

The Effects of a Group-Based Approach to Parent-Mediated Early Behavioral Intervention for
Very Young Children with or At-Risk for Autism

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Abstract

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This study examined the effects of a short-term, low-dose parent-implemented intervention for young children with or at-risk for autism. Parents were taught strategies in a group-based format, at the same birth to three center where their child received publicly funded early intervention services. The strategies were focused on improving the quality of caregiver child interaction and based on best practices of naturalistic behavior intervention for very young children with autism. Increases in parental use of intervention strategies were seen as well as changes in four developmentally appropriate goal areas for very young child with or at-risk for autism. Overall, parents were extremely happy with the intervention. This model could lead to easier and quicker access for early intervention services for very young children with or at-risk for autism and can be easily adopted within existing service delivery models.

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Dedication

This dissertation is dedicated to the three most important men in my life.

To my dad Thomas L. Berger- You believed in me for as long as I have existed and taught me to find my passion and love what I do. You taught me that every day is an opportunity for me to “make it a good one.” You continue to be the bar by which I measure so much in my life. I wish you could be here today, but I feel your presence in everything that I do.

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The Effects of a Group-Based Approach to Parent-Mediated Early Behavioral Intervention for
Very Young Children with or At-Risk for Autism

Introduction

Autism is a neurological condition that is present at birth and may affect an individual for the duration of his or her life. With autism prevalence currently around 1 in 68 children, there is a great need to understand many facets of this condition such as how it presents, the earliest it can reliably be diagnosed, how to best treat it, and much more (Centers for Disease Control and Prevention [CDC] Report, 2016). Recent reviews of the literature on early intervention for children with autism have suggested that future research should focus on developing evidence-based interventions for infants and toddlers with autism or at-risk for developing autism (Dawson & Bernier, 2013; Vismara & Rogers, 2010). According to the CDC, despite the fact that a reliable diagnosis can be made by age 2, the average age for a diagnosis of autistic disorder (DSM-IV-TR, 2000) is 3 years 10 months (Centers for Disease Control and Prevention [CDC] Report, 2016). Furthermore, research suggests that several factors can influence the age at which a child is diagnosed, with higher household income and higher parental education levels correlating with earlier diagnosis and the use of Medicaid correlating with a later age at diagnosis (Daniels & Mandell, 2013). Other studies have looked at links between race and age at diagnosis finding that children from racial minorities may end up diagnosed with autism at a later age than white children (Daniels & Mandell, 2013; Mandell, Listerud, Levy & Pinto-Martin, 2002). This suggests major disparities among the age when children are first diagnosed with an ASD. From what is known about the importance of early detection and early entrance into intervention services, this a very troubling problem that needs attention.

The changing landscape of ASD diagnosis resulting in earlier detection begs the need for effective interventions for even younger children with autism, or those who may be at risk, but for a plethora of reasons are not diagnosed early. Early intervention not only leads to observable outcomes in social, communicative, and behavioral development, but some research suggests that it may also alter the course of brain development, leading to more typical developmental trajectory (Dawson & Bernier, 2013). Parents, whose children were subsequently diagnosed with ASD, often suspect that there is something wrong with their child's development prior to their first birthday (CDC, 2012). The latency between initial suspicion and eventual diagnosis can have potentially detrimental effects on child development based on what we know from recommendations in the literature, which highlight the importance of early entrance into intervention programs and may add to parent stress (NRC, 2001; Estes et al., 2009). This is also supported by the research base, which suggests that earliest entry into intervention leads to greater gains and outcomes for child participants (MacDonald, Parry-Cruwys, Dupere, & Ahearn 2014; Rogers et al., 2012; Rogers et al., 2014; Stahmer, Akshoomoff, & Cunningham 2011).

Ongoing research in the field of early autism intervention continues to add to our existing knowledge on what is effective and considered evidence-based for this population (National Autism Center, 2015). Most recently, the National Autism Center published Phase II of their National Standards Project, which looked at evidence-based practices for individuals with autism across the lifespan. They included three evidence-based practices for very young children with autism, three years and younger. These three practices were: (a) Comprehensive behavioral treatment for young children, (b) Naturalistic teaching strategies, and (c) Parent training package (National Autism Center, 2015). Comprehensive behavioral treatments involve the use of behavioral strategies in an intensive program that targets more than one developmental area;

intervention consists of a high number of hours per week (25-40) and typically lasts 2-3 years (National Autism Center, 2015). Naturalistic teaching strategies consist of determining reinforcement based on child interest/preference, using materials from everyday settings, teaching in a variety of environments, providing reinforcement that is directly and functionally related to the activity or goal, and providing instruction in a loosely structured format (National Autism Center, 2015). Forms of parent-training packages include individual or group training, support groups with an educational component, and training manuals; skills parents may learn include, but are not limited to, strategies to teach imitation, commenting on the child's behavior, expectant waiting to support communication, supporting appropriate sleep routines, increasing joint attention, and developing play date activities (National Autism Center, 2015). Taken together, these findings suggest that a parent training program that utilized naturalistic teaching strategies may be beneficial for young children with autism.

Many naturalistic teaching strategies are already in existence and have been taught to parents through training or coaching. Some examples of these include the Early Start Denver Model (ESDM; Rogers & Dawson, 2010; Rogers, Dawson & Vismara, 2012), Pivotal Response Teaching (PRT; Koegel & Koegel, 2006; Koegel, O'dell & Koegel, 1987; Vernon, Koegel, Dauterman & Stolen, 2012), enhanced Milieu teaching (Kaiser & Hester, 1994), incidental teaching (McGee, Morrier & Daly, 1999) and Reciprocal Imitation Training (RIT; Ingersoll & Schreibman, 2006; Ingersoll & Gergans, 2007), among others. These approaches and others are classified as Naturalistic Developmental Behavioral Interventions (NDBI; Schreibman et al., 2015). Common features of NDBIs include the three-part contingency, manualized practice, fidelity criteria, individualized treatment goals, ongoing progress monitoring, child-initiated teaching opportunities, considerations of the environmental arrangement, natural reinforcement,

prompting and prompt fading techniques, a blend of use of objects and social routines, modeling, adult imitation of child behaviors, and a focus on broadening the child's focus (Schreibman et al., 2015).

The Early Start Denver Model (ESDM) is a comprehensive intervention that blends behavioral and developmental approaches to embed instruction within meaningful play routines. This treatment can lead to improved behavioral outcomes for young children with autism in a variety of areas including increasing looking at caregiver faces and turn taking (Rogers & Dawson, 2010). Pivotal Response Teaching (PRT) is a naturalistic intervention that focuses on teaching pivotal behaviors to individuals with autism. One commonly targeted behavioral outcome that PRT may target is intentional vocal requests (Koegel et al., 1987). Reciprocal Imitation Training (RIT) is a naturalistic intervention designed to target imitation skills in young children with autism (Ingersoll & Schreibman, 2006). These four behaviors are important skills to teach young children with autism and are commonly the focus of early intervention treatment.

Parents of young children with disabilities experience high levels of stress, with some research suggesting that parents of children with ASD may experience higher levels of stress than parents of children with other disabilities (Estes et al., 2009). Furthermore, Estes and colleagues (2009) found that not only are parents of children with ASD experiencing higher levels of parental stress than parents of children with developmental disabilities, but they also experience higher levels of psychiatric distress. The literature also suggests that parents want support - specifically as it relates to targeted intervention with their child (Mahoney et al., 1999). This suggests the need for specific and supportive training for parents to act as change agents for their young child's development.

There is a growing body of literature that supports parents providing intervention for their very young children with or at risk for autism (Kasari et al., 2014; Rogers et al., 2012). These and other findings show that parents can be effective interventionists, especially when well trained and supported. Traditionally, intervention for infants and toddlers with disabilities primarily involved therapists working directly with the child with a disability (Bailey & Wolery, 1992). Often times this involved a therapist coming to a young child's home, working with the child with disabilities and perhaps giving an update to the parents about any progress that had been made. Young children spend most of their time with parents and other caregivers, which suggests the significance of training primary caregivers to work as interventionists with young children with disabilities, as their first teachers (Bailey & Wolery, 1992). Many cases have been made for the focus of early intervention to shift to training parents as primary interventionists or co-interventionists (Kaiser, Hancock & Hester, 1998; Mahoney, Boyce, Fewell, Spiker & Wheeden, 1998). Additionally, some studies suggest that when parents are taught to implement interventions, even low-intensity interventions, that this may reduce parental stress associated with having a child with autism (Lieberman-Betz et al., 2014).

One way to provide parents with this training and support is to create programs that fit within the existing service delivery model for birth to three centers. The Parents Interacting With Infants (PIWI) model is a group program that allows parents to learn new skills for interacting with their child in a supportive and play based environment with other parents and children with disabilities (McCollum, Gooler, Appl, & Yates 2001). This format is similar to a co-op style program where parents and family members might attend class with their small child, but differs in that the focus is on parents being trained to engage as interventionists with their child, with supported opportunities for practice during the group.

A PIWI or Co-op format for early intervention and parent coaching addresses on major gap in the current service delivery model between first parental suspicion that something may be wrong and the eventual diagnosis of ASD and entry into services. From the early detection literature, we know that in studies of children who were later diagnosed with autism, many parents suspected that there was something wrong prior to their child's first birthday (CDC, 2012). Although many parents may suspect that something about their child's development is different, the average age of diagnosis is 3 years and 10 months of age (CDC, 2016). This means that children may be missing an important window of developmental opportunity through early intervention services. Furthermore, once a child is diagnosed with autism they may remain on waiting lists for intensive services for a number of months before treatment can begin. The availability of intensive services can vary greatly depending on where children live, even in areas that are well-resourced, children may be on waiting lists for extended periods of time. A PIWI/Co-op format for autism-specific early intervention could lead to very quick entrance into services and important tools for parents to use when interacting with their child who may have autism.

The purpose of this study was to investigate a cost-effective and efficient way to provide early intervention to very young children with autism or those suspected of having autism, in a format that fits within an existing service delivery model. This study provided instruction on four autism-specific intervention targets to parents in a group setting, or a setting that would lend itself to multiple dyads.

The research questions were as follows:

- (a) What are the effects of a group-based parent-coaching intervention that consisted of young children with autism or at-risk for autism and their parents in training parents to implement the intervention(s)?
- (b) How will this parent-mediated intervention approach affect meaningful change in child behaviors?
- (c) How will parents view this intervention?

Method

Setting and Participants

Parents and children participating in an individual or group coaching setting designed to teach parents selected strategies to help parents improve their interactions with their young child with autism or at risk for an autism spectrum disorder (ASD) were the participants in this study. Eight families expressed interest in participating in the study, six completed consent forms, and four parent-child dyads participated in data collection for the study, across three treatment waves. The coaching took place in a birth to three-center classroom in the Pacific Northwest where all four child participants in the study were already receiving publicly funded early intervention services. The birth to three agency provided early intervention to children and families in very large suburban service area. Intervention services provided by this agency included special education, speech and language pathology, occupational therapy, physical therapy, group intervention, co-op groups with parents and other family members, family support and social groups. The materials in the classroom included a space for circle time, developmentally appropriate toys and materials for parents to use during intervention and coaching time, child-sized tables and chairs, food and drinks for snack time, and a white board with the daily intervention topic listed.

Parent and child participants. Four parents were video recorded for data collection purposes throughout the study. Parents in this program all had a child between the ages of 20 and 32 months old at the beginning of the study. Parents committed to attending this group instruction for the duration of the 8-week program and scheduled twice weekly in-home video recording sessions prior to the intervention, throughout the intervention and at 4 and 6 weeks after the 8-week group intervention. Child participants were between the ages of 20 and 32 months. They either had a confirmed autism spectrum disorder (ASD) diagnosis or were at risk for ASD based failed an M-CHAT administered prior to the start of the study by a provider independent from the study. Three families in the study were on waiting lists for intensive services.

Jade and Kim. Jade was Kim's mother. Together they attended all eight sessions, but due to recruiting problems were the only dyad in Treatment Wave 1. At the start of the study, Jade was between the ages of 40 and 49 years old and had a Master's degree. She was an Asian American and was employed full time during the study. Kim was 31 months old at the start of the study and had just recently been evaluated and diagnosed with Autism Spectrum Disorder (within one month of the initial consent and start date of intervention). Kim was receiving speech therapy, occupational therapy, was attending a weekly co-op and was waiting to begin an ABA center-based program several days per week- all through the birth to three center associated with this study. Jade reported that Kim received 6-10 hours of therapy or services per week on average and that she spent 0-3 hours per week engaged in therapy or teaching with Kim. Jade was on the waiting list for intensive ABA services at seven locations.

Sheila and Tilly. Sheila was Tilly's mother and they were the participants in the second intervention wave. Together they attended all eight weekly sessions- they were joined for two

weeks by another parent and child who were attending the group but not participating in the study and eventually dropped out. Tilly's father came for the last intervention session with his wife and daughter, and Tilly's older brother attended one session as well. Sheila was between the ages of 40 and 49 years old at the start of the study and reported that she had attended some college. She was employed part time outside the home throughout the study and described her ethnicity as "other." Tilly was 31 months old at the start of the study and had a confirmed diagnosis of Autism Spectrum Disorder. Tilly received occupational therapy, speech therapy, attended co-ops and was on a waiting list to begin an ABA center-based program several days per week through the partnering birth to three center. Sheila reported that Tilly received 6-10 hours of therapy or other services per week, but that she spent 12-15 hours engaged in teacher or therapy with Tilly. Tilly was on waiting lists for intensive ABA services.

Kamal and Peter. Kamal was Peter's mother. They attended all eight group sessions as part of the third treatment wave. Peter's father attended and participated in all sessions, but was not involved as a participant in data collection or analysis, as Kamal self-selected for this role. Kamal had a Master's degree and was between the ages of 30 and 39 years old at the start of the study. She described herself as Asian/Pacific Islander and was employed full time during the study. At the start of the study, Peter was 32 months old and had a diagnosis of Autism. He received speech therapy and in-home ABA therapy and was enrolled in an ABA center-based program several days per week through the partnering birth to three center. Kamal reported that he received between 6 and 10 hours of therapy per week and that she spent 0-3 hours per week engaged in direct teaching and therapy with him. Peter was receiving services from a Board Certified Behavior Analyst (BCBA) but the agency had not yet provided in home support from a

behavior technician due to staffing issues- so his services in the home were not considered intensive.

Sonora and Lily. Sonora was Lily's mother. Sonora and Lily were participants in the third treatment wave. They struggled with attendance, with Lily attending four out of eight sessions and Sonora attending three of eight sessions (Lily's father brought her one week). Sonora reported that she was between the ages of 30 and 39 years old at the start of the study, had a Master's degree and described herself as Asian/Pacific Islander. She was a full time at home parent during the study. Lily was 20 months old at the beginning of the study and did not yet have a diagnosis of autism. Lily had failed an M-CHAT (S) with a score of 13- which is considered "high risk" and was waiting for a diagnostic evaluation. The M-CHAT was administered by the birth to three agency staff member who was already working with Lily. At the time of the study she was receiving occupational therapy services, speech therapy and had a special educator providing her with therapy sessions, all through the partnering birth to three agency. Sonora reported that Lily received 0-5 hours of therapy or other services per week, but that she spent 4-7 hours engaged in teaching or therapy with her directly.

Procedures

Autism co-op group. Parent participants brought their child to a 60-minute group, along with other parents and their children, as applicable, for 8 weeks. The first group consisted of only Jade and Kim, as the other interested participants decided to drop from the study before the start of the group. The second group consisted of Sheila and Tilly and one other parent and child, who were not participating in the study and dropped from the group after two weeks of attendance. The third group consisted of Kamal and Peter and Sonora and Lily, as well as Peter's father. The beginning of each weekly group consisted of the research team members (lead researcher and on

occasion a research assistant or birth to three center employee) greeting parents and children by name and then an opportunity for visiting with other parents and for children to play with toys before the first circle/meeting time. During meeting time in circle formation, a “hello” song was sung, naming each child and then children played with easily accessible toys in the middle of the circle. These toys consisted of blocks, puzzles, small squishy animals and other sensory toys that could occupy the child’s attention while parents listened to the focus topic for the day.

Discussion at circle group consisted of introducing the steps associated with the new strategy for the week and a discussion of materials in the room and how to work on the skill with the available toys and materials. The skill was also modeled by the lead researcher. Parents and children were then dismissed for practice opportunities. During practice time, parents practiced the newly described skill while working with their child. Each parent received feedback and individualized coaching from the lead researcher for 20-30 minutes each class session. After all parents had opportunities for coaching, feedback and had practiced the skill sufficiently to demonstrate it correctly, parents began to transition with their child to a short snack time. Snacks and drinks were provided. The final group meeting occurred in a similar format to the entry meeting. Parents helped support the transition of their child to the circle group where toys and materials were available for the children to play with. While the children played, parents listened to a review of the current strategy, planned for practice at home throughout the week, and were given a tip sheet (also referred to as a “refrigerator list”) to take home that reviewed important points of the current strategy. Prior to departure, a good-bye song was sung, naming each child individually.

Parent training. Parent training occurred in two formats during the group meetings.

Parents received instruction in a small group format while sitting in the circle-type activity at the

beginning of the session. The strategy for the week was introduced, with major points written in an easy to read format on a white board. The lead researcher then modeled, with examples, how the strategy might look. Finally, parents were told about the materials in the room and given ideas for how to work on the strategy with the materials provided. All parents were encouraged to practice with at least two different materials during this time.

The second parent training format consisted of observation and individualized feedback provided during practice time. Each parent was observed and received individualized feedback from the lead researcher during practice time. Parents were given live feedback and support until they demonstrated the strategy correctly. Feedback was given in either a very directive way (“Try taking the bucket and see if she will let you take a turn scooping”) or less directive (“See how she looks at you when you describe what she is doing!”), depending on the strategy and each individual parent’s response to feedback.

Finally, at the last group circle time, the strategy was reviewed one more time and parents were asked to identify times when they planned to practice throughout the week. Parents were also encouraged to discuss materials they might use at home. Parents were asked to try out the strategies at least 5 days per week for 20 minutes total each day. Parents were not asked to report on how much time they spent engaged in the strategy or to log their practice time. This was meant to encourage natural opportunities for practice as opposed to parents feeling as though these strategies were “work” and needed to be scheduled or structured.

Video submission. Parent participants agreed to twice weekly videotapes of themselves playing with their child as they normally did or- once intervention had begun- practicing the strategies they had learned with their child at home. Videos were recorded by two graduate students enrolled in a master’s degree program in applied behavior analysis. The students

coordinated with each family to record two videos per week. Sonora requested to record her own videos and was allowed to do so based on her preference. Occasionally, due to vacations and illness, only one video per week was recorded. All videos were uploaded to a secure, HIPAA compliant, password-protected cloud-based storage sight. Although more than one parent was welcome to attend each group, only one parent was selected to be recorded throughout the duration of the study with the child. Parents were asked to record either at play time or during another natural interaction that could easily accommodate the strategies targeted during the group (play, meals, snacks, etc.). Video submissions began the training sessions began (i.e., baseline), after participants had consented to participate in the study and continued throughout the eight-week study. The first two participants were asked to record follow up videos at four- and six-weeks post-group to assess maintenance of the targeted strategies.

Dependent Measures

Parent and child behaviors were recorded using partial interval data collection system. Observations were ten minutes long. For data collection purposes the observations were divided into one minute intervals. A partial interval recording system was used, meaning that if a behavior occurred for any time during the interval it was coded. There were six parent behaviors and four child behaviors. These are described below. For each observation there were 60 opportunities for parents to demonstrate behavior and 40 opportunities for children to demonstrate behavior. The number of intervals with a correct occurrence of behavior was then divided by the total number of intervals and multiplied by 100 to get a percentage of behavioral occurrence for each ten-minute video.

Parent behaviors. Data were collected and analyzed for four target strategies taught to parents. These four strategies were: describing play and improved positioning, taking turns with a toy, improving requesting, and contingent imitation.

Describing play and improved positioning. Parents were taught to sit face to face with their child, in close proximity and on the same visual level as their child. This meant that if the child was sitting on the floor, the parent would sit on the floor and face her child, within roughly three feet. If the child was standing up, the parent might remain seated on the floor or kneel on the floor in front of her. Parents were also taught to narrate their child's play and participate in a helpful way when possible. Parents were instructed to avoid using high rates of questions and commands during play, and to describe what their child was doing using simple language. If the child was scooping blocks from the ground, the mom might say, "You're scooping!!" or "blocks!" depending on the child's language level. If the child was trying to stack blocks and they kept falling down, the parent might participate in a helpful way by holding the tower steady as the child added blocks to the top.

Taking a turn with the toy. Parents were taught to take short turns with the toy their child was playing with, encouraging children to allow parents to take turns during play. The strategies addressed in the intervention were additive, so parents were encouraged to continue using the first strategy they had learned, and to set up a routine that was fun and mutually enjoyable for both parent and child. Once the routine was established, the parent was encouraged to insert a short "parent turn" with whatever the child was engaged with. For example, if the child was scooping sand in a texture table, the parent was encouraged to stop the child, ask for the scoop and quickly scoop some sand before returning the scoop to the child. If the child was putting small objects into a larger object (piggy bank, shape sorter, etc.) the parent was

encouraged to quickly take a turn doing the same thing the child had done with one of the small objects.

Encouraging communication. Parents were taught to withhold highly desired items from their child, model appropriate language and provide the item to the child when the child communicated or attempted to communicate. For example, if a child was playing with a ball maze toy, the parent would allow the child to play with the toy a few times before interrupting the child's play by blocking access to the balls and modeling "ball" while holding one ball up for the child. Depending on the individual child's language level, any type of communication effort, approximation, word or phrase was accepted by parents and reinforced by giving access to the desired item paired with praise.

Social imitation. Parents were taught to imitate what their child did during play and model new actions for the child to imitate. Parents were encouraged to spend time copying what their child did while playing. For example, if their child spent time putting popsicle sticks into playdoh, the parent would also poke popsicle sticks into playdoh, while describing the play at a language level appropriate for the child such as, "poke". After roughly 1 minute, the parent would model something new to do with the materials, such as drum the popsicle sticks on the table while saying "drum" or something similar. The parent would model the new action up to three times before helping their child to imitate. Then the parent was instructed to return to imitating their child.

Child Behaviors. Four child outcomes were measured including focusing on faces, taking turns, requesting, and spontaneous imitation.

Focus on faces. This behavior examined whether the child looked at his/her parent's face during face-to-face play and interactions. Looking at a parent's face was coded as correct

when the child clearly looked up from a toy or activity at the parent. It was not coded as correct when the child looked in the parent's direction while looking at something else throughout the room. If it was unclear, it was coded as a non-occurrence.

Turn taking. This behavior consisted of the child allowing the parent to take turns and/or appear to watch the parent while he/she takes a turn with the child's toy. This involved the child tolerating and watching as the parent took a turn. This was coded as incorrect if the child was unable to recover when the toy was returned to him/her or if the child left the area after the parent took the toy for her turn.

Intentional requests/vocalizations. This behavior involved the child making an intentional vocalization, word approximation or effort to gain access to a highly preferred toy/item in the parents' possession. The parent would model a word for the child and withhold a highly desired item. If the child made some type of effort toward the item (reaching, pointing, vocalization), approximated the word, said a word or used a sentence, it was counted as correct.

Spontaneous imitation. This involved the child imitating actions modeled by his/her parent without a direction to copy/imitate. This was coded as correct when the parent had modeled something new to do with a toy/material and did not provide the child with a direction to copy.

Design and Data Analysis Plan

The study employed a multiple baseline design across participants. The research design was used to evaluate the group training approach to teaching new strategies to parents and the effect on child behavior when parents were taught intervention strategies. Multiple baseline designs allow researchers to demonstrate instructional control "when the target behavior is likely to be irreversible or when it is undesirable, impractical, or unethical to reverse conditions"

(Cooper, Heron & Heward, 2007, p. 201). A multiple baseline design was ideal for this intervention because once parents had learned the intervention and began implementing it with their child, reversing might not be possible or may not be a practical request, especially if parents had noticed a change in child behavior.

Visual analysis of graphs was conducted during each stage of the study in order to evaluate the effects of the intervention on parent and child behaviors and determine when to initiate the next group into intervention. The lead researcher evaluated graphs during each stage of the study, baseline, intervention and follow-up for changes in level, trend and variability after each video submission. Percentage of nonoverlapping data (PND) was calculated for all parent and child participants. PND is one suggested metric for synthesizing research outcomes in single subjects research and is used as the primary measure of effect size in this study. According to Scruggs and Mastropieri (1998), interventions with PND scores over 90% should be considered very effective, interventions with PND scores between 70 and 90% should be considered effective, interventions with PND scores between 50 and 70% should be considered to have questionable effectiveness and those with PND scores below 50% should be considered ineffective.

Fidelity

Intervention fidelity of the group instruction format was coded in two ways. Instructors either coded fidelity immediately after group sessions or watched a video recording of the intervention session and coded for intervention fidelity after the session was over while watching the video. The instructor was expected to engage in the following behaviors featured in Table 1. Fidelity was recorded for a minimum of 20% of the groups and was 91%. The most commonly missed item for fidelity was wearing a nametag, as the group was small enough that after the first

meeting nametags were no longer necessary. A full list of scored fidelity items is available in Appendix C.

Interobserver Agreement

Interobserver agreement (IOA) data were collected by one to two researchers for at least 20% of video submissions. IOA were collected for both parent and child behavior using the event recording data collection system described earlier in the data collection and analysis section and was conducted across all conditions. Interobserver agreement was calculated for each IOA session by determining agreements trial by trial per opportunity and dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100. The overall interobserver agreement was 96.05% (range 86-100%).

Social Validity

Social validity data were collected using a questionnaire given to parents after the 8-week group had concluded. Parents were asked to answer questions about their feelings of satisfaction about participation in the study on a likert-type scale. They were also asked to answer open-ended questions about what they found to be acceptable and what would have improved the intervention or their feelings about participation in the group.

Results

The results for parent and child behavior are summarized in Figure 1. Parent behavior is presented as a percentage of opportunities out of 60 that the parent demonstrated the target behavior during each ten-minute video. Child behavior is presented as a percentage of opportunities out of 40 that the child demonstrated the target behavior during each ten-minute video. Results are summarized on Table 1 and graphically represented in Figure 1.

Parent Behavior

Jade. A total of four baseline videos, eight intervention videos, and two follow up videos were collected for Jade. Jade's baseline average for target behaviors during regular play with Kim was 25%. This means that on average out of 60 total opportunities per session, Jade was using some of the strategies targeted in this intervention in her regular play with Kim about 25% of the time or in 25% of coded intervals (range 17-30%). Jade's overall intervention average for target behaviors during play with Kim was roughly 46.7% (range 26-88%). Jade was using strategies from this intervention in roughly 46% of coded intervals throughout the duration of the study. Jade's follow up video showed a maintained increase over intervention, with one follow up video at 38% and the other at 68%. PND was calculated for Jade from baseline to intervention and was 92% (12 of 13 data points in intervention were nonoverlapping). This PND score should suggest that for Jade this intervention was very effective.

Sheila. A total of three probe baseline videos, eight intervention videos, and one follow up video were recorded for Sheila. During baseline, out of 60 total opportunities per session Sheila was using some of the target strategies in an average of 22% of intervals recorded (range 15-30%). Throughout intervention, Sheila's average use of intervention strategies increased to 46% (range 35-63%). Sheila's follow up video demonstrated a slight decrease in overall use of strategies, but was still within close range of the overall intervention average, at 42%. PND was calculated for Sheila from baseline to intervention and was 100%, she did not have any overlapping data points between baseline and intervention. This demonstrates a very effective intervention for Sheila.

Kamal. A total of two probe baseline videos and eleven intervention videos were recorded for Kamal. During baseline, out of 60 total opportunities per session, Kamal was using

some of the target strategies, averaging 8% of the recorded intervals (range 1-15%). Throughout the intervention, Kamal's average use of intervention strategies was 55% of intervals (range 35-81.5%). No follow up videos were recorded for Kamal due to study timeline. PND was calculated for Kamal from baseline to intervention and was 100%, there were no overlapping data points- suggesting this intervention was very effective for Kamal.

Sonora. One baseline probe and five intervention video probes were recorded for Sonora. Sonora's single baseline use of intervention strategies was 25% out of 60 total opportunities for that session, suggesting that she was using some of the intervention strategies in her regular interactions with Lily. Throughout the intervention, Sonora's use of strategies increased to an average of 53% (range 38-75%). No follow up videos were recorded for Sonora. PND was calculated for Sonora from baseline to intervention and was 100%, suggesting that this intervention was very successful for this participant.

Child Behavior

Kim. A total of four baseline videos, eight intervention videos, and two follow up videos were recorded for Kim. In baseline out of 40 opportunities per session, Kim displayed the child target behaviors during roughly 18% of coded intervals (range 13-25%). During intervention, Kim's target behaviors increased to 47.65% of coded intervals (range 27-89%). The follow up videos showed an initial decrease in overall behavior use at 35% and a slightly higher second follow up video of 78%. PND was calculated between baseline and intervention for Kim's behaviors and was 92% (12 of 13 data points during intervention). This intervention should be considered very effective for Kim.

Tilly. A total of three probe baseline videos, eight intervention videos, and one follow up videos were recorded for Tilly. Tilly's baseline use of the target behaviors averaged around 18% of coded intervals out of 40 opportunities per session (range 15-23%). During intervention, Tilly used target behaviors on average in 40% of coded intervals (range 15-60%). Tilly's follow up video showed a decrease in demonstrated target behaviors, and a return to baseline level at 22%. PND was calculated between baseline and intervention for Tilly's behaviors and was 87% (7 of 8 data points during intervention), suggesting the intervention to be considered effective for Tilly and just under the threshold to be considered very effective.

Peter. Two probe baseline videos and eleven intervention videos were recorded for Peter. Peter's baseline use of the targeted behaviors was 33% of intervals out of 40 opportunities per session (range 30-35%). During intervention, Peter's target behavior use increased to an average of 61% of coded intervals (range 38-95%). No follow up videos were recorded for Peter. PND was calculated for Peter between baseline and intervention and was 100% (no overlapping data points), suggesting the intervention to be considered very effective for Peter.

Lily. One baseline probe and five intervention probe videos were recorded for Lily. Lily's baseline use of intervention strategies was 13%. During intervention, Lily demonstrated target behaviors at an average of 50% (range 33-75%). No follow up data were recorded for Lily. PND was calculated for Lily from baseline to intervention and was 100%, there were no overlapping data points suggesting this intervention to be very effective.

Table 1.
Summary of Participant Results

	<u>Pre Mean (Range)</u>	<u>Post Mean (Range)</u>	<u>PND</u>
<u>Dyad 1</u>			
*Jade	25% (17-30%)	46.7% (26-88%)	92%
*Kim	17.5% (13-25%)	47.65% (27-89%)	92%
<u>Dyad 2</u>			
*Sheila	22% (15-30%)	46% (35-63%)	100%
*Tilly	18.33% (15-23%)	40% (15-60%)	87%
<u>Dyad 3</u>			
*Kamal	8% (1-15%)	55% (35-81.5%)	100%
*Peter	33% (30-35%)	61% (38-95%)	100%
<u>Dyad 4</u>			
*Sonora	25% (25%)	53% (38-75%)	100%
*Lily	13% (13%)	50% (33-75%)	100%

Social Validity

Social validity data were gathered and summarized to assess overall satisfaction of participation in the group. Overall parents were very happy with the group. Parents were given a survey with a number of statements and were to rate their agreement with those statements as either strong agree, somewhat agree, somewhat disagree or strongly disagree. All parents reported a “strong agree” that they liked participating in the group parent coaching intervention, found this group parent coaching intervention to be helpful in improving their own abilities to play and interact with their children, feeling as though the intervention had given them strategies to support their child and that they would recommend the group to other parents. Three of the four parents reported that they somewhat agreed that the intervention had helped their child improve in important developmental areas. One parent strongly agreed with this statement, saying that her daughter’s language had greatly improved throughout the course of the group program. Anecdotally, parents reported liking the hands on approach and the fact that they were involved in the intervention with their child. Parents also reported that they appreciated the

visual supports to help them remember the important steps of the intervention at home and felt the approach was easy to implement.

Sheila remarked that:

The best thing is that [it] was me working with my kid, and the “teacher” telling me what I should do and in the class, I could see that it works! It’s not a book telling me what to do. I learned doing it and I could see in the class that I could be successful trying at home.

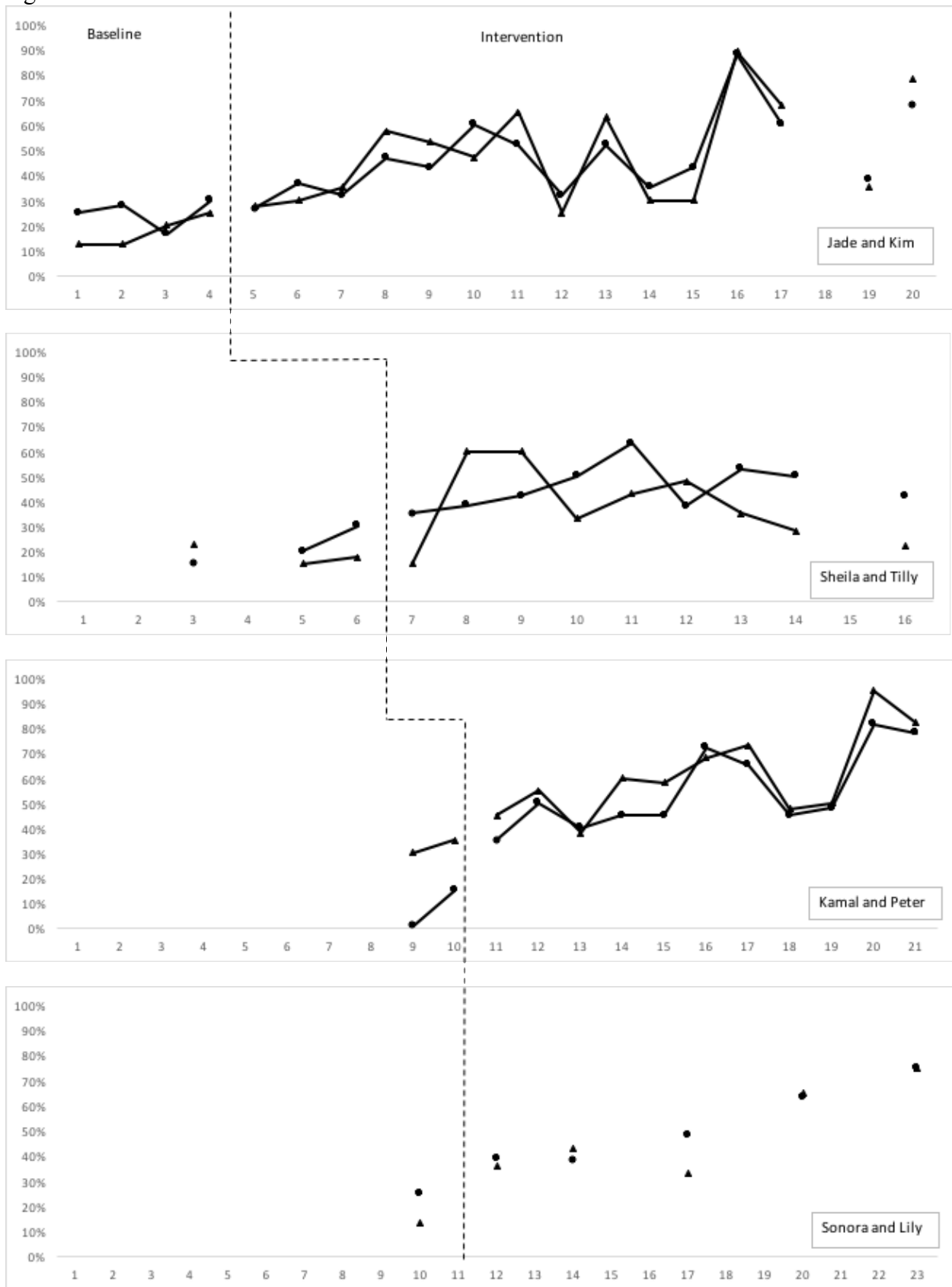
Sonora echoed this by saying, “[I] liked being responsible for being involved in the early intervention for my kid.” She also noted that the “refrigerator list is a reminder to incorporate play and support in every day activity.” Jade said, “I loved that it was focusing on one simple strategy per session. It was easy to remember and we made it a point to incorporate at home.”

When asked how this approach supported her child, Kamal said, “It reinforced goals around keeping the 1-1 attention with your child which is not always easy – now I have a more structured way of thinking about it.”

Table 2.
Social Validity Questions and Answers per Participant (scale: 1- strong agree to 4-strongly disagree)

<u>Social Validity Question</u>	<u>Jade</u>	<u>Sheila</u>	<u>Kamal</u>	<u>Sonora</u>	<u>Average</u>
I liked participating in the group parent coaching intervention with my child.	1	1	1	1	1
I found this group parent coaching approach to be helpful in improving my ability to play and interact with my child.	1	1	1	1	1
I feel as though this intervention has given me strategies to support my child’s special needs.	1	1	1	1	1
I feel that this group parent coaching approach helped my child improve in important developmental areas.	2	1	2	2	1.75
I would recommend this group approach to other parents of young children with autism or at-risk for autism.	1	1	1	1	1

Figure 1.



Parent • Child ▲

Discussion

The results of this study indicate that this group based parent-mediated treatment is an effective intervention for young children with or at risk for autism. This study demonstrated that parents can be taught in group settings to implement strategies that are easy to learn and embed in natural play routines with their child. These strategies were effective in changing child behavior in four areas measured (focusing on faces, turn taking, requesting and imitation). All of the parents involved in the study found the intervention to be very worthwhile, with all parents expressing extreme enjoyment in the intervention and two parents stating that they wished they could continue or do the class all over again.

Parents participants expressed high levels of satisfaction for the study. Overall, parents reported that they felt empowered to work with their child and that they had a new way to organize interactions and play with their child at home. Parents enjoyed participating in the study and that they were able to learn the strategies by doing them with support and coaching. This intervention helped parents to plan and organize their interactions with their child, making them feel confident and competent. This may contribute to a reduction in the high level of parental stress associated with having a child with autism.

This intervention can very easily be adopted into existing service delivery systems for young children with disabilities. This model of intervention may have great value as a short term or transitional intervention for young children who are on waiting lists for diagnostic evaluations or more intensive services. Due to the group-based organization of this intervention and the short term duration of just eight weeks, even agencies or geographic areas with very few clinicians could implement this targeted approach for young children with or at-risk for autism and their families. This intervention also bridges the early childhood values and evidence-base of parent-

implemented intervention and the evidence-based approaches for very young children with autism of behavioral and naturalistic interventions. Similarly, although the clinician delivering the intervention in this study was a board certified behavior analyst, other disciplines such as special educators or speech and language pathologists could serve as lead instructors.

Finally, this study resulted in observable changes in child behavior from baseline to intervention. Noticeable changes were seen across the behaviors included in this study such as time spent looking at adult faces, tolerating turn taking, socially imitating and making verbal requests. All child participants showed improvements in measured outcome areas.

This intervention was successful in contributing to changes in parent and child behavior in a relatively short amount of time compared to long-term intervention studies. There are many strengths associated with these findings, such as implications for increased access to services for many underserved populations. This treatment could act as an interim service for parents who are waiting for a diagnostic evaluation or who have a child waiting for more intensive behavioral services. The parents in this study expressed interest and a strong desire to continue, suggesting that perhaps parents would continue this group for the full eight weeks even if their child received a diagnosis or was accepted into more intensive services during the course of the group.

This study has important implications for practice. This was a very low-dose intervention with highly targeted and specific behaviors as the focus. The fact that changes in behavior could be seen despite the very limited amount of time spent with the coach/therapist, suggests that parents may be able to influence their child's skill development by making small adjustments to some of their existing interactions. All of the parents in this study were using some of the skills prior to the start of the study, further supporting the idea that major overhauls to parent child interaction may not be necessary, but that parents can quite easily incorporate or tweak the way

they are playing with their child in order to see meaningful changes. This may suggest that parents could benefit from slight modifications to the ways in which they interact with their children.

This study was conducted in a birth to three center that already had many families enrolled in co-op classes, where parents came with their child and other family members for group time. The model of this study provides some instructional structure to the topics discussed and practice opportunities, which can be easily implemented in many different early childhood settings. Although the lead researcher was a highly trained clinician and board certified behavior analyst, the strategies in this study could easily be coached by a birth to three educator or therapist of another discipline (eg. speech and language pathology). Furthermore, Sonora and Lily demonstrated behavioral improvement despite the fact that Sonora attended less than half of the group classes. She received the weekly tip sheets when she was unable to attend, but despite her low attendance still improved in her own ability to demonstrate the target behaviors and Lily's behavior also changed. This further supports the idea that slight adjustments to behavior may lead to meaningful changes in parent and child outcomes.

This study has many implications for future research. First, this study should be done again with more participant dyads per group in order to more accurately assess how effective this intervention could be in a true group format. Additionally, a randomized control trial could be done to look at differences in outcomes for parents and children who attended a focused, autism-specialized co-op class such as the one in this study and parents and children who attended a more general co-op class such as the ones offered by the partnering birth to three center. The general co-op class would serve as the control, as this is a commonly offered service to families who may be on waiting lists for diagnostic evaluations or more intensive ABA services. One

major strength of this study is the use of an intervention model that fits within an existing service delivery model. While much research on early autism intervention exists, limited availability of trained clinicians and access to particular resources can adversely impact a child's ability to enter quickly into intervention. This study took an existing service delivery model and existing autism-specific intervention strategies and blended them to meet the needs of both parents and very young children with and at risk for autism. More research that takes this approach may lead to an increase in evidence based practices that are more widely available, particularly in rural or underserved communities.

There were several limitations in this study. One major limitation is the fact that not all groups had enough people to be considered a group. This study was influenced heavily by recruitment and attrition issues. Despite the fact that the partnering birth to three center reported to have around 80 children who met study criteria, less than ten expressed interest and only four participated for the duration of an eight-week group. There may be many reasons for this challenge. Parents of young children are very busy and parents of young children with disabilities also experience high levels of stress (Estes et al., 2009). Other possible reasons could include feeling overwhelmed by recommendations and not knowing where to start, being nervous about how their child might act in a group, or worried about joining a research study for any number of reasons. Parents of young children with autism may not have felt this type of study was a priority or may have felt that it would be too stressful to add another commitment to their schedule. Due to the low number of participants, another limitation of this study is the limited generality of the group approach. While the "groups" were primarily individual coaching, the structure of a group setting was preserved in order to maintain the integrity of the study's

intention. This meant that group activities were still done according to the time allotted, the session started and ended on time and parents may not have attended all of the sessions.

Another limitation of this study was the fact that follow up data was not available for all participants. Due to study time constraints and participant availability, follow up videos could not be obtained for all participants of the study. Strong follow up data would have supported the idea that this low-dose intervention can lead to long-lasting parent and child behavior change. Finally, this study would have benefited from more baseline data points before starting intervention. Group dates were pre-determined in order to allow for planning purposes of study participants. This meant that Sonora and Lily signed consent and joined the group, there was only time to get one video for baseline. Some parents informally expressed concern and discomfort with the baseline phase since they didn't know why they were being recorded and were unsure of what to be doing. For these reasons, baseline videos were primarily collected via probes prior to the start of the study. However, more baseline probes would have served to strengthen the findings and differences demonstrated between baseline and intervention.

Another limitation in this study was the fact that the videos were recorded during different times of day, in a manner that best met the family schedule but was not consistent across the study. This meant that sometimes video recording happened shortly after or before naps, when the child had already had therapy for a period of time before the video, and/or when the child was hungry or had just returned home and seemed less interested in engaging in the intervention or cooperating with video recording. This could have impacted behaviors displayed in the videos. However, given the very young age of the participants in the study, even the most consistent video recording schedule could still have been impacted by many of these factors on any given day.

Finally, at follow up, parent and child participants did not maintain demonstration of behaviors at levels commensurate with those of the 8-week intervention. This suggests that the intervention may only be effective as either a short term bridge while parents are waiting or that the intervention should be ongoing in order to lead to long-term behavior change. This is consistent with other parent coaching studies that found lower levels of targeted behaviors demonstrated at follow up (Kasari et al., 2014; Kasari, Gulsrud, Paparella, Helleman, & Berry, 2015). In a parent coaching case study done by Rogers and colleagues (2014), researchers included maintenance sessions and the option of bi-monthly “boosters” for parents if they noted delayed or poor progress. This could be an option for areas or centers with limited resources or for parents who have entered into more intensive therapy services, but want to continue with their own skill development.

This study examined the effects of parent coaching in a group-based setting on changes in parent and child behavior for very young children with autism or at risk for autism. Positive changes in parent use of intervention strategies and increases in important developmental behaviors for the young children were seen throughout the duration of the eight weeks, with mixed results at follow up. This study has many important implications for future research and clinical practice for very young children with autism or who may be at risk for autism.

Appendix A: Consent Form

**University of Washington
Consent Form**

Research Project Title: The effects of a group-based approach to parent-mediated early behavioral intervention for very young children with or at risk for autism

Researcher:

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Researcher's Statement

I am inviting you and your child to be in a research study. The purpose of this consent form is to give you the information you need to help decide whether or not to be a part of this study. Please read the form carefully. You may contact the researcher to ask questions about the purpose of the research, its requirements, the risks and benefits, and your rights as a volunteer. When I have answered your questions, you can decide whether you want to be in the study. This process is called "informed consent." You will be given a copy of this form for your records.

PURPOSE OF THE STUDY

The purpose of this study is to better understand one way to teach parents to work with their child with autism or a child who may be at risk for autism. Research suggests that parents can be very important teachers for their young child with autism or who may have autism, but it can be difficult for many parents to find providers who are trained in autism-specific interventions. This study will look at a group instruction approach to training parents in evidence-based intervention methods. Up to 8 parents and their child may participate in each group involved in the study. There will be three groups total.

The research will study two things:

- Whether parents can learn to implement four intervention strategies
- The effect of intervention strategies on the skills of the child participants in four developmental areas.
 - Focus on parent faces
 - Imitation
 - Requesting
 - Turn-taking

STUDY PROCEDURES

The design of this study is called a multiple probe/baseline study and will take place in three main phases: Baseline, Intervention, and Maintenance. Data collection at the baseline, intervention, and maintenance phases will include video recording for data analysis purposes. This means parents will be asked to submit videos 1-2 times per week. Parents may use their own devices such as cell phones, iPod/iPad or other recording devices. There will be a small number of recording devices available for parents who do not have access to a video recording device.

Baseline: During baseline, parents will be waiting to start a group. This wait time could last from two weeks to a two months. During this time, parents will be asked to submit between 2 and 5 videos of themselves playing with their child at home.

Intervention: During the intervention phase, parents will attend a 90-minute weekly group session with their child. Each group session will include training on the current topic, practice and feedback, snack time, group discussion, and planning for the week ahead. Each parent will be asked to submit one to two 10-minute videos per week. The videos will show practice of the current topic/strategy with their child at home. The group will last for eight weeks. Parents will also be asked to practice the strategies they are learning for 30 minutes a day, 5 days per week and record the amount of time they spend practicing. The strategies are easy to do during regular play at home with your child. Each group session will be video recorded to study the researcher's ability to run the group.

Follow up: We are also interested in whether you can continue to use these skills after the group has ended. About one month after your 8-week group ends, participants will be asked to submit 1-2 follow-up videos.

The overall length of your participation in this study could range from 14-20 weeks, depending on when you begin.

RISKS, STRESS, OR DISCOMFORT

The possible risks include potential discomfort from being observed and/or videotaped. There is also risk of stress or discomfort from submitting videos on a regular basis. The researchers have done everything possible to minimize the potential risks. Parents will be asked to submit no more than two 10-minute videos per week. Parents involved in the study will be asked to practice these strategies 30 minutes per day, 5 days each week. Video recording can occur as part of the ongoing weekly practice sessions parents will have with their children.

There is a possibility that stress may result from parents waiting to begin intervention during baseline. Parents will continue to participate in all other birth to three services provided by Kindering Center without disruption. Parents may have to wait for services until their group begins. However, participation in this study may still provide parents and their young child with quicker access to autism-specific intervention than waiting for interventions unrelated to the study. There is also a possibility that adding a weekly group therapy appointment to a family

schedule may cause additional stress or discomfort. The intensity of this intervention is considered “low-demand” compared to many other autism-specific interventions, such as in-home ABA services.

There is a possible risk that children may be upset by an increase in demands during intervention. This can be common when intervention begins. Everything possible will be done to reduce this risk, including making intervention part of play and keeping demands low until the child seems to enjoy the activities.

There is a potential for breach of confidentiality because no system of protection is completely secure. However, all efforts to protect your confidentiality will be made (please read section on Confidentiality of Research Information).

ALTERNATIVES TO TAKING PART IN THIS STUDY

If you choose not to participate in this study, you and your child will continue to receive the same services from Kinderling Center as you have up until this point. Your decision not to participate will not change your services in any way.

BENEFITS OF THE STUDY

There may be no direct benefits to you or your child as a result of participation.

You may benefit from learning strategies that may help promote growth in your child’s development. Your child may benefit from these strategies in the areas of focusing on faces, requesting, imitation and turn-taking. As with many interventions, there are no guarantees that all participants will benefit.

You will also help us to understand if this is an effective and parent-friendly way to provide intervention services for very young children.

CONFIDENTIALITY OF RESEARCH INFORMATION

All data collected will be confidential. Since data will be collected using video, it is impossible to remove all identifying information. Video recordings will be used for data analysis and may be used for training purposes with your permission. If you do not provide permission in a separate media release form, the video recordings will be used only for the research purposes outlined here. We will not plan to get rid of the videos. All participants will be identified by a randomly assigned number. All data sheets will be identified by the same randomly assigned number. No names will be used. Code numbers and videos will be stored on a password-protected document, on a password-protected computer. No data sheets will contain your name or your child’s name. Write-ups about the study will not contain your name or your child’s name. The key for the code numbers will be stored separately from the data and will be destroyed after data collection is complete. The data will be kept for seven years by the lead researcher.

All of the information you provide will be confidential. However, if anyone involved in the study learns that you intend to harm yourself or others, we must report that to the authorities.

Government or university staff sometimes review studies like this one to make sure they are being done safely and legally. If a review of this study takes place, your records may be examined. The reviewers will protect your privacy. The study records will not be used to put you at legal risk of harm.

OTHER INFORMATION

Participation is voluntary. You may choose to not participate and you are free to quit this study at any time.

RESEARCH-RELATED INJURY

If you think you have a medical problem or illness related to this research, contact Ashley Penney at (206) 356-8475 right away. She will refer you for treatment.

Printed name of study staff obtaining consent	Signature	Date
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Subject's statement:

This study has been explained to me. I volunteer myself and my child to take part in this research. I have had a chance to ask questions. If I have questions later about the research, or if I have been harmed by joining in this study, I can contact the researcher listed on the first page of this consent form. If I have questions about my rights as a research subject, I can contact the Human Subjects Division at (206) 543-0098. I will receive a copy of this consent form.

Printed name of subject	Signature	Date
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Copies to: Researcher
 Subject

Appendix B: Data Collection Sheets

Code #:	1	2	3	4	5	6	7	8	9	10
Parent is on child's level, sitting face to face with the child within 3 feet	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-
Parent narrates or helps in play	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-
Parent takes a turn with the toy child is playing with	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-
Parent withholds item and models appropriate language for child	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-
Parent imitates child actions during play	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-
Parent models new action for child	+	+	+	+	+	+	+	+	+	+
	-	-	-	-	-	-	-	-	-	-

Date: _____

Phase: _____

Video #: _____

	1	2	3	4	5	6	7	8	9	10
--	---	---	---	---	---	---	---	---	---	----

Code #:										
Child looks at adult face during face to face play	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P
Child tolerates and appears to watch while parent takes a turn with his/her current toy	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P
Child makes an effort/approximation/word or other verbal request to parent	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -	E A W R -
Child spontaneously imitates parent action (with objects or gestures)	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P	+ - P

Date: _____
 Phase: _____
 Video #: _____

Key:
 E: Effort
 A: Approximation
 W: Word
 P: Phrase

Appendix C: Procedural Fidelity Form

Date: _____ Person filling out form: _____

Procedural Fidelity Form:

- | | |
|---|-----|
| 1. Were all parents and children greeted by name upon arrival? | Y N |
| 2. Were all parents and children asked to put on a nametag? | Y N |
| 3. Were toys set out in the middle of the entry meeting/circle space? | Y N |
| 4. Did circle/meeting start with the "hello" song? | Y N |
| 5. Was instructor sitting at circle as families arrived? | Y N |
| 6. Were instructional materials arranged and ready to use? | Y N |
| 7. Was the topic explained using words and visual/written steps? | Y N |
| 8. Was a video example of the strategy shown? | Y N |
| 9. Did the instructor describe materials in the room and how to use them to practice the strategy? | Y N |
| 10. Were parents dismissed from meeting and told what to do next (practice)? | Y N |
| 11. Did each dyad receive at least 10 minutes of observation and coaching by one instructor? | Y N |
| 12. Did instructor prompt dyads to move to a second set of toys/materials for practice at least 2 times? | Y N |
| 13. Did all families try out at least two sets of toys/materials? | Y N |
| 14. Was snack set up prior to the group session? | Y N |
| 15. Was a warning given 5 minutes before transition to snack? | Y N |
| 16. Was there an additional opportunity for families to ask for more support before transitioning to snack? | Y N |
| 17. Was a transitional warning given prior to returning to group meeting/circle? | Y N |
| 18. Were toys/materials present at circle/meeting space prior to the transition? | Y N |
| 19. Was the strategy reviewed with the support of a visual? | Y N |
| 20. Did each parent describe 1-2 routines or activities to try the strategy at home? | Y N |
| 21. Did instructor give feedback/support/answer questions as they arose? | Y N |
| 22. Were handouts provided to support parent homework/practice? | Y N |
| 23. Did the group end with singing the "goodbye" song? | Y N |

Appendix E: Social Validity Survey

Social Validity Questionnaire

1. I liked participating in the group parent coaching intervention with my child:

1	2	3	4
Strong Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

What did you like or dislike about the program?

2. I found this group parent coaching approach to be helpful in improving my ability to play and interact with my child:

1	2	3	4
Strong Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

What did you find to be the most helpful?

What would have improved this experience?

3. I feel as though this intervention has given me strategies to support my child's special needs:

1	2	3	4
Strong Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

In what way(s) did this approach prepare you to support your child's needs?

4. I feel that this group parent coaching approach helped my child improve in important developmental areas:

1	2	3	4
Strong Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

What changes did you notice in your child's behavior or developmental areas?

5. I would recommend this group approach to other parents of young children with autism or at-risk for autism:

1	2	3	4
Strong Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree

Comments (please use the back for any additional comments):

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