programs (Shields, 2001). For example, Tonge, Brereton, Kiomall, MacKinnon, King, and Rinehart (2006) examined the impact of an educational and skills training program on the mental health of parents of young children newly diagnosed with autism. Parents received information about autism, including communication, social, play, and behavioral impairments, and behavior management procedures. They were also educated about skills for improving interaction and communication, services available to support the family, and techniques for managing stress. Results indicated significant improvements in parent mental health, including the alleviation of anxiety, insomnia and somatic symptoms.

There have also been several studies suggesting that interventions involving parents can improve parent-child interactions. For example, Koegel et al. (1996) taught two groups of parents how to instruct their child with autism: one group was trained in a discrete trial approach (individual target behavior condition- ITB), and the other group was trained in pivotal response techniques (PRT). In the PRT group, parents learned to focus on increasing

motivation and responsivity to multiple cues. The pivotal response training resulted in positive parent-child interactions, including more positive communication and affect. Moes and Frea (2002) taught parents to successfully implement a functional communication training package, specially designed to meet the family's context. Improvements were noted in problem behavior and parent-child interaction.

Research has indicated that not only can intervention improve family life and parent-child interactions, but that it also has potential to impact specific skills for children with ASD. Various studies have focused on particular skills, and some have focused on improving play and social interaction.

Types of Parent-Led Interventions

Parents have been taught various behavioral techniques to apply with their children, including prompting, fading, shaping, chaining, reinforcement, punishment, and data collection. Successful outcomes have been noted for both parent and child skill acquisition (Crockett et al, 2007). For example, Smith, Buch, and Gamby (2000) examined parent-directed, intensive early intervention for children with pervasive developmental disorder. Parents received consultations about how to implement an intensive behavioral intervention in their homes and received six 1-day workshops over a 5-month period, with additional consultations for the next 2–3 years. Five of six children rapidly acquired skills when treatment began, and parents reported high satisfaction with treatment.

Relatively few studies have focused on teaching parents skills to improve peer play with their children in the home context. Strain et al. (1994) taught two mothers how to implement a previously developed social skills training package (Kohler et al., 1990) to improve social interaction between their child with ASD and a typically-developing sibling.

The intervention included instruction for both the typically-developing child and the sibling with autism in using play organizer suggestions, offers and requests, and statements of assistance. Mothers introduced and modeled the statements with their children, then rehearsed the skills with each child by providing ongoing instructions, models and feedback. Mothers also implemented a monitoring procedure with the target child with ASD: each time the child exhibited a positive initiation, the mother gave the child a foam disk that could be exchanged for a small edible for both the target child and his sibling. Researchers provided mothers with technical assistance throughout the implementation. Results indicated substantial improvements in interaction between siblings.

Strain and Danko (1995) implemented a similar intervention in three homes with parents and caregivers of children with autism. Parents and caregivers were taught five peer play skills (e.g., how to get the peer's attention, share and ask for toys, give play ideas, help and receive assistance, talk to your friend nicely) as well as strategies for teaching these skills to their child (i.e., description, modeling, practice and feedback). Parents and caregivers then implemented these strategies without researcher assistance. Results indicated substantial improvements in play between siblings, and social validity assessment indicated that parents found the training package helpful, enjoyable, and relatively easy to implement.

Parent Training Procedures

Parent training procedures typically involve a description of important concepts, followed by modeling, role-play, feedback and discussion (Crockett et al, 2007; Koegel, Glahn, & Nieminen, 1978.) In addition, training procedures might involve workbooks, videos, rehearsal, and homework tasks. For example, in the Strain and Danko (1995) study, parent training involved four training sessions, each 20 minutes in length. Each of the first

three sessions involved a 5 minute video segment. Each video showed a trained adult implementing the social skills strategies with a child with autism and a peer. All five peer interactional strategies were covered in each video. Project staff paused the video and discussed the various strategies as they were modeled. The remainder of the training session allowed for an opportunity to practice the strategy with corrective feedback from project staff. The fourth training session was used entirely as an opportunity to resolve any final questions, practice, and gain confidence as a facilitator. Training strategies vary slightly across other research studies, but most include each of the key procedures mentioned above.

Research Question

The present study contributes to the growing research base exploring the possibility of involving parents as peer play interventionists in the home setting. Previous research demonstrates that involving parents in intervention programs can have a positive impact both on child skills and parent and family well-being, and it is clear that peer play is a critical area for intervention for young children with autism spectrum disorders. Therefore, the current study invites parents to become interventionists in their own homes, and focuses on improving peer social interaction for two young children with autism spectrum disorders. It expands upon and combines findings based on the previous research of Strain and Danko (1995) and Koegel et al. (2005) by teaching parents to act as sole interventionists in the implementation of play dates with typically-developing peers in the home setting. This study also explores the potential for play dates as a means of intervention for children younger than those described in the Koegel et al. (2005) study.

It was hypothesized that when parents demonstrate competence in play intervention strategies and display positive affect during implementation, child play skills would improve and social validity would be high.

The study addresses three research questions:

a) Will a brief instructional procedure enable parents to conduct contextually supported play dates (i.e., set up mutually reinforcing, cooperative play arrangements) between their child with ASD and a typically developing peer?

b) Is there a functional relationship between participation in contextually supported play dates and increases in synchronous, reciprocal interactions between children with ASD and typically developing peers?

c) How do parents rate their ability to conduct contextually supported play dates following instruction and improvements in their child's social interactions during play dates?

CHAPTER 2

Method

Ethics Approval

Approval for this study was obtained in May 2007 from the Behavioral Research Ethics Board of the Office of Research Services and Administration at the University of British Columbia (Appendix A).

Participant and Confederate Recruitment

Two children with ASDs, and one caregiver for each child were invited to participate in the study. Families were recruited through ABA Learning Centre, a local service provider. ABA Learning Centre e-mailed letters to all parents whose child with autism was between 4 and 6 years old. The letter described the general purpose of the study, the criteria for participation, and basic information about the procedures involved in the study (Appendix B). To be eligible for the study, the child had to meet the following criteria:

(a) be between the ages of 4 and 6 years old

(b) have an autism spectrum diagnosis

(c) be able to speak English

(d) have a receptive language score of at least 3 years, as measured by the Preschool Language Scale-4

(e) engage in primarily parallel play in situations with peers, as reported by parents and verified by researcher observation during preliminary assessment.

(f) be able to remain engaged with preferred activities for at least 10 minutes.

(g) not exhibit any serious peer-directed problem behavior in peer play situations, as reported by parents and verified by researcher observation during preliminary assessment.

The child's parent also met the following additional criteria:

(a) be willing to agree to the time commitment involved for training and implementation as principal play date interventionists (i.e., available for one or two 10 minute play date activities per week for 6-8 consecutive weeks, in addition to three 60-90 minute training sessions).

(b) be able to arrange for a typically-developing peer play partner for each play date. Potential play partners had to be approximately the same age as the child with autism (i.e., up to 3 years younger or older) and did not have any identified social, cognitive or behavioral problems.

Parents who responded to the recruitment letter were contacted by the researcher, and a home visit was arranged to observe a play situation with a typically-developing peer to confirm eligibility. The parent received additional information from the investigator about the purpose, procedures, and timeline of the study prior to signing a consent form (Appendix C). During a separate visit, a research assistant administered the Preschool Language Scale-4 (PLS-4; Zimmerman, Steiner, & Pond, 2002) to confirm that the child had a receptive language age of at least 3 years.

Following the initial visit, a letter was forwarded to the play partner's family describing the purpose of the study, the general procedures, and time involved (Appendix D). Further information was provided to the peers' parents once they had contacted the

researcher to indicate that they were interested in having their child participate in the study. The peer's parent provided a signed consent form to the investigator (Appendix E).

Participants and Confederates

Two boys with autism spectrum disorder, their mothers, and two playmates were recruited for the study.

Logan

Logan was 4 years 11 months when the study began. He is the youngest child of a middle class, Euro Canadian family, and he has one older sister. For the duration of the study, and for 2 years prior to it, he had participated in a centre-based applied behavior analysis program. He received an average of 15-20 hours per week of intensive instruction.

Logan has made significant gains over the course of his intervention, but at the beginning of the study, he exhibited impairments in social interaction. He engaged primarily in parallel play, both in home and school settings. Without adult support, Logan frequently engaged in repetitive, stereotyped behaviors (e.g., lining up objects, reciting lines from television shows or movies) and rarely initiated spontaneous language with his peers.

Logan also met the following criteria set out at the beginning of the study: (a) he was able to speak English, (b) he had a receptive language age equivalent of 4 years, 4 months, as measured by the PLS-4, (c) he was able to remain engaged with preferred activities for at least 10 minutes, and (d) he not exhibit any serious peer-directed problem behavior in peer play situations, as reported by parents and verified by researcher observation during preliminary assessment.

Logan's mother Daphne agreed to the time commitment involved for training and implementation as the principal play date interventionist, and arranged for a typically-developing peer play partner.

Megan. Logan's play partner was his sister Megan. Megan was 6 years 8 months old at the beginning of the study. She attended grade two during the study and did not have any identified social, cognitive or behavioral problems.

Daniel

Daniel was the second participant recruited for the study. Daniel was 5 years 5 months old at the onset of the study. He is the oldest of two children in a Chinese-Canadian family. He received an autism spectrum diagnosis at Sunny Hill Hospital on December 23, 2004, when he was 2 years 10 months old. At the time of the study, and for approximately 2 years prior, he was attending a group applied behavior analysis program for 20-25 hours per week.

Daniel's receptive language age equivalent, as measured by the PLS-4, was 5 years, 0 months. Without adult support, Daniel very rarely approached peers and almost never engaged in vocal behavior with his peers. His play interests were severely restricted: he was most enthusiastic about alphabet games on his computer, television (the Learning Channel), and Leap pad electronic books.

Daniel also met the following criteria set out at the beginning of the study: (a) he was able to speak English, and (b) he did not exhibit any serious peer-directed problem behavior in peer play situations, as reported by parents and verified by researcher observation during preliminary assessment. The only preferred activities Daniel was able to remain engaged with for 10 minutes were the solitary activities mentioned above.

Daniel's mother Andrea agreed to the time commitment involved for training and implementation as principal play date interventionist, and arranged for a peer play partner who is typically-developing for each play date.

Shannon. Daniel's play partner was his cousin Shannon. Shannon was 4 years 11 months old at the beginning of the study. She attended kindergarten during the study and did not have any identified social, cognitive or behavioral problems.

Setting and Materials

All play dates occurred in each family's home across whatever natural play settings the parent decided to make use of (e.g., kitchen, living room, and backyard.) Materials for play dates varied depending on the interests of the children, and included anything appropriate to the play date activity (e.g., arts and crafts supplies, baking products, board games, or other toys.) Materials were usually supplied by the parent of the child with autism whenever possible; however, in a few cases, materials were supplied by the researcher (e.g., stickers, play doh, pretend dishes.)

Measurement

Dependent Measures

Synchronous reciprocal interactions. The primary dependent measure was synchronous reciprocal interactions, as defined by Koegel et al. (2005) and adapted from Siller and Sigman (2002). Synchronous reciprocal interactions were defined as "both children engaging in social communicative behaviors related to the other child's current interest" (Koegel et al., 2005, p. 96). Social communicative behaviors included verbal initiations, verbal responses, nonverbal eye contact, facial expressions, and gestures related to engagement in a joint activity. In the Koegel et al. (2005) study interactions were

measured in 30-second intervals, and only unprompted interactions were recorded. To allow for comparison of results, the same time measurement criteria applied to the current study: the percentage of intervals in which synchronous reciprocal interactions occurred for the majority of the interval (i.e., 16 seconds or more) was recorded, and a comparison was made between intervention and baseline conditions. The cumulative number of seconds during which synchronous reciprocal interaction occurred per 30-second interval was recorded using a stopwatch (i.e., interaction did not need to occur across 16 or more consecutive seconds to be considered a majority of the interval) (Appendix F).

In the current study, the nature of prompted interactions was defined more specifically than in the Koegel et al. (2005) study, to facilitate accurate coding decisions. The researcher asked the parents not to prompt the child with autism, but instead to prompt the peer if direction was required in order for the activity to proceed. When the parent prompted the peer to prompt the child with autism, and the child with autism responded to the peer, the interaction between the two children was coded beginning with the moment that the peer spoke, continuing through the response of the child with autism, and ending when either child disengaged from the interaction (i.e., stopped participating in the joint interaction.) For example, if Daphne said to Megan "Ask Logan what kind of eyes he wants," and Megan asked Logan "What kind of eyes would you like?" and Logan responded "I want square eyes," the interaction would be coded beginning when Megan said "what" and ending after Logan disengaged.

In addition, a rule was created for situations in which the parent accidentally prompted the child with autism instead of the peer. When this occurred, the subsequent interaction between the two children was not coded. For example, if Shannon asked Daniel

"What does that say?" and Andrea prompted Daniel to say "red," then Daniel responded "red," the interaction was not coded. The coding of an interaction resumed when either (a) the peer initiated an interaction and the child with autism responded without a prompt from the parent; or (b) the child with autism independently initiated an interaction with the peer and the peer responded.

Child affect. Child affect was assessed for each play date using scales that were adapted from previous research (Koegel et al., 1996; Koegel & Egel, 1979; Schreibman et al., 1991) (See Appendix G). Child affect was assessed using the same scale used in the Koegel et al. (2005) study. Negative affect was a score of zero or one, neutral affect was a score of two or three, and positive affect was a score of four or five. Levels and trends were assessed across participants, and comparisons were made between play dates in intervention and baseline conditions.

Parent affect. To further address issues of social validity, parent affect was also measured using a Parent Affect Scale adapted from previous research (Koegel, Symon, & Koegel, 2002) (See Appendix H). As with the child affect scores, negative affect received a score of zero or one, neutral affect received a score of two or three, and positive affect was a score of four or five. Levels and trends were assessed across participants, and comparisons were made between play dates in intervention and baseline conditions.

Social validity. Finally, a short questionnaire including a series of Likert-type scales was administered at the end of the intervention (Appendix J). Parents were asked to rate their perceptions about the intervention and outcomes on a scale of one to five, including how confident they felt about their ability to implement play date strategies, how confident they felt about planning activities that would encourage peer interactions, whether or not they

would continue to conduct play dates on a regular basis, how much they valued their child's ability to participate in play dates, and their satisfaction with child outcomes. Results for each item on the questionnaire were reported for each parent, and a summary is presented for readers.

Fidelity of implementation. The researcher coded video-taped sessions and evaluated the parent's ability to implement the intervention as intended (i.e., as taught during instructional training sessions). Each strategy that was presented during training (e.g., cooperative arrangements, material preparation, involving each child's interests) was evaluated and data were recorded regarding whether or not the parent demonstrated use of the strategy during the session. An implementation fidelity score, out of a total possible score of ten, was recorded for each play date (Appendix I).

Design

Unlike the Koegel et al. (2005) study, which employed a multiple baseline design across two participants, the current research question was addressed using two independent reversal designs. For both participants, baseline data were collected. After a stable baseline was established, parent training began. Each parent participated in parent training until she was able to implement 7 out of 10 (70%) of the play date strategies for three consecutive activities. Following training, intervention data were collected during activities in which parents independently ran the play dates without researcher support. This phase continued until a stable change in level and trend in the desired direction was established. At this point, intervention was withdrawn briefly (i.e., return to baseline). After low levels of synchronous reciprocal interaction and a deteriorating trend resumed, intervention was re-introduced.

Tables 1 and 2 display the play date activities conducted by parents across baseline, training, intervention, and reversal phases.

Table 1

Activities Conducted by Daphne across Sessions and Phases

	Logan	
Session	Phase	Activity
1	Baseline	Picnic
		Polly pockets
2		Water fun
3	Parent Training	Balloon tree craft
		Making people craft
4		Baking cookies
		Mural craft
5		Hot and cold game
		Baking cookies
6	Parent Implementation	Gross motor game
7		Dress up
		Tea party
	Reversal/Baseline	Gross motor game
	Parent Implementation	Mural craft

Table 2

Activities Conducted by Andrea across Sessions and Phases

	Daniel	
Session	Phase	Activity
1	Baseline	Pin the tail on the donkey
		Cariboo
		Painting
2	Parent Training	Pass the present
		Letter craft
		Making playdoh
3		Science experiment
		Train craft
		Pass the present
4		Chicken craft
		Science experiment
5	Parent Implementation	Craft
		Baking muffins
6		Shopping game
7	Reversal/Baseline	Worms game
8	Parent Implementation	Zingo game
		Pass the present

Procedure

Preliminary Assessment

A home visit was arranged to observe each child engaged in a play situation with a typically-developing peer. Parents were asked to "try to get the children to play together," and were free to choose from whatever activities or materials were available in the home. To be eligible for participation, the child had to show evidence that he was (a) comfortable with being in close proximity to peers and (b) able to remain engaged with play materials for at least 10 minutes. (i.e., play alongside a peer without direct interaction). The researcher remained at least three metres away and did not facilitate interaction during this observation.

Baseline

During baseline sessions, Daphne and Andrea were asked to have Shannon and Megan present in the home when the researcher arrived, and to host a play-date consisting of at least three activities of 6-10 minutes in length. Between each activity, there was a pause of 5 – 10 minutes during which the parents gathered the materials for the next activity and the children played independently with materials unrelated to the study. As in the preliminary assessment, parents were requested to "try to have the children play together." Parents were told to use whatever play materials were available in the home. After videotaping the children together in three activities of 6-10 minutes, the researcher thanked the parent for participation and left the home.

Parent Training

To prepare for implementation, each parent received instruction on how to host a contextually supported play date. Parent training consisted of several home visits. On the first visit, the researcher presented and discussed a procedures manual that was adapted from

Vismara, Gengoux, Boettcher, Koegel, and Koegel (2006). The manual included information about the importance of selecting mutually reinforcing activities, and strategies for designing cooperative play arrangements (Koegel et al., 2005). The researcher also brainstormed with the parent several play date activities that might be appropriate for the child and provided examples of several cooperative arrangements that could be facilitated within the context of each activity. The researcher introduced a play date planning handout, and assisted the parent in completing the handout based on ideas generated during brainstorming (Appendix K). Finally, the researcher asked the parent to prepare to implement three different activities on the next visit, and to ensure that all necessary materials were prepared.

For the next several sessions, each parent attempted to facilitate two or three play date activities with researcher support. All training play dates were videotaped. Within each activity, the researcher modeled the play date strategies and provided prompts to the parent. For example, the researcher reminded the parent to: (a) prompt the peer and provided examples of prompts to the peer (e.g., "Shannon, ask Daniel what's next," "Megan, ask Logan where he would like to put the shape"), (b) remove distracting elements, (c) stand or sit behind the children, as far away as possible, (d) reinforce the peer for cooperation and participation, (e) prepare activity elements ahead of time (e.g., shapes, ingredients, etc.), and (f) assign more specific roles to the children. Between each activity, there was a pause of 5 – 10 minutes during which the parents gathered the materials for the next activity and the children played independently with materials unrelated to the study. At the end of each training session, a comprehensive debriefing was provided to discuss how particular aspects of each activity could be improved and to acknowledge correct implementation of strategies within other aspects of the activity.

After three activities for Daphne and five activities for Andrea, prompts were removed and debriefing was the only feedback provided. After each mother exhibited correct implementation of 7 of 10 strategies for three consecutive activities, parents moved to independent implementation. Daphne conducted six activities in total during training across three visits and Andrea conducted eight activities in total during training across three visits before meeting criterion to proceed to independent intervention.

Independent Implementation (Intervention)

Each parent was asked to prepare three activities of approximately 6-10 minutes in length for each play date/data collection session. They were told that each activity should make use of all of the intervention strategies, including the facilitation of cooperative arrangements, consideration of mutual reinforcement, and prompting and reinforcing the peer. Between each activity, there was a pause of 5 – 10 minutes during which the parents gathered the materials for the next activity and the children played independently with materials unrelated to the study. All intervention activities were videotaped by the researcher for data collection. Following a stable improving trend in synchronous reciprocal interactions (after three activities for both Daphne and Andrea), each participant proceeded to the reversal phase.

Reversal/Return to Baseline

During the reversal phase, Andrea and Daphne were asked to "play with the children the way you did before the intervention" for one activity of 6-10 minutes in length. Specifically, the parents were reminded not to plan the activity in advance with consideration of roles for each child, and to prompt the child with autism instead of the peer. In both cases,

implementation scores and synchronous reciprocal interactions dropped immediately and substantially. There was only one reversal activity conducted for each child.

Return to Intervention

Both Daniel and Logan returned to the intervention condition following the reversal phase. Andrea conducted two activities with intervention strategies and Daphne facilitated one activity during this phase. In both cases, there was a return to stable, high levels of interaction between the children and an increase in implementation scores for the parents.

<div align="center">

Data Collection

</div>

All play dates were videotaped during each phase of the study. The researcher coded 6 minute probes for each play date activity from the videotapes, with regard to the percentage of 30-second intervals containing synchronous reciprocal interactions. During each activity, parent affect, child affect, and fidelity of implementation were also scored. Social validity assessments were collected from each parent at the end of the study.

Observer Training

The researcher trained a second observer who was blind to the condition she was coding to observe the play date videotapes and to record occurrences of the targeted child and parent behaviors (i.e., synchronous reciprocal interactions, parent affect, child affect, and fidelity of implementation). The observer was provided with a scoring manual containing operational definitions, examples and non-examples of the target behaviors, and a scoring protocol. Training was provided until the second observer achieved 90% accuracy (compared to experimenter codings) over three practice play dates.

Inter-observer Agreement Procedures

The second observer coded 33% of each family's play date activities from the videotapes including samples across baseline, intervention and follow-up sessions. The percentage of agreement for each measure was calculated by dividing the number of agreements by the total number of agreements and disagreements, multiplied by 100. Table 2 displays the inter-rater reliability for synchronous reciprocal interaction, implementation fidelity, and affect across participants during all phases.

Table 3

Summary of Inter-rater Reliability Data across Participants and Dependent Variables (Means and Ranges)

Dependent Variable	Daniel	Logan
Synchronous reciprocal interactions	M = 90.61% (75% – 100%)	M = 91.99% (83.33% - 100%)
Parent implementation	M = 91.67% (80% -100%)	M = 98.33% (90% - 100%)
Child affect	83%	83%
Parent affect	83%	83%

Data Analysis

Visual inspection of the data were used to assess the impact of the intervention. The impact was assessed by examining changes in the mean frequencies of target behaviors across phases and by analyzing the level, trend, and variability of the data both between and

within phases. A careful analysis of these three properties of the data allowed for

determination of experimental control.

CHAPTER 3

Results

Overview

The goals of the study were to address three primary research questions: (a) will a brief instructional procedure enable parents to conduct contextually supported play dates between their child with ASD and a typically developing peer? (b) is there a functional relationship between participation in contextually supported play dates and increases in synchronous, reciprocal interactions between children with ASD and typically developing peers? (c) how do parents rate their ability to conduct contextually supported play dates following instruction and improvements in their child's social interactions during play dates? Child and parent affect was also assessed across baseline, training, and implementation.

For questions (a) and (b), the data were analyzed using visual graphs for each participant, as is typical in single-subject research designs. Social validity was assessed using a brief parent questionnaire. Trends in affect were examined across phases. In the following sections, the results will be presented for each participant according to each phase of the study. There was no relationship between the type of activity conducted (i.e., game vs. craft) and either dependent measure for both children.

Results for Logan: Parent Implementation and Synchronous Reciprocal Interaction

Figure 1 presents the results for synchronous reciprocal interaction and fidelity of implementation across all phases of the study for Logan and Daphne.

Figure 1. Parent implementation and synchronous reciprocal interactions across phases for Logan and Daphne.

Baseline. During baseline, Daphne used 1 of the 10 implementation strategies in each of three activities (water play, Elefun and picnic). Levels of synchronous reciprocal interactions between Logan and Megan were very low, ranging from 0%-8% of 30 second intervals. Baseline data were collected across two visits (i.e., two activities were filmed during the first visit, and one activity was filmed during the second).

Parent training. In the parent training phase, there was a steady increase in the number of implementation strategies Daphne used across activities. Within six activities, she

reached the criterion of three consecutive activities with 70% implementation of strategies. Activities during this phase included crafts, baking, and gross motor games. There was an immediate and dramatic increase in synchronous reciprocal interactions between Logan and Megan when Daphne began to implement play date strategies. There was a steady improving trend throughout parent training, with scores ranging from 50%-100% of intervals with the majority of the interval containing reciprocal interactions. The mean level of interactions across this phase was 63.8%. Parent training data were collected across three visits (i.e., two activities were conducted activities per visit).

Parent independent implementation. For independent implementation, Daphne chose to facilitate a gross motor game, a dress up activity, and a tea party. Implementation scores during this phase were high, ranging from 70%-100%. Synchronous reciprocal interaction also remained high during implementation, ranging from 67%-100% of intervals with the majority of the interval containing reciprocal interaction. The mean for reciprocal interactions during this phase was 78%. Independent implementation data were collected across two visits (i.e., one activity was filmed during the first visit and 2 activities were filmed during the second).

Reversal (Return to baseline). For the reversal activity, Daphne facilitated a gross motor game. She refrained from using implementation strategies, and returned to her baseline implementation score of 10% implementation (i.e., 1 of the 10 implementation strategies was used). There was a corresponding dramatic decrease in synchronous reciprocal interactions during the baseline phase: 8% of intervals within the activity contained a majority of reciprocal interactions. The reversal activity was filmed in one visit.

Return to parent implementation. For her final activity, Daphne facilitated creating a mural. Her implementation score was 100%, meaning that she used all 10 implementation strategies within this activity. There was a corresponding dramatic increase in synchronous reciprocal interactions during this activity: Logan and Megan engaged in synchronous reciprocal interactions for the majority of the interval for 100% of intervals within this activity. The final implementation activity was filmed in one visit.

Results for Daniel: Parent Implementation and Synchronous Reciprocal Interaction

Figure 2 presents the results for synchronous reciprocal interactions and parent implementation fidelity for all phases of the study for Daniel and Andrea.
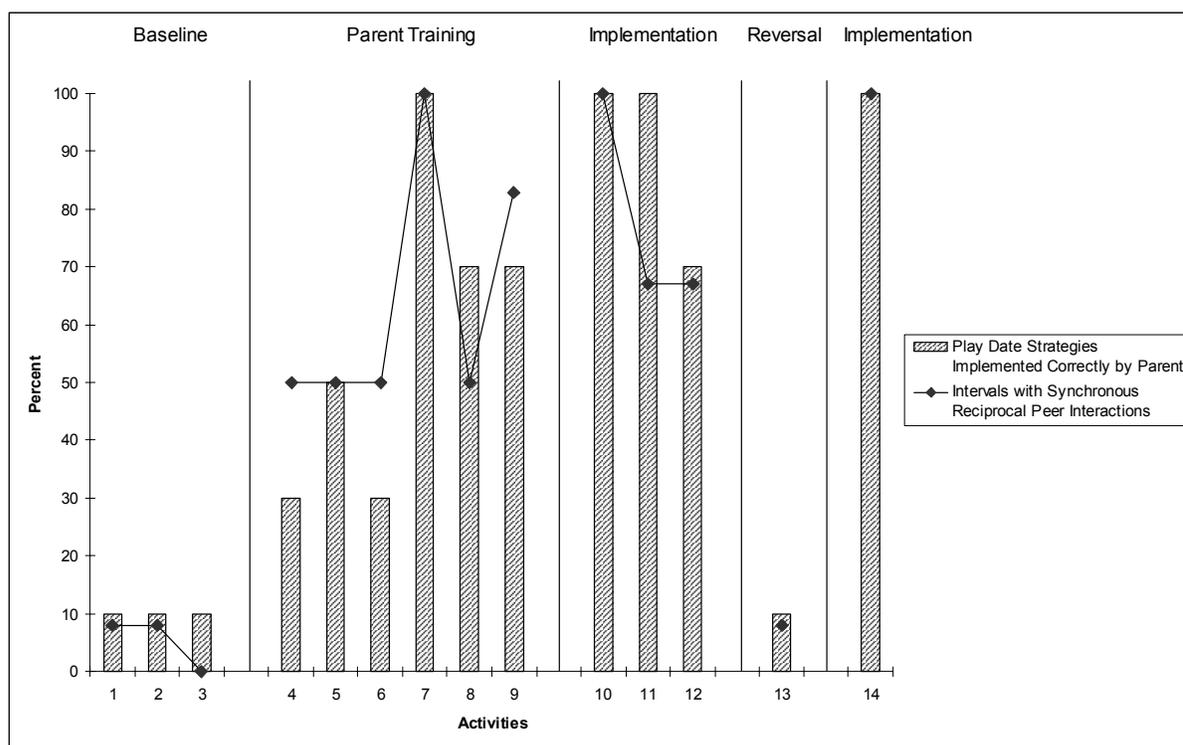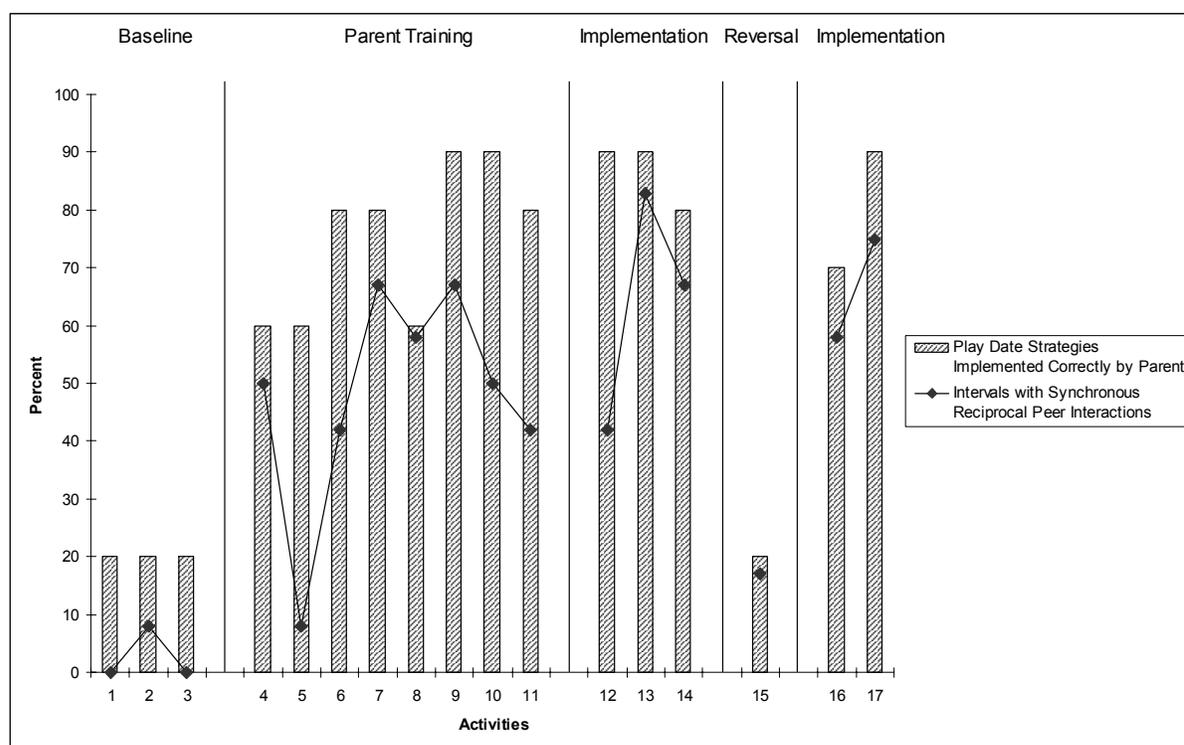

Figure 2. Parent implementation and synchronous reciprocal interaction across phases.

Baseline. During baseline, Andrea had low levels of implementation, using 2 of 10 implementation strategies per activity. Daniel's baseline activities were painting, Cariboo game, and pin the tail on the donkey. Daniel and Shannon also had very low levels of interaction during baseline, with scores ranging from 0%-8% of intervals containing a majority of reciprocal interaction, with a mean score of 2.6%. All three baseline activities were filmed during one visit.

Parent training. There was an immediate increase in implementation scores at the onset of parent training. Andrea's implementation scores ranged from 60%-90% during this phase, with a mean score of 75%. Andrea reached the criterion of three consecutive activities with 70% implementation after facilitating eight activities. During parent training, Andrea facilitated a variety of crafts, games, baking, and science experiments. There was also an immediate and dramatic change in synchronous reciprocal interaction at the onset of parent training. The average interaction score during this period was 48.3%, nearly doubling baseline levels. Interaction scores during the parent training phase ranged from 10% – 67%. Parent training activities were conducted across three visits (i.e., three activities were facilitated during the first visit, three were conducted during the second, and two were conducted during the third).

Parent independent implementation. Andrea's implementation scores remained high during the independent implementation phase, ranging from 80%-90%, with a mean implementation score of 86.7%. During independent implementation, Andrea facilitated a craft, baking, and a shopping activity. Synchronous reciprocal interaction scores remained high during independent implementation, with a mean of 64%, and a range between 42%-83% of intervals with a majority of the interval containing interaction. Independent

implementation data were collected during two visits (i.e., two activities were filmed during the first visit and the third activity was conducted during the second).

Reversal (Return to baseline). Andrea chose a board game for her reversal activity. For this activity, her implementation score returned to the previous baseline level of 20% (i.e., 2 of 10 strategies were implemented). There was a corresponding return to baseline levels of interaction between Daniel and Shannon, with 17% of intervals containing a majority of synchronous reciprocal interaction. This was slightly higher than his previous baseline level, and may reflect some training of the peer as to how to prompt Daniel and encourage his engagement. However, it is greatly reduced in comparison to his interaction levels during parent implementation. The reversal data were filmed during one visit.

Return to parent implementation. Andrea returned to a high level of implementation for her final two activities, with scores ranging from 70%-90% of strategies implemented. The activities during the final implementation stage were a game (Zingo board game) and pass the present. Interaction also returned to a high level following the reimplementation of play date strategies, with a mean level of interaction of 66.5% between the two activities, and scores ranging from 58 – 75% of intervals where the majority of the interval contained reciprocal interaction. The final implementation were was collected in one visit.

Affect

Child Affect

Figure 3 presents the results related for participant affect for Logan and Daniel.
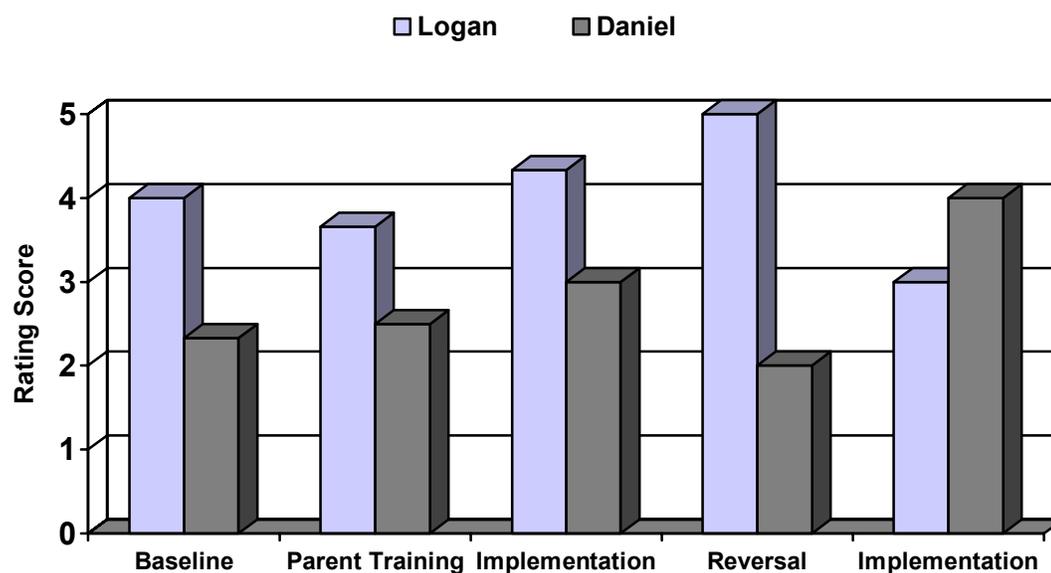
Figure 3. Affect scores for Logan and Daniel across phases.

Logan. For Logan, the mean affect scores were higher in implementation than in the original baseline, but were highest in return to baseline, and lowest in final implementation. His mean score in baseline was 4 (positive), with a range of 3-5. In parent training, his mean score was 3.66, in the high neutral range, with scores ranging from 2-5 across activities. In the independent parent implementation phase, the average affect score was 4.33, with scores ranging between 4-5 (i.e., positive.) However, in the reversal activity, his affect score was also high, with a score of 5 indicating strong positive affect. Finally, with return to independent parent implementation, his affect score was 3 (neutral). Thus, Logan did not consistently demonstrate more positive affect in either baseline or intervention conditions.

Daniel. For Daniel, affect scores were slightly higher in implementation phases than baseline. At baseline, his mean affect score was 2.33, with a range 2-3, indicating neutral affect. In parent training, his mean affect score was slightly higher, 2.5, with a range 2-3, which was still considered neutral. During independent parent implementation, his affect scores were higher, with a mean 3; and during the reversal activity, his affect dropped to a score of 2. Finally, during final implementation, Daniel' affect scores were the highest, in the positive range, with scores of 4 for each activity.

Parent Affect

Figure 4 presents the affect scores for parents across all phrases.
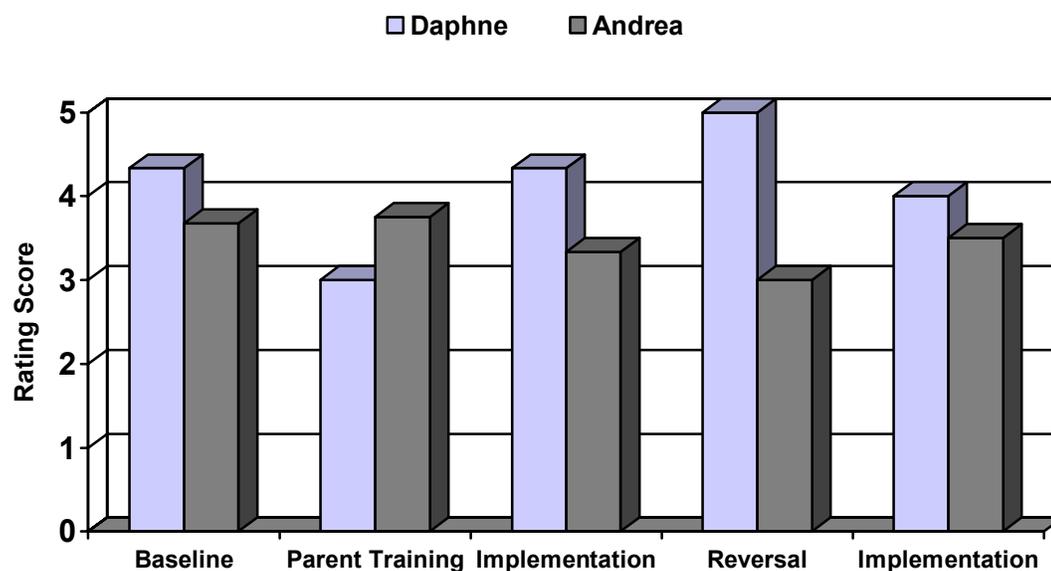
Figure 4. Affect scores for Daphne and Andrea across phrases.

Results for parent affect were also inconsistent with the hypotheses prior to conducting research. For Daphne, affect scores were higher in baseline conditions than during implementation. For Andrea, affect scores were highest during parent training and

final implementation, but affect scores during original baseline exceeded scores during the first independent implementation phase.

Daphne. Daphne's mean affect during baseline was 4.33, with scores ranging from 4-5 (i.e., positive). During parent training, her affect scores dropped to a mean of 3 (i.e., neutral), with scores ranging from 2-4. In independent implementation, her affect scores increased to match baseline levels, with a mean of 4.33 (range 4-5). However, like Logan, during the reversal activity her affect score of 5 was highest, meaning that she displayed very positive affect during the activity. During the final return to implementation phase, her affect score dropped slightly to 4, still within the positive range. For Daphne, affect scores were consistently higher across conditions without implementation strategies than intervention conditions.

Andrea. Andrea's mean affect score during baseline was 3.67, with a range between 3-4 (i.e., high neutral or positive). During parent training, her affect scores increased to a mean of 3.75, and were within or close to the positive range. For independent implementation, affect dropped slightly to 3.33%, with scores of either 3 or 4 (i.e., neutral or positive). For the reversal activity, her affect score was neutral (3), and with return to intervention it increased to a mean of 3.5, with scores of 3 and 4 across activities. Therefore, Andrea's highest scores were during parent training and final implementation (i.e., intervention conditions), but affect scores during original baseline exceeded scores during the first independent implementation phase.

Confederate Affect

Figure 5 presents the affect scores for the peer confederates across all phrases.
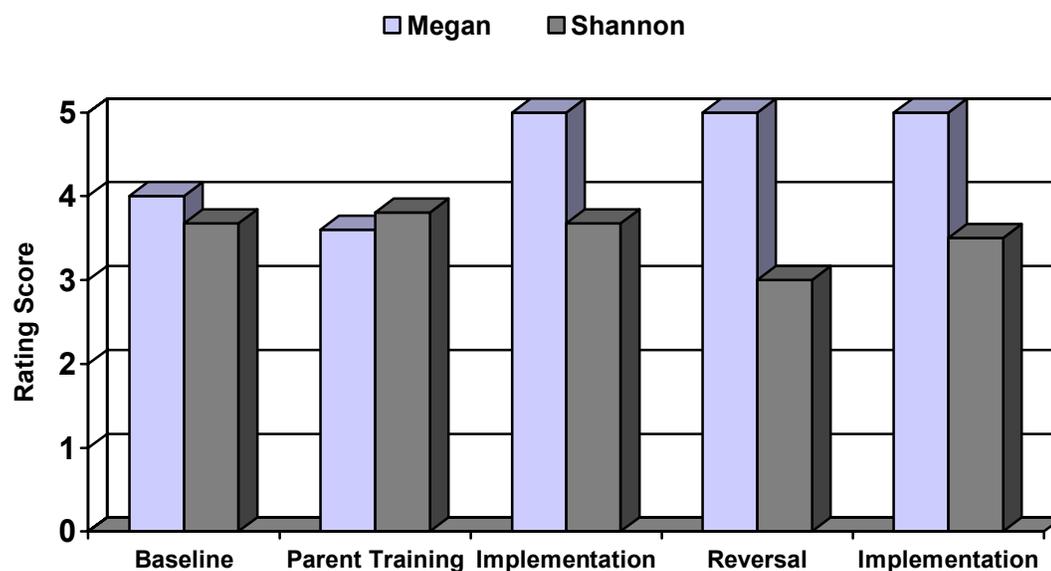
Figure 5. Affect scores for Megan and Shannon across phrases.

Megan. Megan's mean affect score during baseline was 4 (range 3-5). During parent training, her mean affect score dropped to 3.6 (range 1-5), although five of the six scores were positive (4 or 5). During all 3 independent implementation activities, Megan's affect score was very positive (5), and remained high during the reversal activity (5). Her affect was also very positive during the final intervention activity (5). Thus, there was a slight positive increase in Megan's affect throughout the study; however, there was no clear relationship between participation in the play dates and improvements in affect.

Shannon. Shannon's mean affect score during baseline was 3.67 (range 3-4, neutral-positive). During parent training, her mean affect increased to 3.8 (range 2-4, neutral-positive). Scores at the beginning of training consisted of more neutral scores, and towards the end of training there were more positive scores. In independent implementation, her

mean affect returned to 3.67 (range 3-4), and in the reversal activity, her affect dropped to 3. In the final intervention stage, her mean affect was 3.5 (scores of 3 and 4 in each activity). Thus, there was no clear relationship between participation in the play dates and improvements in interaction.

Social Validity

Table 4 summarizes the responses that Daphne and Andrea provided to the social validity measure.

Table 4

Social Validity Scores for Daphne and Andrea

Statement	Andrea	Daphne
I feel confident in my ability to plan a variety of play date activities that encourage interactions between two children.	4	5
I feel confident in my ability to use prompting and support strategies so that play date activities are successful.	4	5
My child's ability to participate in and interact with another child during play dates is important to me.	5	5
The strategies I learned are useful for helping my child interact with another child during play dates.	5	5
My child's ability to participate in and interact during play dates increased as a result of the strategies I learned.	4	4
I will continue to host play dates using the strategies I learned.	4	4

NOTE: Each statement was scored on a scale of 0-5 in which 0 = "not at all," and 5 = "very much"

Both Daphne and Andrea rated their confidence in their ability to plan and execute play date strategies as very high (Daphne's ratings were slightly greater than Andrea's). Both mothers felt strongly that their children's ability to participate in play dates was very important to them, and that the strategies they had learned would help their children to be able to participate in play dates. Both parents also felt that their children's ability to participate in play dates had increased. Finally, both Daphne and Andrea planned to continue to host play dates using the strategies they had learned through participation in the research project.

CHAPTER 4

Discussion

This study used two independent reversal designs to examine the effects of a parent-implemented contextually supported play date on reciprocal interactions between two children with autism and their typically-developing peers. In both cases, synchronous reciprocal interaction improved and social validity was high, but there was no clear relationship between participation in the play dates and improvements in child, parent, or confederate affect. The study is only the second to examine the impact of contextually supported play dates. It is the first to use parents as play date interventionists and to explore the intervention with preschool aged children.

Parent Training

Research indicates that interventions that involve parent training can have a positive impact on both parents and children, and effective components of such parent training procedures are well-documented (Crockett et al, 2007). The motivation behind this project was to empower parents to implement play date facilitation procedures that might have otherwise been conducted by trained staff. Findings from this research suggest that parents can themselves become skilled social interventionists and can be enabled to conduct effective play date interventions within their own homes, at times of their own choosing, with typically developing children who are members of the child's current social network. The results also suggest that effective social interventions do need not to be taught outside oif the home, at times chosen and scheduled by someone else, and/or with children who are available to trained staff but may not be known by or significant to the child or family. This study suggests that teaching parents to facilitate social interaction in a home play date

context can be relatively simple and does not necessarily need to involve a substantial time commitment from trained professionals.

Training Time

The actual time involved in parent training slightly exceeded the original estimate of 4-5 hours per parent. Initially, Daphne and Andrea had individual meetings with the researcher to explain the strategies involved in contextually supported play dates and to brainstorm cooperative arrangements for several activities. Each meeting lasted approximately 65 minutes for Daphne and 55 minutes for Andrea. Following this initial meeting, Daphne implemented six activities with researcher feedback before meeting criterion, and Andrea implemented eight. The total time involved for training Daphne was approximately 5 hours, 20 minutes and the total time for training Andrea was approximately 6 hours, 5 minutes. For both Daphne and Andrea, this training occurred across four home visits .

These results suggest that a relatively simple training procedure can produce significant skill acquisition for parents. Compared to other social skills interventions, this time commitment is relatively low, and has the potential to create significant improvement in social interaction between children with autism and typical peers.

Training Challenges

Prompting. One reason that the time involved for training exceeded the initial estimate was that each parent encountered unique challenges during the training sessions. Daphne had the most difficulty in learning to prompt Megan instead of Logan. Her previous experience with autism intervention had conditioned her to prompt Logan to help him engage with others, rather than to help others in the environment learn how to support him.

During initial training sessions, Daphne would frequently tell Logan what to say or ask him guiding questions to help him to respond. The problem with this strategy was that Daphne was inevitably involved in almost every step of the play activity, providing prompts to help Logan remain engaged. During baseline sessions, as well during as the reversal activity, she played alongside the children, and was an essential part of the play interaction.

As an alternative, the researcher taught Daphne to support Megan to act as the prompter for Logan. During training sessions, the researcher provided Daphne with many models of prompts that could be provided to Megan in this regard. For example, she was taught to prompt Megan to ask Logan what he wanted her to draw, or what he wanted to wear in a dress-up activity. Thus, Daphne was challenged to step back from the play materials and help the children learn to play with each other (i.e., without her participation). In this way, Megan became the play facilitator instead of Daphne, and Logan learned to attend more to his peer, rather than to the adult, during the play activities.

Restricted interests. Andrea had the most difficulty finding activities with which Daniel would stay engaged. Daniel had a very restricted range of interests, and the activities that held his attention the longest were not highly social in nature (e.g., watching television, playing by himself with electronic books). Andrea had to figure out ways to incorporate Daniel's interests into more social activities (e.g., arts and crafts, games, baking) and also had to be creative about making use of his relative strengths (e.g., his ability to read).

Over time, Andrea did an excellent job restructuring activities to suit Daniel's strengths and interests. She assigned him a reading role in several activities. For example, in arts and crafts activities, she had Daniel read the name of the next shape or the next piece of the picture, and Shannon followed his direction to find the materials. In baking activities,

Daniel read the recipe and helped Shannon to find the ingredients to mix. Andrea also used characters from Daniel's favourite books (e.g., the Hungry Caterpillar) for pictures during crafts. Finally, she adapted baking activities to become "science experiments" that produced more immediate, dramatic, and interesting results and helped to keep Daniel engaged. However, it took considerable practice and creativity for Andrea to design these types of activities and roles for Daniel.

Confederates. In both cases, family members were chosen by the mothers as confederates, for convenience with scheduling. It might also be that both Daphne and Andrea felt most comfortable learning new skills with children with whom they were already very familiar; in fact, familiar children might be the best confederates during initial training, for this reason. It will be important for future research to address whether or not the skills acquired by parents with familiar family members have the potential to generalize to facilitating play dates with other children in the community.

Cooperative Arrangements

In the Koegel et al. (2005) study, the two components of contextually supported play dates were defined as: (1) mutual reinforcement and (2) cooperative arrangements. Mutually reinforcing activities were described as activities that both the child with autism and the typically developing peer were highly motivated to experience. Cooperative arrangements were described as activities that were structured in such a way that both participants were required to participate. Examples of cooperative arrangements included having one child hold a measuring cup while the other poured the ingredients during a baking activity, or having one child cut out pictures while the other glued them to the paper while making a collage.

It was apparent to the researcher that, although these two components were essential for the success of the play dates, they were not the sole components necessary for a successful outcome. It is likely that the graduate student facilitators in the Koegel et al. (2005) study also made use of other strategies to facilitate play that might not be unique to this intervention but are nonetheless essential for success. The researcher identified additional strategies that parents should be aware of and compiled a list of 10 such strategies that were necessary for the parents to implement during play dates. These strategies were adapted for each type of activity (i.e., baking, gross motor, crafts, games), but were essentially the same across categories. These lists were used to measure implementation fidelity, and provided more specific measures of behaviors that the parents exhibited to facilitate successful interactions between the two children. Some examples of these additional parent behaviors included: prompting the peer to prompt the child with autism; preparing materials in advance so that they could be used without adult assistance; standing back from the activity rather than participating in it directly; removing distracting items from the activity; designing specific activity roles to each child; and specifically explaining each child's role prior to the activity. These implementation fidelity lists are provided in Appendix I.

Synchronous Reciprocal Interactions

Synchronous reciprocal interactions were difficult to code based on the definition provided in the Koegel et al. (2005) study (which was adapted from Siller & Sigman, 2002). The definition provided was: "both children engaging in social communicative behaviors related to the other child's current interest" (Koegel et al., 2005, p. 96). Several examples of social communicative behaviors were also provided, including verbal initiations, verbal

responses, nonverbal eye contact, facial expressions, and gestures related to engagement in a joint activity. However, during this study, it became apparent that several additional variables also had to be considered, and for this reason, additional coding rules were created.

Additional Rules

In the Koegel et al. (2005) study, only unprompted interactions were coded; however, in the current study, the nature of prompts provided was clarified more specifically. If the parent prompted the peer to prompt the child with autism, a synchronous reciprocal interaction was coded beginning with the peer prompt if the child with autism responded to it. Parents were asked to provide these types of prompts to the peer if adult direction was required in order for the activity to proceed. For example, if Daphne prompted Megan to ask Logan "What kind of eyes do you want?" and Logan responded to Megan's request "I want square eyes," the interaction was coded from the moment that Megan began her question. Similarly, if Andrea prompted Shannon to ask Daniel to "Pass it to me" during a "pass the present" game, and if Daniel responded to Shannon by giving the present back to her, the interaction was coded beginning with Shannon saying "Pass."

An additional coding rule was also created for occasions in which the parent accidentally prompted the child with autism. For example, if Shannon asked Daniel "What does that say?", and then Andrea provided a physical prompt to put Daniel's hand on the word followed by him reading the word, the interaction was not coded as synchronous reciprocal interaction even though Shannon provided a verbal initiation and Daniel responded to it. This decision rule was required to manage situations in which parents provided prompts to the child with autism, even though they were taught not to do so.

Types of Interaction

There was a significant difference in the topography of interactions that were coded as synchronous reciprocal interactions for Logan and Daniel. For Logan, the majority of these interactions involved a verbal initiation by Megan and verbal response by Logan. This was not unexpected, as Logan exhibited considerable social expressive language during the initial observation assessment. In contrast, Daniel's interactions involved joint engagement that often did not involve a verbal component. For example, in many cases, Andrea set up roles for the two children that involved exchanging materials. In a craft activity, Daniel read the name of a shape; Shannon found the shape, applied the glue, and gave the shape back to Daniel; and he glued it on the picture or collage. As long as the children were jointly engaged in the activity, attending to each other's actions, and exchanging materials, the entire sequence was coded as a synchronous reciprocal interaction. Interactions between Daniel and Shannon more often involved nonverbal eye contact, facial expressions, and gestures related to engagement in a joint activity, although there were also many vocal initiations, particularly from Shannon.

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Affect and Social Validity

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Prior to conducting the research, it was expected that affect scores would improve for the child with autism, the peer, and the parent. Results did not support this hypothesis.

Parents

For Daphne, affect scores were generally higher across baseline conditions, in which she was not using the play date implementation strategies, compared to those in which she was. Affect scores during the original baseline exceeded scores during the first independent implementation phase, although her highest scores were during parent training and the final

implementation phase. Andrea's highest scores were during parent training and final implementation (i.e., intervention conditions), but affect scores during original baseline exceeded scores during the first independent implementation phase.

Despite this variability in parent affect scores, social validity scores were very high for both parents. Both Daphne and Andrea displayed less positive affect during implementation phases at times; however, social validity scores indicate that they nonetheless felt that the intervention was highly successful, and produced valuable outcomes for their children. It is possible that parents were more nervous or more focused on the task at hand during the intervention conditions and therefore, their affect scores were not as high as might be expected. Without maintenance data, it is not possible to determine whether or not parents would have become more comfortable with implementing the strategies over time, leading to a possible improvement in affect scores that might be expected considering the high social validity ratings.

Participants with Autism

For Logan, mean affect scores were higher in implementation than in the original baseline, but were highest in return to baseline, and lowest in final implementation. Thus, Logan did not consistently demonstrate more positive affect in either baseline or intervention conditions. For Daniel, affect scores were slightly higher in the implementation phases than in the baselines. Overall, however, his affect scores were within the neutral range across all activities, except during the final two implementation activities in which he scored within the positive range. Again, it would be interesting to explore whether, over time, child affect scores might improve as their parents become more comfortable using the strategies and are able to create more interesting and creative activities in which the children can participate.

Confederates

Finally, there was no clear relationship between confederate affect and participation in play dates. Megan displayed positive affect across activities and the highest affect scores across independent implementation (B), reversal (A), and final implementation (B). Perhaps Megan came to enjoy her role as a play assistant for Logan more and more across time, and had improved affect later in the study as a result. Shannon displayed affect scores within the neutral to positive range across all activities. Shannon's results could be expected given the pattern of results for Daniel and Andrea: none of these participants had consistent improvement in affect across phases.

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Peer Training

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At the onset of the study, the intervention was conceived as an adult-facilitated intervention to promote social interaction for each participant. Parents were taught how to use a number of strategies to facilitate play dates, including creating specific roles for each child, preparing materials in advance, using motivating activities, etc.. Contextually-supported play dates undoubtedly begin with teaching parents or other adults how to facilitate and create several types of cooperative arrangements.

However, throughout the study, it became apparent that there was also a peer training component to the intervention. By consistently prompting the peer, parents provided many models showing them how to engage the child with autism. Typically, Daphne and Andrea had to provide only one or two examples to Megan and Shannon before the peers were able to continue to prompt Logan or Daniel throughout the remainder of an activity. For example, in a baking activity where Daniel read the instructions and Shannon mixed the ingredients, Andrea prompted Shannon to ask Daniel "What's next?" to encourage him to read the next

direction. After two such prompts from Andrea, Shannon continued to use this prompt independently to help Daniel stay engaged with reading the next steps. In another example, during a mural activity with Logan and Megan, Daphne provided only one prompt to cue Megan to ask Logan what she should draw next, after which Megan independently continued to ask Logan questions and keep him engaged with the activity.

It was also apparent that, as the intervention continued (and especially during the final implementation phase) much less parent prompting was required for the confederates, particularly if the activity was repeated from an earlier phase. For example, during "Pass the present" in the final implementation phase, Shannon was able to engage Daniel without requiring any prompting from Andrea to remind Daniel to pass the present. Similarly, for Logan in a craft activity toward the end of the study, Megan began to use prompts that she had been cued by Daphne to use in earlier variations of crafts (e.g., asking Logan where to put the next piece, helping him to glue, etc.)

Thus, it seems that although a contextually supported play date can be considered to be an adult-facilitated intervention, there is also a clear peer training component. It would be interesting for future research to examine whether longer durations of intervention would lead to further peer skill acquisition, and if it would be possible for peers to acquire enough skills so that parent prompting could be eliminated altogether. It would also be interesting to examine whether or not the peer could become so skilled at engaging the child with autism that it is no longer necessary for an adult to designate specific roles for each child. The results of this type of examination would likely vary depending on the skill level of both the confederate and the child with autism.

Limitations

External Validity

There are several limitations to the current study. There were only two children with autism involved, each with unique behavioral profiles and language abilities. Similarly, there were only two peer confederates, both within a limited age range but with somewhat different social and language skills. Finally, only two mothers were trained to implement the contextually supported play dates. These mothers were well-educated, middle class parents with a strong interest in learning more about providing social supports for their children with autism and both with a history of considerable involvement in their sons' intervention programs. It will be necessary for future research to replicate the training procedure with many different types of parents and with children of varying ages, backgrounds, and abilities.

Internal Validity

It could be argued that the internal validity of the two independent reversal designs would have been stronger if the phases had been of equal length (i.e., if three or more data points had been collected for each child during the reversal and final implementation phases.) However, during implementation data collection (i.e., following the parent training phase), both parents expressed concern about the number of visits that might be required for study completion. Reversal and final implementation data were collected in the early autumn, just as all four of the children (i.e., both the children with autism and the confederates) returned to school on a full-time basis. Both parents indicated that scheduling the play dates would be more difficult in September and expressed some anxiety about their ability to manage these logistics. Because of this, the researcher made a decision to end the study in a timely manner by shortening the length of the reversal and final implementation phases.

Although results would have been more convincing with additional data during these two phases, this might have affected the parents' ratings for social validity. Biglan (2004) noted that applied research using single subject designs should be conducted in collaboration with the individuals who will carry on the intervention in their absence. Such collaboration facilitates shared understanding of the intervention and its desired outcomes and promotes ongoing feedback about the efficacy of intervention strategies over time, so that strategies can be refined to improve their use in applied settings. In addition, Cooper, Heron, and Hewett (2007) noted that there are some circumstances within single subject research design in which fewer data points may be collected in order to maintain ecological validity. In the case of this study, each of the parents was asked to facilitate a reversal activity, during which peers interactions returned to a very low level for both participants. This immediate and dramatic decrease in interaction was seen as sufficient evidence to document a reversal effect without compromising ecological validity; hence, following one reversal activity for both children, parents moved immediately to the final intervention phase. Despite the short reversal and final implementation phases, the results do provide evidence of a functional relationship for both participants between participation in play dates and improvements in social interaction

Maintenance and Generalization

No maintenance or generalization data were collected for the current research project. It will be important for future research to follow parents and children over longer durations of time to determine how parent and child behaviors may change and how much skill might be acquired by confederates. In addition, it would be interesting to conduct future research in which the confederate changes throughout the course of the study. This would allow for an

exploration of the potential for multiple children and/or classmates to have roles in these types of play dates. It would also provide information as to whether or not parents' performance or child outcomes are impacted by a variety of playmates, rather than one consistent play partner.

Future Research

In addition to the suggestions for future research mentioned previously, it is apparent that there is still a great deal to explore with regard to the potential of parent-supported play dates, and that there are a number of additional questions that warrant further investigation. First, it would be useful to continue the current exploration of the most critical components of a supported play date. The implementation checklist with ten key components for each activity that was created for this study (Appendix H) could be refined in future research that includes a variety of participants. It is possible that there are some critical steps in the checklist that have a larger effect on outcomes than others. There is still much to learn about how to structure cooperative arrangements to facilitate social interactions in the most efficient and effective way.

Second, it would be informative to examine whether or not supported play dates are more effective with children within particular age ranges and with specific language abilities. The two studies to date (the current study and the Koegel et al., 2005 investigation) have used children aged 4-5 and 8-9 who have strong receptive and at least some spoken language. It would be beneficial to examine the use of this intervention with children of various ages who also have differing language profiles. There is a possibility that children as young as 3 or as old as 12, both non-vocal and highly verbal, might also benefit from some variation of this type of supported interaction with a peer in a home setting.

Third, it would be interesting to investigate which individuals other than parents might be able to conduct play dates and in which environments this might occur. In the Koegel et al. (2005) study, graduate students conducted the intervention; and in the current study, mothers were trained. However, many others may also benefit from this type of training, including fathers, early interventionists, babysitters, and special education assistants in the school system. Contextually supported play dates might also be possible in a variety of settings, including during recess on the playground, or in community-based recreational programs.

Finally, it would be worthwhile to identify the most efficient ways to train individuals to conduct supported play dates. In the current study, each mother had 5-6 hours of one-to-one training. There is a possibility that this type of training could be delivered in a group setting, or through a combination of individual and group training. Future research could also investigate the most effective and efficient ways to deliver training to a larger number of participants.

Educational Implications

There are a number of important implications of this research. In this study, parents were trained to facilitate interactions between their child with autism and a typically-developing peer of their choice. As such, this intervention addresses the same skills as does an integrated play group led by a trained professional (Wolfberg & Schuler, 1993), while providing parents with the training they need to address key play and social interaction goals in their own homes with their choice of materials and participants (i.e., play partners). This study provides evidence to suggest that parents can become highly effective facilitators in supporting social interactions between their children with autism and typically developing

peers. Parent training for contextually supported play dates was not time consuming, and could easily become a part of the support provided to parents engaged in home intervention programs.

Conclusion

This study is the first in which parents were taught to conduct contextually supported play dates. It is also the first to use preschool-aged children with ASD and young school-aged peers as confederates. It is only the second empirical study to date to explore play dates as a potential context for social skills intervention for children with autism spectrum disorders.

Future research in this area would provide an important contribution to the field by expanding our current understanding of how play dates can be used to improve social interactions between children with ASD and typically-developing peers. Play dates are relatively simple and may require less effort than other types of social skills interventions that involve groups of students. Play dates can be facilitated by parents or other caregivers in home settings, and the same strategies may also be applicable for educational assistants facilitating interaction in schools during recess time. The techniques explored in the study are potentially useful to a wide range of individuals who support children with ASD. Future research is required to explore this intervention across a more diverse group of individuals, and to replicate findings across a wide variety of settings.

Although many effective professional-led interventions exist, it is important that further research empower parents to support their children with ASD to acquire social skills in a number of everyday contexts and to maximize opportunities for skill acquisition. The importance of identifying techniques that can be considered "best practices" for developing

social interaction skills cannot be overstated, especially considering the negative

consequences that often result when children with ASD are not supported to develop peer

relationships in appropriate ways.

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Appendix A: UBC Behavioral Research Ethics Certificate

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR:	INSTITUTION / DEPARTMENT:	UBC BREB NUMBER:
Pat Mirenda	UBC/Education/Educational & Counselling Psychology, and Special Education	H07-00733

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

Institution	Site
N/A	N/A

Other locations where the research will be conducted:
Family homes of participants

CO-INVESTIGATOR(S):
Stephanie Jull

SPONSORING AGENCIES:
N/A

PROJECT TITLE:
Parents as Play Date Interventionists for Children with Autism Spectrum Disorders

REB MEETING DATE:	CERTIFICATE EXPIRY DATE:
April 12, 2007	April 12, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL: DATE APPROVED: April 26, 2007

Document Name	Version	Date
Protocol:		
Research Proposal	2	April 21, 2007
Consent Forms:		
Confederate Consent Form	2	April 21, 2007
Participant Consent Form	2	April 21, 2007
Advertisements:		
Information letter for participant	1	March 30, 2007
Information letter for confederate	2	April 21, 2007
Other Documents:		
Agreement to Recruit	1	March 30, 2007

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board
and signed electronically by one of the following:

Dr. Peter Suedfeld, Chair
Dr. Jim Rupert, Associate Chair
Dr. Arminee Kazanjian, Associate Chair
Dr. M. Judith Lynam, Associate Chair
Dr. Laurie Ford, Associate Chair

The University of British Columbia

Appendix B
Participant Recruitment Letter

OPPORTUNITY TO PARTICIPATE IN A RESEARCH PROJECT FOR INCREASING PEER INTERACTION SKILLS OF CHILDREN WITH AUTISM!!!!!

My name is Stephanie Jull and I am a graduate student at the University of British Columbia. I have worked with children with autism for over 5 years, and I have noticed that many children are able to develop communication skills and academic ability, but still have difficulty interacting with their peers in play situations. For my thesis, I will be conducting a study to determine the effectiveness of a parent-facilitated play date intervention for improving the social behavior of children with autism spectrum disorders with their peers. The intervention will involve teaching a parent how to implement contextually-supported play dates, and having the child with autism participate in play dates with a typically-developing peer. The play sessions will be videotaped and the videos will be used to record data on target social behavior.

I am hoping to recruit two children between 4 and 6 years old who have been diagnosed with autism, Asperger's Syndrome, or pervasive developmental disorder. For each child, one parent will receive instruction in how to implement contextually-supported play dates, and will implement play dates with their child and a typically-developing peer.

To qualify for this study, the child must:

- engage in primarily parallel play with peers (i.e., play alongside a peer without interaction), as reported by parents and verified by researcher observation.
- be able to remain engaged with preferred play activities for 10 minutes.
- not exhibit significant peer-directed problem behavior in peer play situations, as reported by parents and verified by researcher observation.

In addition, the parent must:
- be willing to agree to the time commitment involved for training and implementation as principal play date interventionists (i.e., be available for one or two 10 minute play dates per week for 6-8 consecutive weeks).
- be able to arrange for a peer play partner who is typically-developing for each play date.

The research will take place in the child's home. The intervention requires that play dates occur for approximately 10 minutes, 1-2 times per week for 6-8 weeks. In addition, the parent will be asked to participate in three training sessions, each 60-90 minutes, before implementing play dates independently. There are no foreseeable risks to the participants with autism or to parents. Potential benefits include improved social interaction skills with peers for the child with autism, increased knowledge and skill for parents, and information about the efficacy of parent-facilitated play dates as an intervention for children with autism spectrum disorders.

If you are interested in participating, please contact me directly at 778-846-9134 or sjull@interchange.ubc.ca. Alternatively, you may contact my advisor, Dr. Pat Mirenda, at (604) 822-6296 or pat.mirenda@ubc.ca. I hope that you will assist me in my study. Thank you for your time!

The University of British Columbia

Appendix C
Participant Consent Form

Informed Consent Form (Participant)
Parents as Play Date Interventionists for Children With Autism Spectrum Disorders

Principal Investigator
Pat Mirenda, Ph.D., Associate Professor (Faculty Advisor)
Department of Educational Psychology and Counseling Psychology, and Special Education (ECPS)
Faculty of Education, University of British Columbia
(604) 822-6296

Co-investigator
Stephanie Jull, Graduate Student (Masters)
Department of Educational Psychology and Counseling Psychology, and Special Education (ECPS)
Faculty of Education, University of British Columbia
(778) 846-9134

Research for the fulfillment of degree requirements for the Masters of Arts degree.

Purpose of the Study
The purpose of the study is to investigate the effectiveness of a video modeling intervention for improving the social interaction of children with autism with their typical peers. Your child is eligible to participate because he or she is diagnosed with an autism spectrum disorder and has difficulty engaging in social interaction in play situations with peers.

Study Procedures and Time Commitment
The study will focus on improving the social interaction of children with autism in peer play. The intervention will include parent training in play date strategies and play dates with a typical peer. Play dates will be videotaped, and the investigator will use these videotapes to record data on your child's social behaviors.

In the first phase of the study, an independent research assistant will administer the Preschool Language Scale-4. The purpose of this assessment is to determine the language abilities of your child. The researcher will observe your child in a home play session with a peer. The purpose of the observation is to determine if your child meets the eligibility requirement of being able to engage with a preferred activity for at least 10 minutes, and to tolerate play alongside another child (with minimal interaction between children). If your child is accepted as a participant, the research will take place in your home in a place and at a time that is convenient to you and your child. You will participate in three 60-90 minute training sessions to learn strategies for successful play dates. Parent training will include reading

materials, discussion, videos, researcher modeling, and practice with your child and other children. Your child will also be required to participate in 10 minute play dates with a peer, 1-2 times per week for 6-8 weeks. You will be required to supervise and facilitate play during these play dates. You are also responsible for arranging for a peer play partner for each play date. You may arrange for the same play partner for each play date, or you may select different play partners.

There are no foreseeable risks to your child in this study. There are potential risks to the peer play partner because of exposure to your young child who has autism. Depending on the specific characteristics of your child, these risks may include exposure to a child who makes unusual noises, prefers to play games in specific ways, has a short attention span, flaps his or her hands, or engages in other strange but unharmful body movements. If the peer play partner or his or her parent chooses to withdraw from the study at any time, you will be responsible for identifying another play partner. The researcher will provide you with another letter of information and informed consent form for parent of the new play partner. If you are not able to locate a replacement play partner, you will no longer be eligible for participation in the study. You will be thanked for your participation and you will no longer have any responsibilities related to the research project.

The expected benefits include improved use of social language with peers, and increased knowledge about the usefulness of play dates as an effective intervention for children with autism spectrum disorders.

Confidentiality
All information from this research will be kept strictly confidential. Your child will not be identified by name in any reports of the completed study. All data records and videotapes will be kept on a password-protected computer disk or in a locked file cabinet and destroyed 5 years after the end of the study. Only the principal investigator, the co-investigator, and one research assistant will have access to the data. Videotaped material will not be used in any presentations or excerpted for print publication.

Contact
If you have any questions or would like more information about this project, you may contact either Stephanie Jull at (778) 846-9134 or Dr. Pat Mirenda at (604) 822-6296. If you have any concerns about your child's treatment or rights as a research participant, you may contact the Director of the UBC Office of Research Services and Administration at (604) 822-8598.

Consent
I understand that my child's participation in this study is entirely voluntary. I may refuse to have him/her participate or withdraw from the study at any time without jeopardy to my future relationship with the University of British Columbia.

Please check ✓ below:

☐ I have received a copy of the consent form.

Please check ✓ one box below:

☐ I consent to my child's participation in this study.

☐ I do **not** consent to my child's participation in this study.

If you consent to having your child participate in this study, please print your child's name, print your name, and sign the appropriate section below.

Child's name (please print)		Date
Parent/Guardian's name (please print)		Date
Parent/Guardian's signature		Date

The University of British Columbia

Appendix D
Peer Recruitment Letter

Dear Parent,

I am currently working towards my Masters of Arts Degree at the University of British Columbia in Special Education. I am interested in conducting a study to determine the effectiveness of a parent-facilitated play date intervention for improving the social interaction of children with autism spectrum disorders with their typical peers. The intervention will involve parent training in play date strategies, and having the child participate in parent-facilitated play dates with a typical peer. Play dates will be videotaped, and these videotapes will be used to record data on target skills of the parent and the child with autism.

The parent of name of child with autism has agreed to allow child with autism to be involved in this study and has identified your child, name of potential confederate, as a friend who might be available to participate in the play sessions. Participation for name of potential confederate will involve playing with name of child with autism for approximately 10 minutes, one or two times per week for 6-8 weeks in child with autism's home. The activities that the children will be participating in will be interesting to both of them (for example, games, arts and crafts, baking, etc.).

Since your child will be interacting with a young child with autism who may exhibit some unusual or disruptive behavior, there may be some risk. For example, depending on the specific characteristics of child with autism, your child may be exposed to a child who makes unusual noises, prefers to play games in specific ways, has a short attention span, flaps his or her hands, or engages in other strange but unharmful body movements. However, parent of the child with autism and the researcher will be present at all times to ensure both children's safety. In addition, if your child indicates either verbally or through his/her behavior a desire to not participate or to terminate any session, it will be discontinued immediately. It is preferable that you do not observe the play date sessions because of concern for how that may impact the natural interaction between your child and the child with autism; however, if you wish to observe the play date it will be permitted. If you do not observe, you will be expected to drop off your child at the child with autism's home before the play date begins and to pick him or her up when the play date is finished. Times for pick up and drop off will be arranged between you and parent of the child with autism.

The expected benefits include improving your child's play skills with a child who has autism, improving the social interaction skills of a child with autism, and increasing the general knowledge about the usefulness of parent-facilitated play dates as an effective intervention.

If you are interested in having your child participate in this research study, please contact me directly at 778-846-9134 or sjull@interchange.ubc.ca. Alternatively, you may contact my advisor, Dr. Pat Mirenda, at (604) 822-6296 or pat.mirenda@ubc.ca. If you have any questions or would like more information, you may contact either one of us as well. Thank you for you assistance with this project.

Respectfully,
Stephanie Jull

The University of British Columbia

Appendix E
Confederate Consent Form

Informed Consent Form (Confederate)
Parents as Play Date Interventionists for Children with Autism Spectrum Disorders

Principal Investigator
Pat Mirenda, Ph.D., Associate Professor (Faculty Advisor)
Department of Educational Psychology and Counseling Psychology, and Special Education (ECPS)
Faculty of Education, University of British Columbia
(604) 822-6296

Co-investigator
Stephanie Jull, Graduate Student (Masters)
Department of Educational Psychology and Counseling Psychology, and Special Education (ECPS)
Faculty of Education, University of British Columbia
(778) 846-9134

Research for the fulfillment of degree requirements for the Masters of Arts degree.

Purpose of the Study
The purpose of the study is to investigate the effectiveness of a parent-implemented play date intervention on improving social interaction of children with autism with their typical peers. Your child is eligible to participate because he or she is acquainted with a child diagnosed with an autism spectrum disorder.

Study Procedures and Time Commitment

A child with autism with whom you and your child are acquainted will participate in a research study that will investigate the effectiveness of a parent-implemented play date intervention for improving social interaction of children with autism with their typical peers. The intervention will require a parent of the child with autism to learn strategies to promote peer interaction in the context of a play date with a peer. It will also require the child's participation in a 10 minute play session with a friend, 1-2 times per week for 6-8 weeks. Your child is invited to participate as the peer play partner. The play dates will take place in the home of the child with autism and will be supervised by his or her parent. During the sessions, both children will play with toys that they both enjoy. All play sessions will be videotaped, and the researcher will use these videotapes to record data on the social behaviors of the child with autism. Since your child will be interacting with a young child with autism who may exhibit some unusual or disruptive behaviors, there may be some risk.

This risk may include exposure to another child who may make unusual noises, prefer to play games in specific ways, have a short attention span, flap his or her hands, or exhibit other strange but unharmful body movements. However, this child's parent and the researcher will be present at all times to ensure your child's safety. If your child indicates either verbally or through his/her behavior a desire to not participate or to terminate any session, it will be discontinued immediately. In addition, you or your child may withdraw completely or decline participation at any point in the study. If you or your child chooses to withdraw from the study, another confederate will be identified by the parent of the child with autism, and there will be no further responsibilities for either you or your child. The expected benefits include improving your child's play skills with a child who has autism, improving the social interaction skills of a child with autism, and increasing general knowledge about the usefulness of parent-implemented supported play dates as an effective intervention.

Confidentiality
All information from this research will be kept strictly confidential. Your child will not be identified by name in any reports of the completed study. All data records will be kept on a password-protected computer disk or in a locked file cabinet and destroyed 5 years after the end of the study. Only the principal investigator, the co-investigator, and one research assistant will have access to the data.

Contact
If you have any questions or would like more information about this project you may contact either Stephanie Jull at (778) 846-9134 or Dr. Pat Mirenda at (604) 822-6296. If you have any concerns about your child's treatment or rights as a research participant you may contact the Director of the UBC Office of Research Services and Administration at (604) 822-8598.

Consent
I understand that my child's participation in this study is entirely voluntary. I may refuse to have him/her participate or withdraw from the study at any time without jeopardy to any services my child is currently receiving or my future relationship with the University of British Columbia.

Please check ✓ below:

☐ I have received a copy of the consent form.

Please check ✓ one box below:

☐ I consent to my child's participation in this study.

☐ I do **not** consent to my child's participation in this study.

If you consent to having your child participate in this study, please print your child's name, print your name, and sign the appropriate sections below.

Child's name (please print)	Date

Parent/Guardian's name (please print)	Date

Parent/Guardian's signature	Date

Appendix F. Coding of Synchronous Reciprocal Interactions

30 second intervals

0:30	1:00	1:30	2:00	2:30
3:00	3:30	4:00	4:30	5:00
5:30	6:00	6:30	7:00	7:30
8:00	8:30	9:00	9:30	10:00

→ Indicate during each interval which seconds contained synchronous reciprocal interaction, and any notes and/or questions.

Appendix G. Child Affect Rating Scale for Play Dates
(Koegel, Werner, Vismara & Koegel, 2005)

Negative (0-1)	Neutral (2-3)	Positive (4-5)
Within the interaction, child (target or peer) appears discontent (e.g., frowns, cries), avoids social participation (e.g., tantrums, leaves activity, avoids others), and appears not be enjoying self (e.g., seems frustrated, tense, impatient).	Within the interaction, child (target or peer) does not appear to be either happy or unhappy, may engage in the activity but does not show clear interest or enthusiasm in social participation, and does not seem either stressed or relaxed.	Within the interaction, child (target or peer) appears to be enjoying self (e.g., smiles, laughs, shows humor), shows interest through participation (e.g., actively involved in the activity), and appears relaxed and comfortable.

Appendix H. Parent Affect Rating Scale
(Koegel, Symon, & Koegel, 2002)

Negative (0-1)	Neutral (2-3)	Positive (4-5)
Parent appears discontent with the ongoing activity; seems not to be enjoying self.	Parent does not appear to be decidedly happy or particularly unhappy. May smile or frown occasionally. but overall, seem rather neutral in this situation.	Parent smiles, laughs appropriately, seems to be enjoying self.

Appendix I. Implementation Fidelity Rating Sheets

Baking Activities/Science Experiments

1. All materials were prepared in advance and could be handled without adult support:
   a. ingredients were premeasured.
   b. ingredients were labeled in a way that at least one child understood (e.g., print label or visuals as necessary).
   c. ingredients were easy to open (i.e., parent support not necessary).	

2. Each step of the activity involved both children:
   a. either one children read directions and other performed step or
   b. both children performed the step together (i.e., one child held the cup/the other poured ingredient, the children held one spoon together and stirred, etc.).	

3. Each child's role was explicitly explained and understood before the activity began. The parent practiced with the peer beforehand if necessary.	
4. Only one of each item was available and sharing was necessary. e.g., one bowl, one measuring cup, one spoon for stirring, etc.	
5. Parent stood behind children at all times.	
6. Parent prompted peer if support was required (i.e., either told peer what to do or told peer what to say to the child with autism).	
7. Parent helped the peer to follow instructions as laid out for the activity and prompt corrections as necessary. Social reinforcement (praise) was provided when appropriate to support the peer's cooperative participation and helpfulness.	
8. There was only one of this type of activity per session.	
9. Parents avoided using "distracting" stimuli, or removed stimuli that proved to be too distracting from the activity (e.g., bowl of sugar removed when child became fixed on sifting hands through).	
10. The activity involved something highly motivating for both children, but in particular, the child with autism.	

Arts and Crafts

1. All materials were prepared in advance and could be handled without adult support (e.g., shapes were pre-cut, visual supports outlined where to place items, glue was checked to make sure it worked in advance).	

2. Each step of the activity involved both children
   a. one child read directions and other performed step or
   b. each child had a specific, active role in each step
      (i.e., one peeled the stickers and the other placed on the picture, one child said what they wanted drawn and the other drew, one child found the shape and the other glued it on).	

3. Each child's role was explicitly explained and understood before the activity began. The parent practiced with the peer beforehand if necessary.	
4. Only one of each item was available and sharing was necessary (e.g., one mural paper both children work with, one set of Thomas stickers, one glue stick, etc.).	
5. Parent stood behind children at all times.	
6. Parent prompted peer if support was required (i.e., either told peer what to do or told peer what to say to the child with autism).	
7. Parent helped the peer to follow instructions as laid out for the activity and prompt corrections as necessary. Social reinforcement (praise) was provided when appropriate to support the peer's cooperative participation and helpfulness.	
8. There was only one of this type of activity per session.	
9. Parents avoided using "distracting" stimuli, or removed stimuli that proved to be too distracting from the activity (e.g., child with autism not given gluing role because sticky fingers too distracting).	
10. The activity involved something highly motivating for both children, but in particular, the child with autism (e.g., Thomas the Tank Engine).	

Active Games

1. All materials were prepared in advance and could be handled without adult support (e.g., water balloons made ahead of time, materials gathered before other child arrives).	
2. Each step of the activity involved both children. e.g., for Hot and Cold game: one child directed and the other child searched, for Obstacle Course: both children ran the course together	
3. Each child's role was specifically explained and understood before the activity began. The parent practiced with the peer beforehand if necessary. e.g., in Hot and Cold, the child provides the directions or searches, in Obstacle Course, the child with autism selects which hoop to throw the balloon into.	
4. Only one of each item was available and sharing was necessary. e.g., take turns searching in Hot and Cold.	
5. Parent stood behind the child at all times.	
6. Parent prompted peer if support was required (i.e., either told peer what to do or told peer what to say to the child with autism).	
7. Parent helped the peer to follow instructions as laid out for the activity and prompt corrections as necessary. Social reinforcement (praise) was provided when appropriate to support the peer's cooperative participation and helpfulness.	
8. There was only one of this type of activity per session.	
9. Parents avoided using "distracting" stimuli, or removed stimuli that proved to be too distracting from the activity.	
10. The activity involved something highly motivating for both children, but in particular, the child with autism (e.g., water balloons).	

Imaginative Play/Role Play
(Picnic, Shopping)

1. All materials were prepared in advance and could be handled without adult support.	
2. Each step of the activity involved both children. e.g., Picnic: Each set of materials is in a separate box (dishes, pretend food, real food, stuffed animals, etc.) One child hands out the materials one at a time and the other child selects what they would like. After all materials are distributed, one child is assigned to pour the "tea." e.g., Putting on a show: The getting ready for the show sequence is broken down into choosing shoes, dress/outfit, purse/guitar, hat, etc., for each child. Each child chooses from a visual display what they would like to wear and the other child gets the item, then roles are reversed.	
3. Each child's role was specifically explained and understood before the activity began. The parent practiced with the peer beforehand if necessary.	
4. Only one of each item was available and sharing was necessary.	
5. Parent stood behind the child at all times.	
6. Parent prompted peer if support was required (i.e., either told peer what to do or told peer what to say to the child with autism).	
7. Parent helped the peer to follow instructions as laid out for the activity and prompt corrections as necessary. Social reinforcement (praise) was provided when appropriate to support the peer's cooperative participation and helpfulness.	
8. There was only one of this type of activity per session.	
9. Parents avoided using "distracting" stimuli, or removed stimuli that proved to be too distracting from the activity (e.g., highly preferred plastic bottles not used during picnic activity because of insistence on repeatedly lining them up).	
10. The activity involved something highly motivating for both children, but in particular, the child with autism (e.g., pretend money, pretend foods).	

Traditional/Board Games
(e.g., Bingo, Cariboo, Pass the Present, Pin Tail on Donkey)

1. All materials were prepared in advance and could be handled without adult support.	
2. Each step of the activity involved both children (e.g., Bingo: one child calls, the other places chips). Many board games involve one child doing and the other child "watching." These games must be adapted so that each child has an active role at all times.	
3. Each child's role was specifically explained and understood before the activity began. The parent practiced with the peer beforehand if necessary.	
4. Only one of each item was available and sharing was necessary.	
5. Parent stood behind the child at all times.	
6. Parent prompted peer if support was required (i.e., either told peer what to do or told peer what to say to the child with autism).	
7. Parent helped the peer to follow instructions as laid out for the activity and prompt corrections as necessary. Social reinforcement (praise) was provided when appropriate to support the peer's cooperative participation and helpfulness.	
8. There was only one of this type of activity per session.	
9. Parents avoided using "distracting" stimuli, or removed stimuli that proved to be too distracting from the activity (e.g., giant pile of bingo chips removed and child given only a few at a time because of tendency to pick up and drop chips repeatedly).	
10. The activity involved something highly motivating for both children, but in particular, the child with autism (e.g., Dora characters on game board).	

Appendix J. Social Validity Measure

Social Validity Scale

1. I feel confident in my ability to plan a variety of play date activities that encourage interactions between two children.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

2. I feel confident in my ability to use prompting and support strategies so that play date activities are successful.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

3. My child's ability to participate in and interact with another child during play dates is important to me.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

4. The strategies I learned are useful for helping my child interact with another child during play dates.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

5. My child's ability to participate in and interact during play dates increased as a result of the strategies I learned.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

6. I will continue to host play dates using the strategies I learned.

<div align="center">

0   1   2   3   4   5

Not at all   Very much

</div>

Comments:

Appendix K.
Play Date Organizer

Activity: _____   Date: _____

Materials I Have: Materials I Need:
                                     (* indicates materials to be provided by researcher)

_____   _____
_____   _____
_____   _____
_____   _____
_____   _____
_____   _____

Activity Overview:

_____
_____
_____
_____
_____
_____

Cooperative Arrangements:

Before the Activity Begins:

_____
_____
_____
_____

During the Activity:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____