

EVALUATION OF AN OBSERVATION AND TRAINING SYSTEM TO INCREASE  
PLAY SKILLS IN YOUNG CHILDREN WITH AUTISM

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Play is considered to be important for the development of young children in that it provides a means to expand their interests, promote engagement and learning, and increase social interactions. Children with autism, however, display deficits in play skills, such as lack of pretend play and rigid or stereotyped manners of play. Research suggests supported play techniques, such as reciprocal imitation training, play expansions, and scaffolding increase play skills in children diagnosed with autism. The current study evaluated the effects of a training package to teach staff members supported play techniques to six young children diagnosed with autism. The study employed a concurrent multiple baseline design across two preschool classrooms. The results suggest that the training package successfully increased staff member use of the supported play techniques and child and staff engagement. The training, however, did not have consistent effects on child social engagement (proximity, attending, and initiating) or on the types of child play (simple manipulation, advanced manipulation, and pretend play). Staff member responses to the post-intervention satisfaction and feedback survey were positive and the results are discussed in the context of the observation procedures and directions for future studies.

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## INTRODUCTION

Play is considered to be important for the development of young children (Ginsburg, 2007). It can provide a means for children to expand their interests, promote engagement and learning, socially interact with peers and adults, and creatively utilize free time throughout the day (Morrison, Sainato, Benchaaban, & Endo, 2002). Through play, children may learn to interact with the world around them through contextually relevant experiences that allow for the acquisition, maintenance, and generalization of other skills (Barton & Worley, 2008). Children with autism, however, display deficits in play skills, such as lack of pretend play and rigid or stereotyped manners of play (American Psychiatric Association, 2013). These deficits can be seen early in the development of children with autism. Within the first year of development, compared to other children, children with autism are less likely to orient toward objects held by others and have little interest in interactive games, as children get older they may engage in some functional play and often no pretend play. They are also less likely to share an interest with others and are more likely to use objects in unusual and repetitive ways that are not observed in their typical peers (Ala'i-Rosales, Zeug, & Baynham, 2008). Due to these deficits, children with autism frequently need special interventions to increase their play skills (DiCarlo & Reid, 2004).

Several studies have investigated the effects of interventions to increase the play skills of children diagnosed with autism. Such interventions have included discrete trial training (Cameron, Shapiro, & Ainsleigh, 2005; Thomas & Smith, 2004), video modeling (Hine & Wolery, 2006; MacDonald, Sacramone,



Mansfield, Wiltz, & Ahearn, 2009; MacManus et. al., 2015), social stories (Barry & Burlew, 2004), play scripts (Goldstein & Cisar, 1992), and activity schedules (Morrison et al., 2002). Research has also been conducted on the use of naturalistic teaching procedures to increase play skills. Three studies in particular informed the development of this project (Frey & Kaiser, 2011; Ingersoll & Schreibman, 2006; Wolfberg & Schuler, 1993). These studies were chosen based on a naturalistic teaching approach that aligns with the mission of the organization where the current study took place. Each of the studies will be described and then summarized.

Ingersoll and Schreibman (2006) evaluated the use of reciprocal imitation training on object imitation and play skills in five young children with autism using a multiple baseline design across the children. Treatment consisted of 5 phases, modeled after the typical developmental play progression, that were designed to work on the developmental progression of imitation. The phases began with the teacher's contingent imitation of the child's behavior, followed by models of familiar actions with the same toy as the child, then familiar actions with the same toy and different toys as the child, and ending with models of familiar and novel actions with the same and different toys. Each phase lasted two weeks. All of the children increased their imitation skills with the skills generalizing to novel environments. The children also displayed increases in language, pretend-play, and joint attention.

Frey and Kaiser (2011) evaluated the use of contingent imitation, modeling play expansions, and describing play actions on increasing the variety

of object play in three young children with disabilities through a multiple-probe design. The intervention consisted of the researcher following the child's lead in play and then modeling a play expansion at the end of the child's action or sequence. The researcher provided verbal models while they performed the play expansions. All of the children increased their performance of different actions and the complexity of their play with toys. In addition, the children increased the number of words they spoke and the different types of words used as compared to baseline levels.

Wolfberg and Schuler (1993) evaluated the application of the Integrated Play Groups (IPG) model in a school setting and its impact on object manipulation and social interactions with three children with autism. IPG utilizes practices of guided participation that includes nurturing play initiations - recognizing, interpreting, and responding to the unique ways in which a child displays interest and initiations to play with peers, scaffolding play – systematically providing different amounts and levels of support (modeling, prompting, and providing suggestions using both gestures and visual supports) based on the level at which the child can play independently with peers, guiding social communication – supporting verbal and nonverbal social-communication cues to elicit attention and maintain play interactions, and guiding play in the Zone of Proximal Development – providing support for a child in a way that allows for the development of skills that increases independent play with peers that are slightly above their current skill level (Wolfberg, DeWitt, Young, & Nguyen, 2015). Wolfberg and Schuler used a multiple-probe design to measure

the rates of object manipulation and social interactions. The first intervention consisted of two weekly 30-min sessions over a 1-month period with the use of IPG strategies. The first probe was conducted after the completion of intervention one that consisted of removal of IPG strategies for a 2-week period. The second intervention was an extended intervention that again provided IPG strategies for a 2-month period. A second 2-week probe was conducted after the completion of intervention two. All of the children increased their functional object play and social interactions. The gains displayed in play behaviors by the children also generalized to other social contexts.

The use of reciprocal imitation training, play expansions, and scaffolding (combined prompting and stimulus/response shaping) on teaching play skills has shown to increase imitation, play complexity, joint attention, and language in children diagnosed with autism (Frey & Kaiser, 2011; Ingersoll & Schreibman, 2006; Wolfberg & Schuler, 1993). The use of the naturalistic teaching procedures evaluated in these three studies were conducted at an individual level. The current study sought to evaluate these procedures at a systems-wide level.

The quality of the play intervention that can be provided, however, will depend on the effectiveness of implementation by competent staff members applying the procedures (Demchek, 1987; Leaf et al., 2015). Many researchers have studied the use of training packages in relation to staff member implementation of a variety of skills important to the application of behavioral interventions (Koegel, Russo, & Rincover, 1977; Parsons, Rollyson, & Reid, 2012; Schepis, Reid, Ownbey, & Parsons, 2001; Weinkauff, Zeug, Anderson, &

Ala'i-Rosales, 2011). In order to implement quality interventions at a systems level staff members need to be provided with specific components of a training package.

Training staff members to implement procedures usually involves a package that encompasses a combination of instruction, models, practice, and feedback (Demchek, 1987; Parsons et al.). Instructions involve either presentations and/or written materials (Demchek, 1987). When delivering instructions, an example and description of the desired behaviors should be presented along with step-by-step instructions of how to perform the desired behaviors and various examples of those desired behaviors (Parsons et al., 2012). When modeling the desired behaviors for staff members, it should be demonstrated under conditions that are similar to the actual implementation of those behaviors (Demchek). Practice or role-plays are simulations that staff members perform in order to rehearse the desired behavior prior to actual implementation (Demchek; Parsons et al.). Feedback is provided to staff members as they are practicing the desired behaviors and during in-vivo implementation. Feedback should be individualized, supportive, and corrective in nature (Parsons & Reid, 1995; Parsons et al.). Supportive feedback consists of describing what the staff member did correctly and corrective feedback involves specifying what was not performed correctly by providing instruction for how to implement the desired behavior (Parsons et al.).

Research suggests that laboratory-based intervention can be successfully implemented by caregivers and teachers resulting in positive child outcomes

(e.g., Barton, 2015; MacManus, MacDonald, & Ahearn, 2015; Reagon & Higbee, 2009; Rocha, Schreibman, & Stahmer, 2007; Thomas & Smith, 2004; Wong, 2013). For example in the most recent investigation, Barton, Chen, Pribble, Pomes, and Kim (2013) examined the effects of training and coaching on preservice teachers' implementation of an intervention focused on teaching play skills to young children with disabilities using a multiple baseline design. The training package consisted of training teachers to implement a intervention package that consisted of contingent imitation of the child's behavior, implementing least to most prompts, and providing specific praise and an appropriate play response when the child engaged in a targeted play behaviors. The authors evaluated the relation between didactic training alone and didactic training plus coaching on teacher implementation. Barton and colleagues found that didactic training alone did not increase teacher behavior but didactic training plus coaching increased teacher use of the intervention. They also found that children's pretend play increased as a result of the high-fidelity use of the intervention in relation to the didactic training and coaching. The current study sought to extend this research by evaluating staff member training of the implementation of play skills at a systems-wide level.

The current study sought to develop an observation and training system for increasing play skills in young children diagnosed with autism. A Response to Intervention (RTI) systems framework was employed to organize the environment and to train staff members. RTI is a systemic decision-making process that is designed to allow for effective responses to a child's learning,

provide a child with a level of instructional intensity matched to their level of need, and provide a data-based method for evaluating the effectiveness of instructional approaches (Fox, Carta, Strain, Dunlap, & Hemmeter, 2010). RTI is a three-tiered intervention model that involves the following components: primary tier prevention, secondary tier prevention, and tertiary tier prevention (Fox et. al., 2010). The primary tier prevention exposes all children to the core curriculum as a first line of intervention (Fox et. al.). The secondary tier prevention provides additional instructional support beyond the core curriculum if the first is unsuccessful (Fox et. al.). The second tier is generally in small groups rather than large groups and instruction is more frequently than in the core curriculum. The tertiary tier prevention is individualized and more intensive than secondary tier prevention; its aim is to remediate academic performance and/or reduce complications or severity of problem behavior (Fox et. al.).

The majority of the literature on RTI has been in the area of academics (O'Connor, Harty, & Fulmer, 2005) and problem behavior (Safran & Oswald, 2003). Recently, however, literature has come out for the use of RTI in the area of instructional support for social behavior (Fairbanks, Sugai, Guardino, & Lathrop, 2007; Gresham, 2005). A tiered intervention model is ideal for implementing early intensive behavioral interventions in that it allows for the child to be taught within the natural environment and that intervention is designed to match the child's level of need (Fox et. al.).

The current study was designed to use a tiered model, similar to RTI, to address the development of play skills in children with autism. Each tier of the

intervention was intended to provide the child with the appropriate level of support for their existing and developing play skills. Tier 1 of the current study was to evaluate if a child's play skills would increase when provided with the criterion conditions of a free play period that would be akin to a typical preschool classroom. Tier 2 was designed to provide increased support for a child's play in a way that allows the child to increase their proficiency and ability of different components of play. A third tier, however, was not evaluated in this study.

As such, the purpose of the current study was to evaluate the effects of a tiered observation and training system with staff members who were tasked with teaching play skills to young children with autism. The skills measured and evaluated related to the implementation of behavioral techniques to support the play of children. In this case, the use of reciprocal imitation, play expansions, and scaffolding were selected and evaluated due to the demonstrated effects on increasing play skills in children with autism (Frey & Kaiser, 2011; Ingersoll & Schreibman, 2006; Wolfberg & Schuler, 1993). These techniques were chosen for their naturalistic teaching approach towards play and the increase in child play behaviors that have been demonstrated by each.

Specifically, the research questions were: 1) Was the training package successful in increasing staff member use of the supported play techniques? 2) Would child engagement (with others and toys) change as a result of the staff member use of the supported play techniques? 3) Would the types of child play (simple manipulation, advanced manipulation, and pretend play) change as a

result of the training? and 4) Do staff members describe satisfaction with the training and outcomes?



## METHODS

### Setting and Participants

This study was conducted at a non-profit organization with several locations within a large metropolitan area in the southwest region of the United States. The general mission of the organization was to provide comprehensive, evidence-based services that were culturally responsive within a collaborative environment to families of all income levels. Services were provided in a combination of naturalistic, activity based, and discrete trial teaching. The study was conducted at one of the organization's sites in two of the preschool classrooms.

All children and staff members within the organization participated in the intervention. After the intervention was completed, the experimenter asked children's parents and the staff members to provide informed consent for use of the data for educational purposes. The study was conducted as a portion of the agencies overall development program and not as a formal research project. The children were selected for direct observations in the classroom and were chosen to represent the diverse play skills of all enrolled children. The children were matched across the two preschool classrooms. Data were collected for six of the children and the staff members (N = 16) that worked with those children. The sixteen staff members were selected based on the children's staffing schedule.

The staff members that participated in the study were all female (N = 16). Staff members' ages ranged from 21 to 32-years-old. All staff members were employees of the organization for a period of as little as 6 weeks to as many as 3 years. Experience levels in providing applied behavior analytic services varied

among staff members ranging from 6 weeks to 12 years. For a complete description of staff members' characteristics see Table 1.

Child 1 was a 5-year-old female diagnosed with autism spectrum disorder; she had been receiving services at the organization for 7 months. Her play skills consisted of simple manipulations that included gathering different items to line up. She had deficits in social skills and displayed limited interest in peers and adults. Child 2 was a 2.5-year-old male diagnosed with autism spectrum disorder; he had been receiving services at the organization for 1 month. His play skills consisted of simple manipulations of cause and effect toys (e.g., bead runners, pop-up toys, and ball tunnels). He had deficits in social skills and displayed interest in his peers by orienting towards them but he would not initiate interactions. Child 3 was a 2.5-year-old male diagnosed with autism spectrum disorder; he had been receiving services at the organization for 2.5 months. His play skills consisted of a combination of advanced manipulations and limited pretend play with dinosaurs or sea creatures. Generally, he would manipulate the dinosaurs and/or sea creatures to attack each other or knock down structures. His social skills consisted of approaches and initiations toward both peers and adults. Child 4 was a 6-year-old female with autism spectrum disorder; she had been receiving services at the organization for 9 months. Her play skills consisted of a combination of advanced manipulations and pretend play with play-doh (e.g., forming the play-doh to make ice cream and then feeding it to a doll). She had deficits in social skills and displayed limited interest in her peers. Child 5 was a 5-year-old male with autism spectrum disorder and had been

receiving services at the organization for 7 months. His play skills consisted of simple manipulations of toy parts (e.g., spinning pretend food on the floor). He had deficits in social skills and displayed limited interest in his peers but he would approach adults. Child 6 was a 6-year-old male with autism spectrum disorder; he had been receiving services at the organization for 3 years. His play skills consisted of simple manipulations of gathering items that he tilted back and forth. He had deficits in social skills but would display interest in peers by orienting toward them and occasionally initiating interactions with them.

### Materials

Filming and intervention took place within the play area of the two preschool classrooms. The play area for both classrooms contained a table and chairs, a play kitchen, and shelves that held toys that would be in a typical preschool classroom (e.g., dolls, play-doh, daily living items, and a variety of play sets). The toys in each classroom were divided into fourteen constant toys, eight to ten child specific toys that were based on child interest, and two rotating sets of twenty-three items (see Table 2). The first set of rotating items was rotated after two-weeks and then the sets were rotated every three-weeks after the initial two-week rotation. Toys were chosen according to toy category (simple manipulation, advanced manipulation, and pretend play) to vary in relation to the children's interest as well as to provide exposure to a range of levels of complexity.

In addition to the toys in the classroom, the materials also included a hand-held video camera (Sony Bloggie Touch Camera), video datasheets (Appendix A), staff member datasheets (Appendix B), and pens. Sessions were videoed by the

experimenter, research assistant, or case manager. The experimenter uploaded the videos onto a password-protected computer (Apple iMac). Data coding and analysis occurred outside of the actual sessions.

### Measures and Data Collection

Data were collected on multiple behaviors for the children and one behavior for the staff members (Table 3). The majority of the dependent measures were scored using 5-s partial interval recording. Toy Use and Play Type per Toy were scored using 1-min partial interval recording. For the children, the experimenter collected data on the percent of intervals of “Engagement”, the percent of intervals of “Social Engagement”, the percent of intervals of “Play Type”, “Toy Use”, and “Play Type per Toy”. For the staff members, data were collected on the percent of intervals in which they used the “Supported Play Techniques”.

The experimenter, research assistant, or case manager took weekly video samples of child-staff member dyads over the course of the study. Video samples were obtained when the child was participating in a group Playtime that occurred in the classroom play area. Each video lasted 15-min in duration with a momentary time sampling of 1-min rotating samples for three children in each classroom. Filming occurred for Classroom 1 on Wednesday and for Classroom 2 on Thursday. Recording began at 12:45 pm with the predetermined sequence of recording for three children in each classroom. For Classroom 1 the recording sequence was Child 1, Child 2, and Child 3. For Classroom 2 the recording sequence was Child 4, Child 5, and Child 6. Recording began with the first child in the sequence, and after 1-min elapsed the video was shifted to the next child in the sequence. Recording

continued in this way until a total duration of 15-min had passed. While video recording, the recorder tried to get both the child and staff member in the frame as much as possible and tried to capture how the child and staff member were interacting with items within the play area to ensure that all measures could be scored. If the child left the play area at anytime or was absent on the day of filming, the recorder would continue filming for 1-min but have the camera point at the ground until the next minute started. All participating children and staff members assigned to them were filmed once a week for 11 consecutive weeks unless the child was absent on the day that filming occurred.

The primary dependent measure was the percent of intervals that a staff member utilized “Supported Play Techniques” during playtime. An instance of the use of a “Supported Play Techniques” was scored when the staff member utilized at least one of or a combination of the following techniques: *reciprocal imitation* – staff member imitates the child’s actions with toys, gestures, or vocalizations, *play expansions* – staff member imitates the child’s play action and then adds one or more play actions that are related to the child’s preceding action, and *scaffolding* – staff member facilitates (modeling, prompting, providing instruction, or reinforces) the child’s play activities by supporting the child to initiate or maintain play.

The secondary dependent measures were those that pertained to the child’s behaviors. Four levels of “Engagement” were scored within the interval using multiple measures that included when the child was engaged in an activity with a peer, with an adult, when alone, or when not engaged. *Engagement with a peer* was scored when the child engaged in the same activity in interdependent (included

handing materials to the peer, participating in the same activity or talking about the same topic) or shared play (Rossi, 2012). *Engagement with an adult* was scored when the child engaged in the same activity with the participation of an adult (Rossi). *Engagement when alone* was scored when the child independently played with materials with no social interaction between a peer or an adult (Harder, 2008). *Engagement when not engaged* was scored when the child did not physically manipulate or interact with items or left the play area.

Three levels of “Social Engagement” were scored within the interval using multiple measures that included when the child was in proximity, attending, or initiating towards a peer or an adult. *Social Engagement when in proximity* was scored when the child was within 2 ft. of a peer or an adult. *Social Engagement when attending* was scored when the child’s body was oriented and they were looking towards a peer or an adult. *Social Engagement when initiating* was scored when the child approached, gestured, or vocalized towards a peer or an adult to engage or attempt to engage in a play activity.

Three levels of “Play Type” were scored within the interval using multiple measures that included when the child engaged with an item or an activity in pretend play, with advanced manipulation, or with simple manipulation. *Play Type in pretend play* was scored when the child made at least a single-step action with an item or made an action without an item that appeared to imitate a real-life situation, manipulated items in their conventional function imitating real-life situations, or used one item to represent another item (DiCarlo & Reid, 2004; Harder, 2008). *Play Type with advanced manipulation* was scored when the child made physical contact with

play materials according to their intended use that required multiple and advanced sequences or combinations of actions, not including toys that had simple cause and effect manipulations as part of their conventional function (e.g., bead runners, pop-up toys, rattles). *Play Type with simple manipulation* was scored when the child physically manipulated play materials but did not make contact with them according to their conventional function (e.g., kicking a ball, putting parts on Mr. Potato Head, building with Legos) and not within the context of play or made a verbal statement attaching a pretend function to the play material (Gudmundsdottir, 2002).

Toy Interaction was scored when the child touched, manipulated, or interacted with a toy or engaged in an activity for two or more seconds (Zeug, 2008). Play Type per Toy was scored according to the play type (pretend play, advanced manipulation, simple manipulation) definitions described above.

#### Interobserver Agreement

The experimenter and two research assistants independently scored and calculated interobserver agreement (IOA). IOA data were collected for 33% of all Tier 1 sessions and 33% of Tier 2 sessions. IOA data were calculated for “Supported Play Techniques”, “Engagement”, “Social Engagement”, and “Play Type” by dividing the number of agreements per 5-s interval by the total number of agreements plus disagreements and multiplying by 100. The mean percentage of agreements for “Supported Play Techniques” was 96.8% (range, 78% to 100%) during Tier 1 and 94.3% (range, 85% to 100%) during Tier 2. The mean percentage of agreements for “Engagement” was 94.9% (range, 82% to 100%) during Tier 1 and 91.1% (range, 97% to 83%) during Tier 2. The mean percentage of

agreements for “Social Engagement” was 95.6% (range, 90% to 100%) during Tier 1 and 94.4% (range, 87% to 99%) during Tier 2. The mean percentage of agreements for “Play Type” was 89% (range, 74% to 100%) during Tier 1 and 89.9% (range, 80% to 100%) during Tier 2. IOA data were calculated for Toy Interactions and Play Type per Toy by dividing the number of agreements per 1-min interval by the total number of agreements plus disagreements and multiplying by 100. The mean percentage of agreements for Toy Interactions was 89.9% (range, 64% to 100%) during Tier 1 and 92.2% (range, 77% to 100%) during Tier 2. The mean percentage of agreements for Play Type per Toy was 84% (range, 56% to 100%) during Tier 1 and 87.5% (range, 75% to 100%) during Tier 2.

### Procedures

The current study consisted of two RTI play conditions, Tier 1 and Tier 2. Prior to the start of the study, the organization did not have a time in the daily schedule for play. What follows is a description of the playtime arrangement as well as the specific procedure for each Tier. All staff member training materials are included in Appendix C.

#### *Playtime*

Playtime occurred Monday through Thursday at 12:45 pm consisting of a 15-min free play period in the play area of both classrooms. Before the start of Playtime staff members arranged the play areas in a way that facilitated independent sampling and play. For example, all lids were removed from the boxes, all items were visible, and samples of contrasted sets (e.g., Legos built to form an angry bird, animals in the barn, trains out and on their tracks) were displayed.



During all conditions, staff members would signal the start of Playtime by providing a general cue for the child to start playing (e.g., “It’s Playtime! Let’s go find something fun to play with.”). During this time, the child had free access to items within the play area and was allowed to interact with those items in any way. For example, the child might have selected Mr. Potato Head to play with but only interacted with it by spinning the glasses in their hands or the child may have selected trains to drive around the track or may have selected play-doh to roll into ice cream. Staff members collected data (Appendix B) on the toys or activities the child interacted with, as well as, play type per toy, and engagement.

### *Tier 1*

Tier 1 was arranged to resemble a free play environment as closely as possible. Staff member’s received a handout summarizing the procedures (Appendix C). Staff members were instructed to sit close to the child but to not approach unless the child initiated. Staff members were all instructed to engage with toys on their own, while attending to all social initiations and requests for engagement from the child. An example of this was if the child handed the staff member a gear and then gestured for them to put the gear on the spinning board, the staff member would then respond to the child’s initiation and request. During this time, the staff member would make natural comments about the child’s play (e.g., the child is playing with blocks the staff member said, “Wow! Your tower is so tall!”). There were no programmed instructions or models, targeted imitations, reinforcement, or physical or verbal prompts provided to the child during Tier 1. If the child had a toy and left the play area at any time during Playtime, the staff

member would gently guide the child back and state “These toys stay in the play area.” Tier 1 began during the same week for both Classroom 1 and Classroom 2 and lasted for three consecutive weeks for Classroom 1 and for six consecutive weeks for Classroom 2.

### *Tier 2*

During Tier 2 supported teaching techniques were introduced. Again, staff members received a handout with an overview of the procedures (Appendix C). Staff members were instructed to use one or a combination of the following supported play techniques: reciprocal imitation, play expansions, and scaffolding. In reciprocal imitation, the staff member would imitate all of the child’s actions with toys, gestures, and vocalizations. For example, if the child were spinning a ball saying, “whee” the staff member would spin a ball and say, “whee.” Play expansions consisted of following the child’s lead in play by imitating the child’s play actions and then adding at least one or more actions that closely related to the child’s preceding action and/or adding an additional item to the play interaction. For example, if the child were using a spoon to stir in a bowl, the staff member would stir in a bowl and then use the spoon to feed a baby doll. Scaffolding was designed to facilitate the child’s play activities by prompting, modeling, or providing an instruction or reinforcement for the child to initiate, join, and maintain play and then to fade the support. For example, if the child was playing next to a peer but they were not interacting, the staff member would model walking a dinosaur over to the peer and initiate an interaction with the peer. Staff members were instructed to provide reinforcement for variations of actions and engagement with other toys and

peers. If the child had a toy and left the play area at any time during Playtime, the staff member would gently guide the child back and state, “These toys stay in the play area.”

After the initial two days of Tier 2, the staff members were provided with feedback and models with the child with whom they were working. All staff members were provided with feedback through the use of either direct observations or videos of themselves with the child. The feedback included what they did correctly in regards to the Tier 2 procedures and what they could do differently. For example, the experimenter reviewed a video sample with the staff member and pointed out her use of reciprocal imitation and play expansions with dinosaurs. Then, the experimenter pointed out that she could have used scaffolding to take the child’s play to next development level by providing assistance when a peer approached with cars and initiated a play interaction. The child who had been playing with dinosaurs looked to the peer and the staff member and back at the peer but did not join the play. The experimenter suggested that at this point, the staff member could have modeled having the dinosaurs drive the car or initiating a race to start with the dinosaurs being drivers. The experimenter used this example and explained to the staff member how this would combined both children’s interests and still push the target child’s play from play alone to play with a peer.

Staff members did not receive daily models but all staff members received models for the child with whom they worked during the course of the second condition. The models consisted of the experimenter demonstrating the supported play techniques and emphasizing those techniques that the staff members were not

implementing well. For example, if a staff member were able to use reciprocal imitation when a child's play consisted of lining cars up but had difficulty providing play expansions, the experimenter would model how to expand play of this topography. The experimenter first modeled imitating the child's play of lining cars up then showed the staff member how to immediately expand the play by driving a car down a ramp.

#### Social Validity

At the completion of intervention, all staff members at the organization were provided with a satisfaction/feedback survey (Appendix D). The survey included questions regarding whether or not the staff members were satisfied with Playtime being a part of the daily schedule at the organization and if they felt that Playtime had an effect on the child's social and play skills.

#### Experimental Design

The effects of an observation and training system were evaluated to increase play skills in young children with autism using a concurrent multiple baseline design across two classrooms comprised of six children and sixteen staff members.

## RESULTS

Figure 1 represents the percent of Supported Play Techniques that each staff member delivered for each child during a 5-minute sample. The top panel depicts the data for Classroom 1 and the bottom panel depicts the data for Classroom 2. The overall staff member averages for the delivery of Supported Play Techniques were lower during Tier 1 than during Tier 2.

### Classroom 1: Supported Play Techniques

The average percent that Staff Member 1 delivered Supported Play Techniques during Tier 1 was 2% (range, 0% to 5%). During Tier 2, the average percent of Supported Play Techniques used increased to 43% (range, 27% to 53%). For Staff Member 2, data were only collected during Tier 2; the average percent she delivered Supported Play Techniques was 49.7% (range, 40% to 67%). For Staff Member 3, the average percent that she delivered Supported Play Techniques during Tier 1 was 9% (range, 3% to 17%). This increased to 48% (range, 42% to 63%) during Tier 2. For Staff Member 4, data were only collected during Tier 2; the average percent that she delivered Supported Play Techniques was 38.5% (range, 30% to 47%). For Staff Member 5, data were only collected once during Tier 1; the percent that she delivered Supported Play Techniques was 5%. For Staff Member 6 data were only collected once during Tier 1; the percent that the staff member delivered Supported Play Techniques during Tier 1 was 28% and during Tier 2 the average percent of Supported Play Techniques delivered increased to 48% (range, 37% to 63%). For Staff Members 7 and 8, data were only

collected once during Tier 2; the percent that the staff members delivered Supported Play Techniques was 50%.

### Classroom 2: Supported Play Techniques

The average percent that Staff Member 1 delivered Supported Play Techniques during Tier 1 was 7.8% (range, 0% to 13%). During Tier 2, the average percent of Supported Play Techniques used increased to 20% (range, 5% to 30%). For Staff Member 2, the average percent that she delivered Supported Play Techniques during Tier 1 was 2% (range, 0% to 5%). This increased to 33.3% (range, 22% to 40%) during Tier 2. For Staff Member 3, data were only collected during Tier 1; the percent that she delivered Supported Play Techniques was 0%. For Staff Member 4, data were only collected once during Tier 1; the percent that she delivered Supported Play Techniques during Tier 1 was 3%. For Staff Member 5, data were only collected once during Tier 1; the percent that she delivered Supported Play Techniques was 67%. For Staff Member 6, data were only collected once during Tier 1; the percent that she delivered Supported Play Techniques was 13%. For Staff Member 7, the average percent that she delivered Supported Play Techniques during Tier 1 was 21% (range, 7% to 33%). This increased to 39.8% (range, 33% to 48%) during Tier 2. For Staff Member 8, data were only collected once during Tier 2; the percent that she delivered Supported Play Techniques during Tier 2 was 57%.

### Child Engagement

Figure 2 represents the percent of “Engagement” or when a child was engaged with a peer, with an adult, when alone, or when not engaged during a 5-

minute sample. Overall, the average percent of *Engagement with a peer* was low during Tier 1 and remained low during Tier 2. The average percent of *Engagement with an adult* for all children was moderate to low during Tier 1 but increased for all children during Tier 2. The average percent of *Engagement when alone* was moderate during Tier 1 and decreased during Tier 2. The average percent of *Engagement when not engaged* was moderate during Tier 1 and remained at similar levels during Tier 2.

*Child 1.* The average percent of *Engagement with a peer* in Tier 1 was 8.9% (range, 0% to 27%) and decreased to an average of 1.7% (range, 0% to 10%) during Tier 2. The average percent of *Engagement with an adult* was 1.1% (range, 0% to 3%) during Tier 1 and increased to an average of 40.2% (range, 23% to 58%) during Tier 2. The average percent of *Engagement when alone* was 70.6% (range, 32% to 93%) during Tier 1 and decreased to an average of 41.2% (range, 28% to 57%) during Tier 2. The average percent of *Engagement when not engaged* was 18.3% (range, 3% to 42%) during Tier 1 and maintained at an average of 17.5% (range, 2% to 43%) during Tier 2.

*Child 2.* The average percent of *Engagement with a peer* in Tier 1 was 12% (range, 0% to 23%) and decreased to an average of 8.1% (range, 0% to 52%) during Tier 2. The average percent of *Engagement with an adult* was 31% (range, 13% to 57%) during Tier 1 and increased to an average of 48.4% (range, 35% to 72%) during Tier 2. The average percent of *Engagement when alone* was 49.3% (range, 33% to 63%) during Tier 1 and decreased to an average of 39.9% (range, 18% to 55%) during Tier 2. The average percent of *Engagement when not engaged*

was 11.3% (range, 7% to 15%) during Tier 1 and a slight increase to an average of 14.8% (range, 5% to 37%) during Tier 2.

*Child 3.* The average percent of *Engagement with a peer* in Tier 1 was 11.5% (range, 0% to 23%) and decreased to an average of 8.1% (range, 0% to 30%) during Tier 2. The average percent of *Engagement with an adult* was 25% (range, 5% to 45%) during Tier 1 and increased to an average of 54.9% (range, 45% to 68%) during Tier 2. The average percent of *Engagement when alone* was 52.5% (range, 43% to 62%) during Tier 1 and decreased to an average of 37.3% (range, 25% to 52%) during Tier 2. The average percent of *Engagement when not engaged* was 19% (range, 3% to 35%) during Tier 1 and decreased to an average of 5.9% (range, 2% to 13%) during Tier 2.

*Child 4.* The average percent of *Engagement with a peer* in Tier 1 was 3.3% (range, 0% to 18%) and slight increase to an average of 6.6% (range, 0% to 33%) during Tier 2. The average percent of *Engagement with an adult* was 16.5% (range, 0% to 40%) during Tier 1 and increased to an average of 30.2% (range, 5% to 63%) during Tier 2. The average percent of *Engagement when alone* was 76.5% (range, 58% to 92%) during Tier 1 and decreased to an average of 55.6% (range, 37% to 77%) during Tier 2. The average percent of *Engagement when not engaged* was 10% (range, 0% to 43%) during Tier 1 and increased to an average of 15.8% (range, 2% to 37%) during Tier 2.

*Child 5.* The percent of *Engagement with a peer* in Tier 1 and 2 was 0%. The average percent of *Engagement with an adult* was 0.3% (range, 0% to 2%) during Tier 1 and increased to an average of 37% (range, 22% to 48%) during Tier 2. The



average percent of *Engagement when alone* was 47% (range, 40% to 62%) during Tier 1 and decreased to an average of 19% (range, 8% to 33%) during Tier 2. The average percent of *Engagement when not engaged* was 54.8% (range, 43% to 63%) during Tier 1 and decreased to an average of 48% (range, 22% to 72%) during Tier 2.

*Child 6.* The average percent of *Engagement with a peer* in Tier 1 was 1.7% (range, 0% to 10%) and during Tier 2 increased to an average of 9.6% (range, 0% to 48%). The average percent of *Engagement with an adult* was 27.7% (range, 0% to 82%) during Tier 1 and increased to an average of 51.8% (range, 33% to 68%) during Tier 2. The average percent of *Engagement when alone* was 52.2% (range, 8% to 95%) during Tier 1 and decreased to an average of 30.8% (range, 0% to 57%) during Tier 2. The average percent of *Engagement when not engaged* was 22% (range, 0% to 60%) during Tier 1 and slightly decreased to an average of 18.4% (range, 2% to 65%) during Tier 2.

### Social Engagement

Figure 3 shows the percent of “Social Engagement” or when a child was in proximity, attending, and initiating towards a peer or an adult during a 5-minute sample. The average percent of *Social Engagement when in proximity* was high for all children during Tier 1 and 2. The average percent of *Social Engagement when attending* during Tier 1 was moderate to low and maintained for majority of children during Tier 2 with increases for Child 1 and Child 5. The average percent of *Social Engagement when initiating* was lower during Tier 1 and remained the same during Tier 2.

*Child 1. Social Engagement when in proximity* averaged 78.3% (range, 60% to 90%) during Tier 1 and slightly increased to an average of 89.5% (range, 80% to 97%) during Tier 2. The average percent of *Social Engagement when attending* was 7% (range, 3% to 13%) during Tier 1 and increased to an average of 32.7% (range, 30% to 37%) during Tier 2. The average percent of *Social Engagement when initiating* was 1.7% (range, 0% to 5%) during Tier 1 and increased to an average of 10% (range, 7% to 13%) during Tier 2.

*Child 2. Social Engagement when in proximity* averaged 96.7% (range, 95% to 98%) during Tier 1 and maintained at an average of 97.1% (range, 90% to 100%) during Tier 2. The average percent of *Social Engagement when attending* was 36.7% (range, 33% to 42%) during Tier 1 and slightly increased to an average of 47% (range, 38% to 53%) during Tier 2. The average percent of *Social Engagement when initiating* was 9% (range, 2% to 20%) during Tier 1 and increased to an average of 11.1% (range, 2% to 18%) during Tier 2.

*Child 3. Social Engagement when in proximity* averaged 91.5% (range, 83% to 100%) during Tier 1 and slightly increased to an average of 94.7% (range, 88% to 100%) during Tier 2. The average percent of *Social Engagement when attending* was 47.5% (range, 40% to 55%) during Tier 1 and increased to an average of 58.7% (range, 43% to 72%) during Tier 2. The average percent of *Social Engagement when initiating* was 23.5% (range, 22% to 25%) during Tier 1 and slightly increased to an average of 25.1% (range, 17% to 30%) during Tier 2.

*Child 4. Social Engagement when in proximity* averaged 86.3% (range, 52% to 100%) during Tier 1 and maintained at an average of 85.6% (range, 68% to

100%) during Tier 2. The average percent of *Social Engagement when attending* was 22% (range, 5% to 45%) during Tier 1 and slightly increased to an average of 26.6% (range, 10% to 50%) during Tier 2. The average percent of *Social Engagement when initiating* was 8.7% (range, 2% to 22%) during Tier 1 and increased to an average of 16.2% (range, 5% to 28%) during Tier 2.

*Child 5. Social Engagement when in proximity* averaged 51.7% (range, 27% to 75%) during Tier 1 and slightly increased to an average of 68% (range, 42% to 92%) during Tier 2. The average percent of *Social Engagement when attending* was 6.3% (range, 0% to 18%) during Tier 1 and increased to an average of 22.8% (range, 18% to 30%) during Tier 2. The average percent of *Social Engagement when initiating* was 3.3% (range, 0% to 12%) during Tier 1 and increased to an average of 11% (range, 7% to 22%) during Tier 2.

*Child 6. Social Engagement when in proximity* averaged 85.2% (range, 40% to 100%) during Tier 1 and increased to an average of 95.4% (range, 90% to 98%) during Tier 2. The average percent of *Social Engagement when attending* was 38.7% (range, 12% to 97%) during Tier 1 and increased to an average of 49.8% (range, 27% to 65%) during Tier 2. The average percent of *Social Engagement when initiating* was 25.8% (range, 0% to 68%) during Tier 1 and maintained at an average of 26.2% (range, 13% to 38%) during Tier 2.

### Play Types

Figure 4 depicts the percent of “Play Types” or when the child engaged with an item or an activity in pretend play, with advanced manipulation, or with simple manipulation during a 5-minute sample. The average *Play Type in pretend play* was

low during Tier 1 and slightly increased during Tier 2 for three of the six children. The average of *Play Type with advanced manipulation* was low during Tier 1 and increased for three of the six children during Tier 2. The average of *Play Type with simple manipulation* was moderate during Tier 1 and maintained during Tier 2.

*Child 1. Play Type in pretend play* averaged 3% (range, 0% to 7%) during Tier 1 and maintained at an average of 5.2% (range, 0% to 23%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 6.7% (range, 2% to 15%) during Tier 1 and increased to an average of 13.7% (range, 2% to 28%) during Tier 2. The average percent of *Play Type with simple manipulation* was 67.7% (range, 50% to 78%) during Tier 1 and decreased to an average of 57.2% (range, 27% to 78%) during Tier 2.

*Child 2. Play Type in pretend play* averaged 0.7% (range, 0% to 2%) during Tier 1 and increased to an average of 2.4% (range, 0% to 10%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 3.3% (range, 0% to 7%) during Tier 1 and increased to an average of 8.6% (range, 0% to 22%) during Tier 2. The average percent of *Play Type with simple manipulation* was 86.7% (range, 72% to 95%) during Tier 1 and decreased to an average of 72.5% (range, 45% to 95%) during Tier 2.

*Child 3. Play Type in pretend play* averaged 4% (range, 0% to 8%) during Tier 1 and increased at an average of 23% (range, 7% to 43%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 5% (range, 2% to 8%) during Tier 1 and increased to an average of 11.9% (range, 2% to 25%) during Tier 2. The average percent of *Play Type with simple manipulation* was 61.5%

(range, 38% to 85%) during Tier 1 and decreased to an average of 57.7% (range, 40% to 70%) during Tier 2.

*Child 4. Play Type in pretend play* averaged 15% (range, 0% to 28%) during Tier 1 and maintained at an average of 19.2% (range, 0% to 47%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 30.2% (range, 10% to 65%) during Tier 1 and decreased to an average of 6.8% (range, 0% to 18%) during Tier 2. The average percent of *Play Type with simple manipulation* was 39.7% (range, 12% to 67%) during Tier 1 and increased to an average of 49.6% (range, 18% to 78%) during Tier 2.

*Child 5. Play Type in pretend play* averaged 5% (range, 0% to 22%) during Tier 1 and decreased to an average of 0.5% (range, 0% to 2%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 6.2% (range, 0% to 15%) during Tier 1 and decreased to an average of 0.5% (range, 0% to 2%) during Tier 2. The average percent of *Play Type with simple manipulation* was 35.5% (range, 20% to 52%) during Tier 1 and increased to an average of 50.3% (range, 32% to 78%) during Tier 2.

*Child 6. Play Type in pretend play* averaged 21.5% (range, 0% to 77%) during Tier 1 and decreased to an average of 3% (range, 0% to 15%) during Tier 2. The average percent of *Play Type with advanced manipulation* was 6.2% (range, 0% to 25%) during Tier 1 and slightly decreased to an average of 3.8% (range, 0% to 17%) during Tier 2. The average percent of *Play Type with simple manipulation* was 50% (range, 10% to 85%) during Tier 1 and increased to an average of 71.4% (range, 20% to 98%) during Tier 2.

### Toy Interactions and Play Type per Toy

Figure 5 depicts the different Toy Interactions and Play Type per Toy for each child during a 5-minute sample. Overall, the children displayed a variety of Toy Interactions in both tiers. The overall Play Type per Toy during Tier 1 was *Play Type with simple manipulation*, which maintained during Tier 2 with increase in *Play Type in pretend play* for Child 3 and 4. Child 1 engaged, cumulatively, in 38 different interactions with toys across the two tiers. For Child 1, Play Type per Toy consisted of *Play Type with simple manipulations* during Tier 1 and maintained during Tier 2 with a slight increase of *Play Type in pretend play*. Child 2 engaged, cumulatively, in 37 different interactions with toys across the two tiers. For Child 2, Play Type per Toy consisted of *Play Type with simple manipulations* during Tier 1 and maintained during Tier 2. Child 3 engaged, cumulatively, in 35 different interactions with toys across the two tiers. For Child 3, Play Type per Toy consisted mainly of *Play Type with advanced manipulations* during Tier 1 and with an increase of *Play Type in pretend play* during Tier 2. Child 4 engaged, cumulatively, in 35 different interactions with toys across the two tiers. For Child 4, Play Type per Toy consisted of *Play Type in pretend play* during Tier 1 and maintained during Tier 2. Child 5 engaged, cumulatively, in 28 different interactions with toys across the two tiers. For Child 5, Play Type per Toy consisted of *Play Type with simple manipulations* during Tier 1 and maintained during Tier 2. Child 6 engaged, cumulatively, in 29 different interactions with toys across the two tiers. For Child 6,

Play Type per Toy consisted of *Play Type with simple manipulations* during Tier 1 and maintained during Tier 2.

### Social Validity

Table 4 represents the results from the post-intervention satisfaction and feedback survey that all staff members (N=15) at the organization completed. The questions prompted responses according to a 5-point likert scale with additional space for comments. In general, staff member's responses to the intervention were positive and their comments could generally be grouped into three themes: data collection, implementation, and child progress. For example, one person said, "It was a little difficult because of the datasheet not being in alphabetical order." (see Appendix B for the data sheet the staff members used to collect data in each classroom). Another person commented on the implementation of procedures stating, "Once I got the hang of it I was very comfortable but starting out I was somewhat uncomfortable." A comment that another person made in regards to child progress was, "My client was sampling more toys."

## DISCUSSION

The current study was designed to evaluate the effects of a tiered observation and training system on staff member implementation of reciprocal imitation, play expansions, and scaffolding when teaching play skills to young children with autism. The results suggested that staff members were successful at increasing their use of the supported play techniques, which had an effect on child and staff engagement. The training, however, did not have consistent effects on child social engagement (proximity, attending, and initiating) or on the types of child play (simple manipulation, advanced manipulation, and pretend play). The staff member responses to the post-intervention satisfaction and feedback survey were favorable and indicated that adding Playtime to the daily was important to the development of the children's social and play skills.

On average, staff members increased their implementation of supported play techniques from Tier 1 (average range, 0% to 67%) to Tier 2 (average range, 20% to 54.5%). This supports the findings of previous literature that demonstrated that caregivers and staff members could implement quality behavioral interventions resulting in positive child outcomes through the use of training packages (Barton, 2015; Reagon & Higbee, 2009; Rocha et. al., 2007; Wong, 2013). Comparable to other staff training studies, the present research included instructions, rationales, feedback, and models, which led to an increase in the desired staff performance (Parsons et al., 2012).

Child engagement with staff members during Tier 2 increased as a result of the training package. The children, however, did not display increases in



engagement with their peers. The lack of engagement with peers is different than previous play interventions that have shown an increase in social bids to peers (Wolfberg, DeWitt, Young, & Nguyen, 2015). The current study showed a slight increase in initiations toward others but these initiations were not separated to distinguish between initiations with staff members or with the child's peers. Furthermore, social bids and peer interactions were not part of this staff training package.

Even though staff members increased their use of supported play techniques with their child, there were no measurable consistent increases in the child's play types as a result of the training. For four of the six children, their play type, simple manipulations, maintained across Tier 1 and 2. There are two important points regarding this outcome. The first is that the three broad categories of play identified may not have been sensitive enough to capture changes in the children's play. Second, the training itself may not have assisted staff members to increase the complexity of play across sessions (i.e., from simple manipulations to advanced manipulations, or from advanced manipulations to pretend play). In essence, the training for how to use scaffolding needs to be improved. For example, by learning how to identify reinforcing play activities during simple manipulations staff members could have used those events to set the occasion for pretend play. To illustrate, if the child likes pouring things, then that could have been incorporated into play that involved "washing a baby." The training package also did not provide staff members with the ultimate goal of Playtime, which was for the children to engage in play that is similar to their typical peers. Without this knowledge the staff members

are selecting and shaping towards goals that are not in-line with the finale goal of having the child play like their typical peers. The staff members need to be provided with the final goal so that they are able to select and shape social and play behaviors along the response band of playing similar to their typical peers.

Overall, staff members responded to the intervention positively with their comments mostly grouped into three themes: data collection, implementation, and child progress. In regards to data collection, the majority of staff members reported that it was difficult to collect data while implementing supported play techniques. One person stated, "Data sheet [is] sometimes difficult or time consuming to use while trying to keep the child engaged." Future research should examine different ways to take data without impeding the natural flow of play. Having weekly probe samples conducted by lead implementers could be one way to collect data without impeding the natural flow. Staff members reported being comfortable with the implementation of supported play techniques. This is important because it is unlikely that the results of the intervention would sustain overtime if staff members were not comfortable with implementing the procedures. Child progress was separated between play and social skills. Majority of the staff members reported positive outcomes in the children's play skills stating, "A client of mine was only interested in playing with play-doh in a very specific [way] at the onset of playtime. Overtime, the client expanded their play to other toy sets and they engaged in novel pretend-play actions." Staff members reported that playtime did not have an effect on the children's social skills. Another person commented, "This child has not interacted with peers during playtime, other then in an inappropriate manner." The

staff member reports of the child's social skills matches' the low levels of peer engagement data that was taken during the study.

This study was the initial phase of developing an organization-wide system for increasing play skills in young children with autism. Two findings merit further discussion. First, the measurement system that was designed was not sensitive enough to capture the desired changes in child behaviors. The staff members reported that they saw increases in child play type. One person reported, "I observed a client that I typically work with begin to engage in play (e.g., making animals & food items with play-doh) that they had observed myself and peers engage in during playtime, outside of playtime (e.g., during our sessions throughout the day)." Another person stated, "When [the] child played with particular items outside of playtime, [they were] able to generalize play skills practiced in playtime." Staff members also reported changes in peer interactions. Another person stated, "We had several clients that at the beginning of playtime were only engaging in simple manipulations but are now engaging in advanced and pretend play with peers!"

These responses suggest that the measurement system used was not sensitive enough to evaluate the effects of this training package on social and play skills. This was a difficult task because the behaviors measured are diverse in topography and duration. The Play Types may have been too broad to reflect the variations in play accurately because the play often involved several different actions that could have been identified as multiple play types. A need for more finely broken down categories of different Play Types may be required to show

progress in the desired changes in the child's play skills. The units may have been too large.

The study used a momentary time sampling of 1-min rotating samples for total sample duration of 5-min for each child. The duration of free play was 15-min, so the sample may not have been sufficient to capture the desired child behaviors. For example, the child may have been manipulating pretend food by looking through a box (simple manipulation) at the end of their 1-min interval but then may have started to put food on the plates with a peer at the kitchen (pretend play) in the next minute but they would have been off-screen. To better capture the desired behaviors it may be best to use a continuous measurement system.

Second, given that this was the initial phase of the research, future research should address the next steps in the development of the play system. For example, identifying the components of the supported play techniques that had a greater effect on the child's social and play skills would allow for the implementation of quality services. In addition to measuring the staff member implementation of specific techniques, future research should look at how the child is responding to staff member use of the techniques. For example, the staff member may be implementing play expansions for the child's play with a car. For this example it would be beneficial to track whether the child is imitating the play expansions that the staff member was providing. Such research would offer insights into tracking more of the child's behavior that attributes to their increase in play skill. Further development of the training package may be needed to increase the quality of staff member implementation of the specific procedures, as well as, increases in the

children's social and play skills. The training package should include specific descriptions of the desired social and play skills, descriptions of the criterion conditions under which the ideal social and play skills would occur, clear examples and non-examples of the implemented techniques and children behaviors, and clear goals for staff members and children.

Finally, if the measurement system is fine tuned and the Tier 2 procedures are deemed sufficient, the next phase of future research should include development of the procedures and training package for Tier 3 of the RTI system for observing and teaching play skills.

Table 1  
*Staff Members' Characteristics*

Staff Member	Age	Gender	Degree	Applied Behavior Analytic Experience	Employment with Organization
1	22	Female	Speech-Language Pathology	1 year	1 year
2	28	Female	Behavior Analysis	1 year & 3 months	1 year & 3 months
3	22	Female	Behavior Analysis	2 years	9 months
4	27	Female	Behavior Analysis	4 years	2 months
5	27	Female	Behavior Analysis	4 years	2.5 years
6	25	Female	Social Work	1 year & 8 months	8 months
7	32	Female	Special Education with emphasis in Autism Intervention	12 years	4 months
8	32	Female	Psychology and Sociology	3 years	1 month
9	31	Female	Criminal Justice with emphasis in Behavior Analysis	1 year	1 year
10	21	Female	Speech-Language Pathology/Audiology	1 year	10 months
11	32	Female	Special Education with emphasis in Applied Behavior Analysis	2 years	1 year
12	22	Female	Development and Family Studies	7 months	5 months
13	24	Female	Communication Science and Disorders	3 years	1 year
14	28	Female	Behavior Analysis	4 years	3 years

*(table continues)*

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Staff Member	Age	Gender	Degree	Applied Behavior Analytic Experience	Employment with Organization
15	21	Female	Child Development	6 weeks	6 weeks
16	21	Female	Applied Behavior Analysis	1 year & 1 month	1 year & 1 month

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Table 2  
Toys

Constant	Child Specific	Rotating 1	Rotating 2
Balls	Dinosaurs	Fisher Price	Kinetic Sand
Bubbles	Shark	Gears	Bean Bags
Play-doh	Fish	Activity Sphere	Activity Cube
Bead Runner	Crocodile	Shape Sorter	Animal Pop-up
Wooden Blocks	Seal	Letter Apple	Foam Shape
Dinosaur Tunnel	Counting-Dinosaurs	Color Worm	Green See-n-say
Vehicles	Water Wow	Disney Pop-up	Jungle Gears
Fridge (Kitchen)	Turtle	Flip See-n-say	Small Legos
Stove	Backyardigans	Stackadoos	Waffle Blocks
Pretend Food	Trains	Large Legos	Bubble Blocks
Costumes	Whale	Fire Trucks	Batman Cave
Barbie's	Dino Puppet	Castle	Superman Base
Mr. Potato Head	Sloth	Little People-	Little People- Barn
Kitchen	Bowling Pins	Robin Hood	Work Bench
Accessories		Little People-	Tools
		Carnival	Angry Birds
		Vanity	Figurine- Batman
		Hair Style Kit	Figurine- Robin
		Transformers	Figurine-
		Spiderman	Superman
		Figurine- Robin	Farm Animals
		Hood	Cash Register
		Figurine- Fireman	Wallet
		Figurine- Carnival	Money
		Shopping Cart	



Table 3  
*Measurement Definitions*

Measures	Definitions
Supported Play Technique	<p>Staff member utilizes one or a combination of the following techniques:</p> <p><i>Reciprocal imitation</i> – staff imitates child’s actions with toys, gestures, or vocalizations</p> <p><i>Play expansions</i> – staff imitates child’s play action then adds one or more actions to the child’s preceding action</p> <p><i>Scaffolding</i> – staff facilitates (modeling, prompting, providing instruction, or reinforcement) the child’s play activities by supporting the child to initiate, or maintain play</p>
Engagement	<p><i>Peer</i> – child is engaged in the same activity in interdependent (handing materials, participating in the same activity, or talking about the same topic) or shared play</p> <p><i>Adult</i> – child is engaged in the same activity with the participation of an adult</p> <p><i>Alone</i> – child independently plays with materials with no social interaction between peers or adult</p> <p><i>Not Engaged</i> – child does not make physical manipulate or interact with items in the play area or leaves the play area</p>
Social Engagement	<p><i>Proximity</i> – child is within two feet of a peer or adult</p> <p><i>Attending</i> – child’s body is oriented and making eye contact with a peer or adult</p> <p><i>Initiating</i> – child gestured, vocalized, or made physical contact with a peer or adult</p>

(table continues)

Measures	Definitions
Play Type	<p><i>Pretend play</i> – child makes at least a single-step action with or without an item that appeared to imitate real-life situation, manipulated items in their conventional function imitating real-life situations, or used one item to represent another item</p> <p><i>Advanced manipulation</i> – child makes physical contact with play materials according to their intended use that requires multiple and advanced sequences or combinations of actions, not including toys that have simple cause and effect manipulations as part of their conventional function</p> <p><i>Simple manipulation</i> – child physically manipulates play materials but does not make contact to them according to their conventional function and not within the context of play or making a verbal statement attaching a pretend function to the play material</p>

Table 4  
*Results of Satisfaction and Feedback Survey*

Question	Scale	Results	Comments
1. Do you or the staff members feel Playtime at the organization is important?	Not Important	0	"I feel playtime is important"
	Somewhat Important	0	"Unstructured playtime with peers is really important"
	Unsure	0	
	Important	7	"I feel that play time is extremely important because it allows for the kids to have higher opportunities for peer play and models without it feeling like it's a demand to them."
	Extremely Important	8	
2. How effective has Playtime been for increasing the play skills of the child you or the staff work with?	Not Effective	0	"The child I work with during playtime has greatly increased her variety and number of toy interactions since the program began."
	Somewhat Effective	0	
	Unsure	2	
	Effective	9	"Although my client isn't really interested in play time I think his duration and engagement has slightly improved since the beginning."
	Very Effective	4	"Some of my clients have progressed a ton & some not so much."  "Could not see the increase of play from others."
3. How effective has Playtime been for increasing the social skills of the child you or the staff work with?	Not Effective	0	"A little more tolerant to peers toughing their items"
	Somewhat Effective	3	
	Unsure	4	"I never really thought about it."
	Effective	7	"This child has not interacted with peers during playtime, other than in an inappropriate manner."
	Very Effective	1	
4. How would you or the staff rate the importance and advantages of Playtime?	Not Important	0	
	Somewhat Important	0	"It is something that happens in the schools/environments we hope for the client to move into."
	Unsure	0	
	Important	6	
	Very Important	9	

*(table continues)*

Question	Scale	Results	Comments
5. How comfortable were you or the staff with implementing the Playtime procedures (e.g., reciprocal imitation, expansions, and scaffolding)?	Not Comfortable	0	“Once I got the hang of it I was very comfortable but starting out I was somewhat uncomfortable.”
	Somewhat Comfortable	1	
	Unsure	1	“Had some difficulty when the child began resisting expansions”
	Comfortable	8	
	Very Comfortable	5	
6. How often were you or the staff able to take data while running Playtime?	Not Often	3	“This was the most difficult part of playtime.”
	Somewhat Often	2	“It is really hard to keep track and imitate the child in play.”
	Unsure	0	“It is difficult to keep up with your child and take data at the same time”
	Often	6	
	Very Often	4	
			“It was a little difficult because of the datasheet not being in alphabetical order.”
			“Data sheet sometimes difficult or time consuming to use while trying to keep the child engaged.”
7. Overall, how do you or the staff feel about Playtime being a part of the daily schedule?	Very Dissatisfied	0	“I think it is great & provides a nice transition from lunch.”
	Dissatisfied	0	
	Unsure	0	
	Satisfied	7	
	Very Satisfied	8	
8. If you observed changes as a result of Playtime, please describe one specific instance:	N/A	N/A	“My child was sampling more toys.”
			“My client is a little more compliant to sitting and playing near peers.”
			“Increase in variety and number of toy interactions”

(table continues)

Question	Scale	Results	Comments
8. If you observed changes as a result of Playtime, please describe one specific instance:	N/A	N/A	<p>“A client of mine was only interested in playing with play-doh in a very specific [way] at the onset of playtime. Overtime, the client expanded their play to other toy sets and they engaged in novel pretend-play, actions.”</p> <p>“I have seen one of my clients engaging with more items and playing more appropriately with those toys. He was also able to engage for longer durations.”</p> <p>“I observed a client that I typically work with begin to engage in play (e.g., making animals &amp; food items with play-doh) that they had observed myself and peers engage in during playtime, outside of playtime (e.g., during our sessions throughout the day.”</p> <p>“[Child’s initials] expanding play activities and toy sampling beyond dumping. Increased amount of time spent in the play area for all kids.”</p> <p>N/A</p> <p>“When child played with particular items outside of playtime, able to generalize play skills practiced in playtime.”</p> <p>“Increases in the number of toys a child interacted with.”</p> <p>“We had several clients that at the beginning of playtime were only engaging in simple manipulations but are now engaging in advanced &amp; pretend play with peers!☺”</p> <p>“For most of the time, [Client’s Initials] did not join playtime &amp; if he did it was to sit in a cabinet. Towards the end he was joining playtime.”</p>

*(table continues)*

Question	Scale	Results	Comments
9. What improvements would you or the staff suggest for Playtime?	N/A	N/A	<p>“Daily schedule is more crunched for time (especially after) so we have trouble continuing to run certain activities (game time).”</p> <p>“Moving play time to after art or directly after lunch.”</p> <p>“Doing it in a separate room where the kids are not typically running programs in. Might be associating the area w[ith] demands as they typically receive a lot of them in the play area.”</p> <p>“It would benefit us to have a larger play area; however, I see that it may be difficult to change the size due to room constrains.”</p> <p>“More space area, it could get crammed in the play area.”</p> <p>“I would have loved to have seen the graphs (excel graphs) in real time however, the overall progress of play made by my clients by observation. Also, maybe switching out toys sets more frequently.”</p> <p>“Better explanations &amp; practicing what to do.”</p> <p>“Increased training”</p> <p>“Increased training pre-implementation.”</p> <p>“More training on procedures (scaffolding, expansion, response imitation).”</p> <p>“The organization of the data sheet? Maybe put the objects in alphabetical order. Making the area a little bigger?”</p>

*(table continues)*

Question	Scale	Results	Comments
9. What improvements would you or the staff suggest for Playtime?	N/A	N/A	<p>“More user-friendly data sheet, bigger play area.”</p> <p>“Alphabetize the data sheet.”</p>
Additional Comments:	N/A	N/A	<p>“I love seeing the kid’s play expand. They are all doing GREAT!”</p> <p>“I really enjoy playtime&amp; it was a great time for me to get engaged with my client.”</p> <p>“Playtime was awesome!”</p> <p>“Thank you for introducing PT [Playtime] into our schedule, it was surly needed!”</p> <p>“Overall, great effort and implementation.”</p>

## Supported Play Techniques

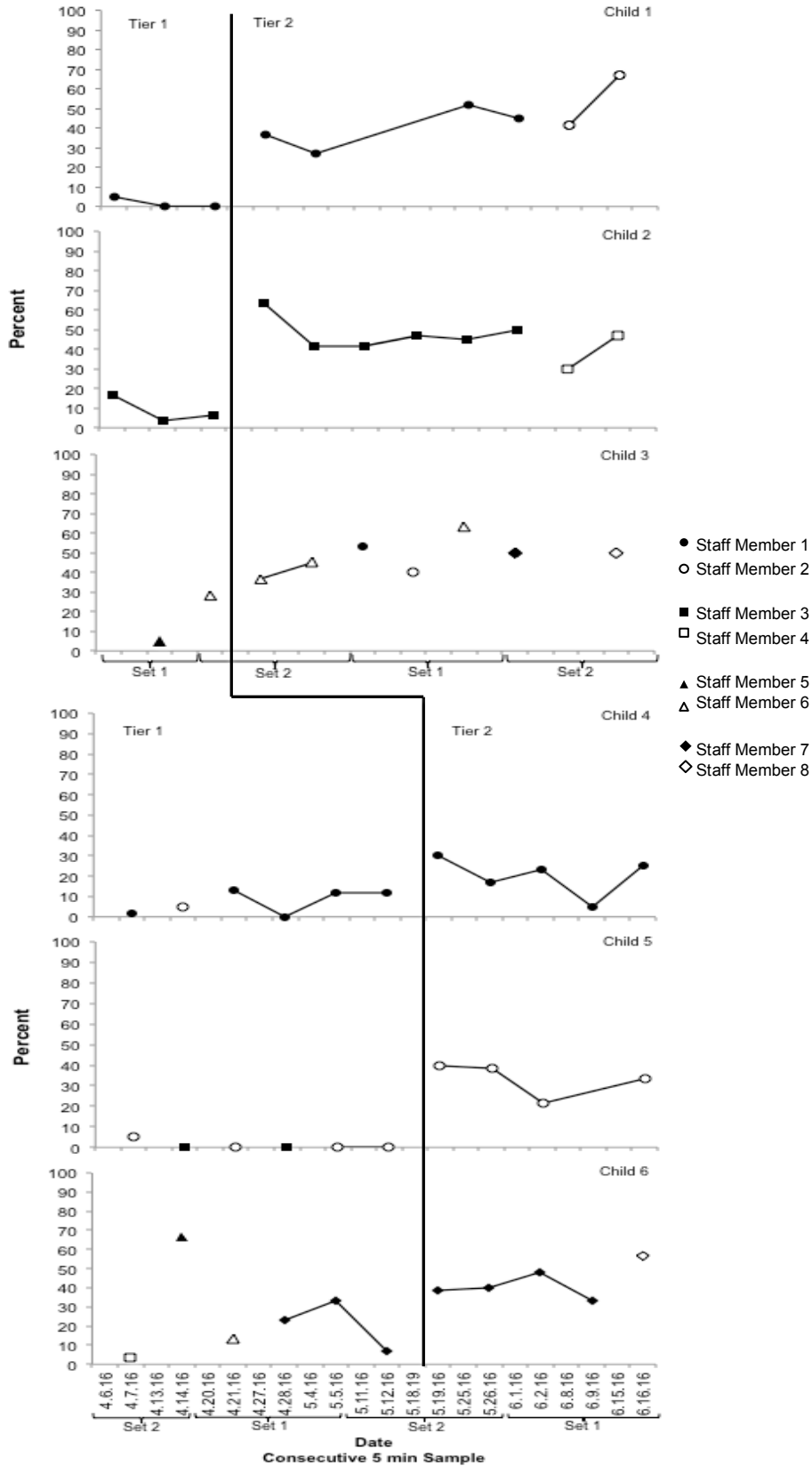


Figure 1. Percent of supported play techniques that each staff member delivered for each child during a 5-minute sample. Top panel depicts data for Classroom 1 and bottom panel depicts data for Classroom 2.



## Engagement

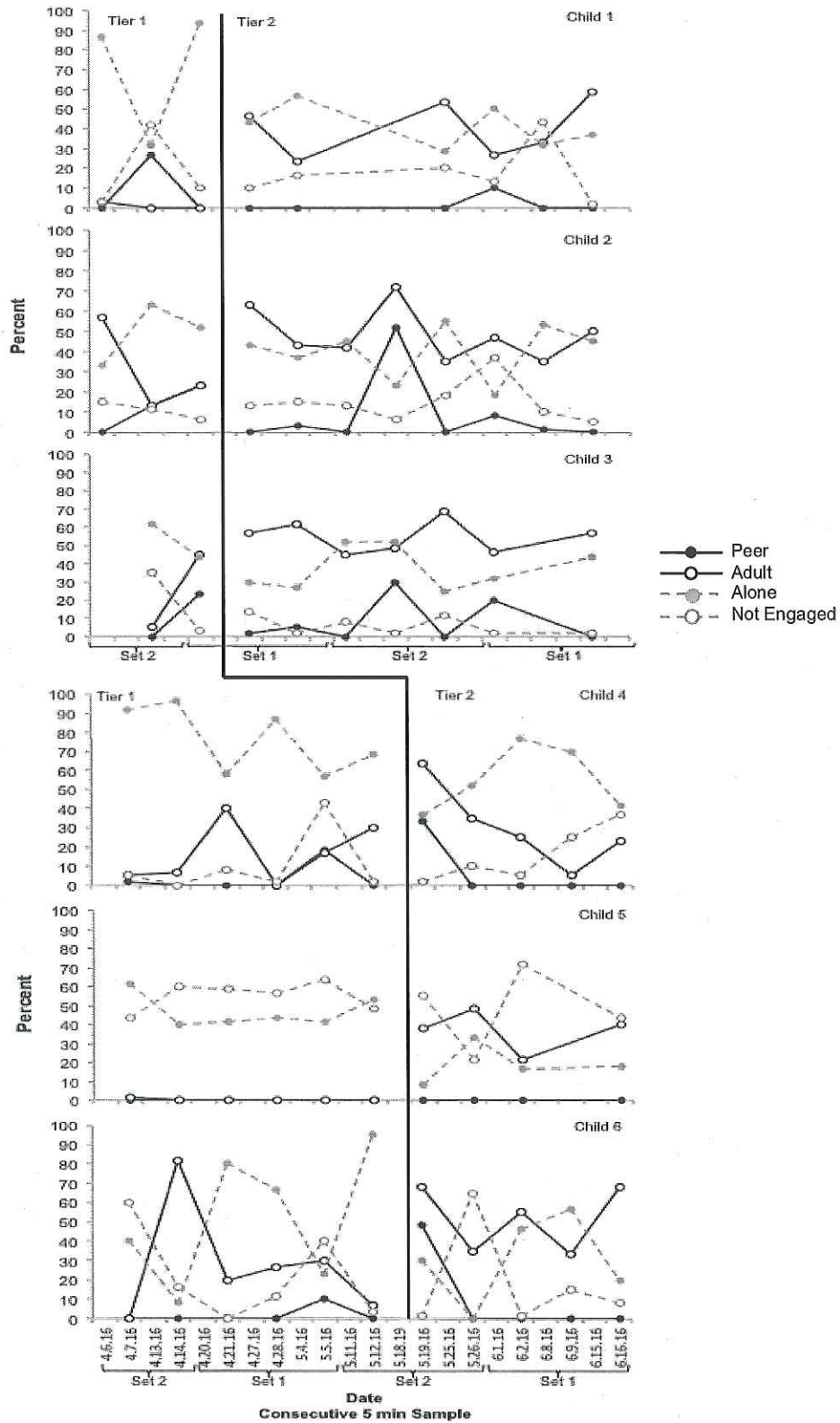


Figure 2. Percent of engagement or when a child was engaged with a peer, with an adult, when alone, or when not engaged during a 5-minute sample.

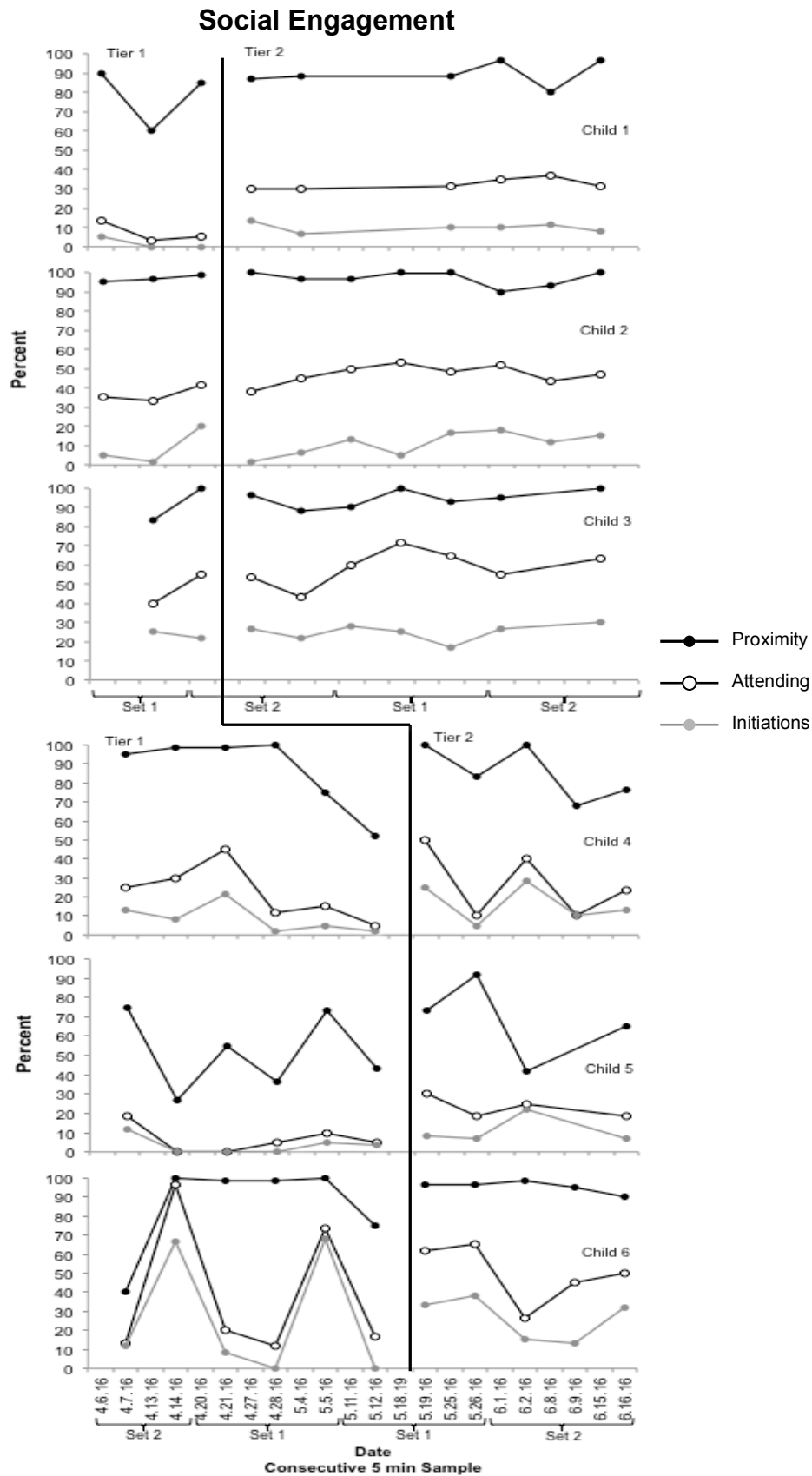


Figure 3. Percent of social engagement or when a child was in proximity, attending, and initiating towards a peer or and adult during a 5-minute sample.

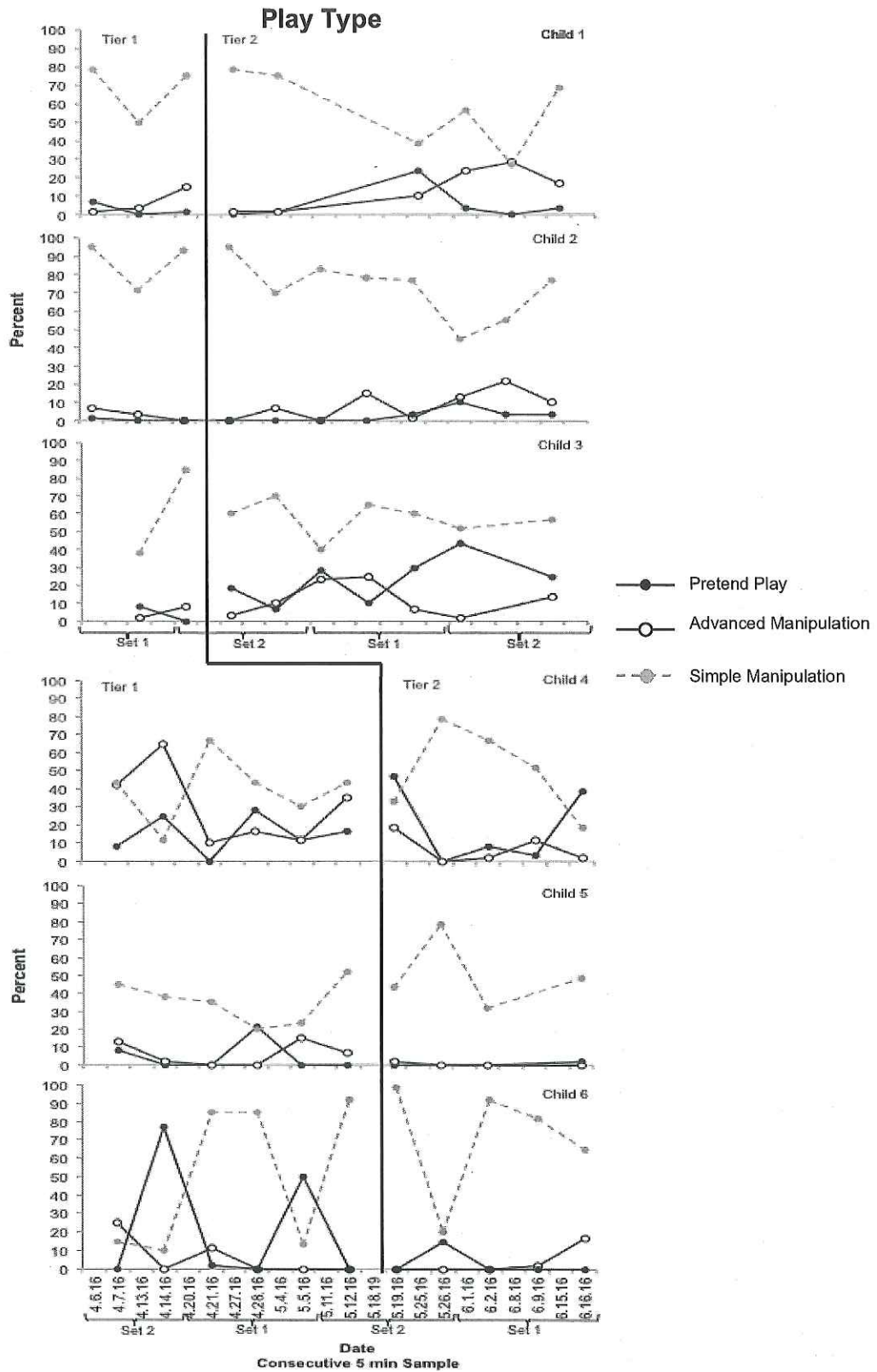


Figure 4. Percent of play type or when the child engaged with an item or activity in pretend play, with advanced manipulation, or with simple manipulation during a 5-minute sample.

### Play Type per Toy

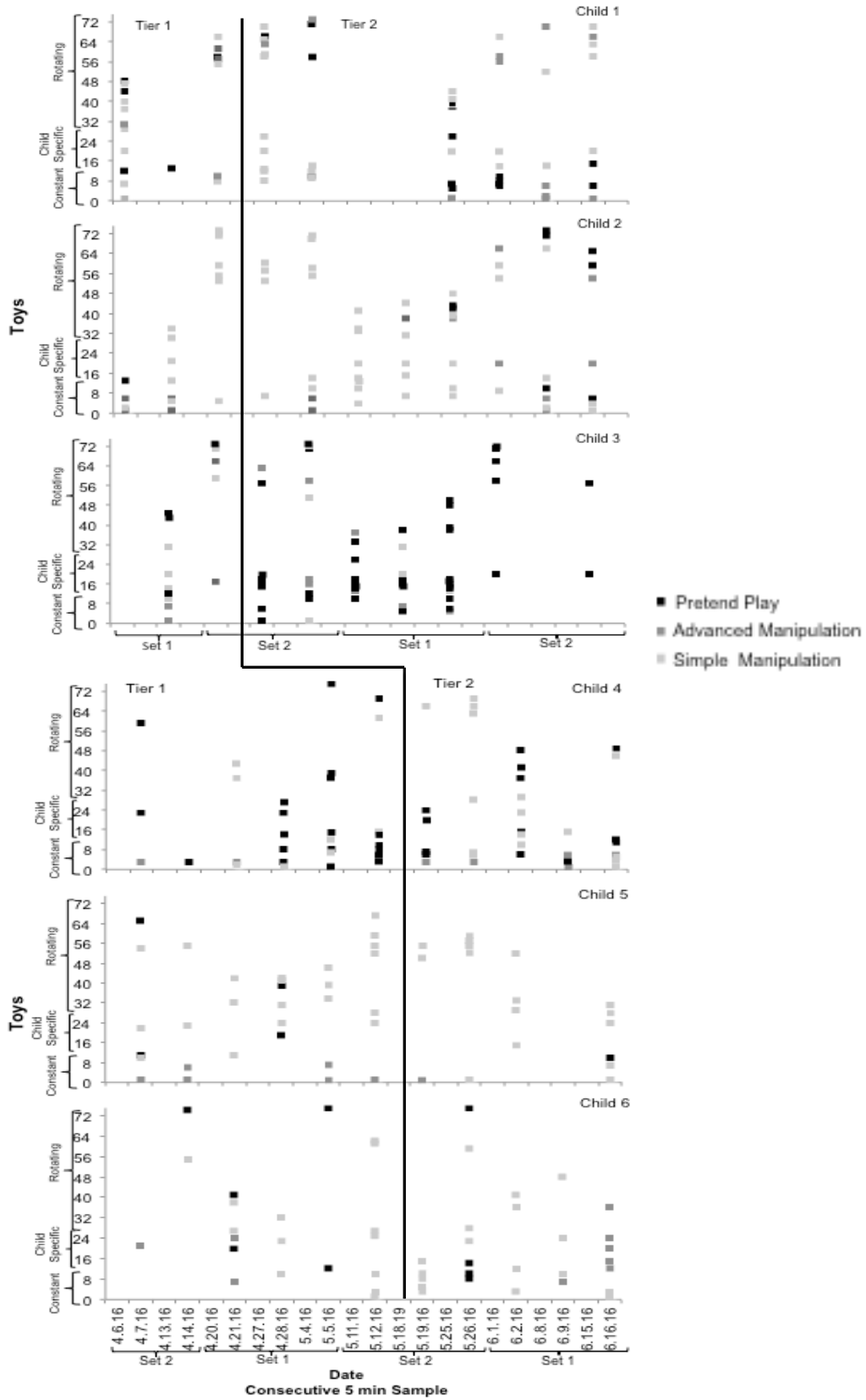


Figure 5. Toy interactions and play type per toy for each child during a 5-minute sample.

APPENDIX A  
VIDEO DATASHEET

Child: \_\_\_\_\_ Scorers Name: \_\_\_\_\_ P IOA Date of video: \_\_\_\_\_ Date Scored: \_\_\_\_\_ Play Set: 1 2 Tier: 1 2

	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55	Totals:		
:00-:59	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer	Adult
	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Alone	N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N													SPT:		
3:00-3:59	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer	Adult
	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Alone	N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N													SPT:		
6:00-6:59	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer	Adult
	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Alone	N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N													SPT:		
9:00-9:59	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer	Adult
	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Alone	N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N													SPT:		
12:00-12:59	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer Alone	Peer	Adult
	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Adult N/E	Alone	N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N SPT: Y N													SPT:		

Totals across session:  
 Engagement: Peer= \_\_\_\_\_ Adult= \_\_\_\_\_ Alone= \_\_\_\_\_ Not Engaged (N/E)= \_\_\_\_\_ Off-screen= \_\_\_\_\_  
 Social Engagement: Proximity: \_\_\_\_\_ Attending: \_\_\_\_\_ Initiating: \_\_\_\_\_  
 Play Type: Pretend (P)= \_\_\_\_\_ Advanced Manipulation (A)= \_\_\_\_\_ Simple Manipulation (S)= \_\_\_\_\_ Off-screen(O)= \_\_\_\_\_  
 Supported Play Technique: \_\_\_\_\_ Supported Play Technique: \_\_\_\_\_

**Interactions:** Recorded the toy or activity that the child engaged with and how they interacted in each one minute interval

:00 - :59	3:00 - 3:59	6:00 - 6:59	9:00 - 9:59	12:00 - 12:59
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P



Child: \_\_\_\_\_ Scorers Name: \_\_\_\_\_ P IOA Date of video: \_\_\_\_\_ Date Scored: \_\_\_\_\_ Play Set: 1 2 Tier: 1 2

	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55	Totals:
1:00-1:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N
4:00-4:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N
7:00-7:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N
10:00-10:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N
13:00-13:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N

Totals across session:  
 Engagment: Peer=\_\_\_\_\_ Adult:\_\_\_\_\_ Alone=\_\_\_\_\_ Not Engaged (N/E)=\_\_\_\_\_ Off-screen=\_\_\_\_\_  
 Social Engagment: Proximity:\_\_\_\_\_ Attending:\_\_\_\_\_ Initating:\_\_\_\_\_  
 Play Type: Pretend (P)=\_\_\_\_\_ Advanced Manipulation (A)=\_\_\_\_\_ Simple Manipulation (S)=\_\_\_\_\_ Off-screen(O)=\_\_\_\_\_  
 Supported Play Technique: Supported Play Technique:\_\_\_\_\_

**Interctions:** Recorded the toy or activity that the child engaged with and how they interacted in each one minute interval

1:00 - 1:59	4:00 - 4:59	7:00 - 7:59	10:00 - 10:59	13:00 - 13:59
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P

Child: \_\_\_\_\_ Scorers Name: \_\_\_\_\_ P IOADate of video: \_\_\_\_\_ Date Scored: \_\_\_\_\_ Play Set: 1 2 Tier: 1 2

	:00	:05	:10	:15	:20	:25	:30	:35	:40	:45	:50	:55	Totals:		
2:00-2:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer	Adult
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT:	
5:00-5:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer	Adult
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT:	
8:00-8:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer	Adult
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT:	
11:00-11:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer	Adult
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT:	
14:00-14:59	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer Adult Alone N/E	Peer	Adult
	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P A I	P	A
	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S A P O	S	A
	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT: Y N	SPT:	

Totals across session:  
 Engagement: Peer= \_\_\_\_\_ Adult= \_\_\_\_\_ Alone= \_\_\_\_\_ Not Engaged (N/E)= \_\_\_\_\_ Off-screen= \_\_\_\_\_  
 Social Engagement: Proximity: \_\_\_\_\_ Attending: \_\_\_\_\_ Initiating: \_\_\_\_\_  
 Play Type: Pretend (P)= \_\_\_\_\_ Advanced Manipulation (A)= \_\_\_\_\_ Simple Manipulation (S)= \_\_\_\_\_ Off-screen(O)= \_\_\_\_\_  
 Supported Play Technique: Supported Play Technique: \_\_\_\_\_

**Interctions:** Recored the toy or activity that the child engaged with and how they interacted in each one minute interval

2:00 - 2:59	5:00 - 5:59	8:00 - 8:59	11:00 - 11:59	14:00 - 14:59
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P
S A P	S A P	S A P	S A P	S A P



APPENDIX B  
STAFF DATASHEETS

Child: \_\_\_\_\_  
 Coach: \_\_\_\_\_

### Playtime Datasheet

Date: \_\_\_\_\_

Toy Collection 1	Did Not Engage With	Play Type			Engagement		
		Simple Manipulation	Advanced Manipulation	Pretend Play	Alone	Peer	Coach
Balls							
Bubbles							
Play-doh							
Bead Runner							
Basic Wooden Blocks							
Dinosaur Tunnel							
Vehicles							
Wood Fridge							
Stove							
Pretend Food							
Costumes							
Barbie's							
Mr. Potato Head							
Fisher Price Gears							
Activity Sphere							
Shape Sorter							
Leap Frog Letter Apple							
Color Worm							
Disney Pop-up							
Red Flip See-n-Say							
Bristle Blocks (Stackadoos)							
Large Legos							
Fire Trucks							
Castle							
Little People Robin Hood							
Little People Carnival							
Vanity							
Hair Style Play Set							
Little People Fire Station							
Transformers							
Spiderman							
LP Robin Hood Figures							
LP Fireman Figures							
LP Carnival Figures							
Dinosaurs							
Shark							
Fish							
Crocodile							
Counting Dinosaurs							
Water Wow							
Shopping Cart							
Turtle							
Other:							
Other:							

**Instructions:** During playtime check the box to indicate play type and engagement of the child that correspond to the toys. Mark if the child approached the play area.

Approaches Play Area	
Yes	No

Totals:  
 Toy Interactions -  
 Total Number: \_\_\_\_\_  
 Play Type -  
 Simple Manipulation: \_\_\_\_\_  
 Advanced Manipulation: \_\_\_\_\_  
 Pretend Play: \_\_\_\_\_  
 Engagement -  
 Not Engaged: \_\_\_\_\_  
 Alone: \_\_\_\_\_  
 Peer: \_\_\_\_\_  
 Coach: \_\_\_\_\_

Child: \_\_\_\_\_  
 Coach: \_\_\_\_\_

Playtime Datasheet

Date: \_\_\_\_\_

Toy Collection 2	Not Engaged	Play Type			Engagement		
		Simple Manipulation	Advanced Manipulation	Pretend Play	Alone	Peer	Coach
Balls							
Bubbles							
Play-doh							
Bead Runner							
Basic Wooden Blocks							
Dinosaur Tunnel							
Vehicles							
Wood Fridge							
Stove							
Pretend Food							
Costumes							
Barbie's							
Mr. Potato Head							
Kinetic Sand							
Bean Bags							
Activity Cube							
Purple Animal Pop-up							
Foam Shapes							
Green See-n-Say							
Jungle Gears							
Small Legos							
Waffle Blocks							
Connecters							
Batman Cave							
Superman Base							
Little People Barn							
Work Bench							
Tools							
Angry Birds							
Batman Figurines							
Robin Figurines							
Superman Figurines							
Farm Animals							
Cash Register							
Dinosaurs							
Shark							
Fish							
Crocodile							
Counting Dinosaurs							
Water Wow							
Turtle							
Other:							
Other:							
Other:							

**Instructions:** During playtime check the box to indicate play type and engagement of the child that correspond to the toys. Mark if the child approached the play area.

Approaches Play Area	
Yes	No

Totals:  
 Toy Interactions -  
 Total Number: \_\_\_\_\_  
 Play Type -  
 Simple Manipulation: \_\_\_\_\_  
 Advanced Manipulation: \_\_\_\_\_  
 Pretend Play: \_\_\_\_\_  
 Engagement -  
 Did Not Engage With: \_\_\_\_\_  
 Alone: \_\_\_\_\_  
 Peer: \_\_\_\_\_  
 Coach: \_\_\_\_\_

APPENDIX C  
TIERED PROCEDURES

# Playtime: Tiered Intervention Phases

## Measures of Success

- Diversity of toys and actions increase overtime
- Increased frequency and complexity of play
  - Simple manipulation
  - Advanced manipulation
  - Pretend play
- Increased synchronous engagement (adult/peer)

### Shaped Play

- Criterion Playtime Opportunities & Child and Coach Led Supported Play
- Use high preference events to respond to variations in actions and toys within and across play types

### Supported Play

- Criterion Playtime Opportunities
- Follow child's lead use reciprocal imitation - interacting with and vocalizing about toys child selects
- Expand child's play with novel models of actions using child & introduced toys
- Support play in a scaffold approach
- Reinforce variations and engagement

### Criterion Playtime Opportunities

- Developmentally appropriate and diverse play materials (Early childhood criterion play environment)
- High preference and novel options available for each child
- Coach stays in proximity of child
- Coach is responsive to child: provides social attention if child requests, interacts if child requests actions or play; in all other the cases coach is pleasant and happy, but does not model, provide instruction, imitate or reinforce particular play activities

# General Procedures – Tier 1

## Criterion Playtime Opportunities

### Instructions

Procedures:

1. Prior to the start of playtime arrange the play area so that all toys are out of boxes or with lids off and arranged in a way that is fun. For examples of how the play area should look reference Playtime folder
3. The child is free to play with any of the toys available in the play area
4. Deliver a verbal cue for the child to start playing
5. If the child selects an item to play with; sit close but don't approach unless child initiates
6. Attend to all social initiations and requests for engagement from the child  
Examples: The child looks at the coach; the coach may say "Hi" or the child gestures for the coach to put a gear on the spinning board; the coach may put the gear on the board.
7. Comment on the child's play actions  
Example: The child is playing with blocks while the coach is playing next to them with dinosaurs, "Wow! Your tower is so high!"
8. **Do not** provide any programmed instructions, models, imitations, reinforcement, or physical or verbal prompts to the child
  - Note: If the child removes materials from play area then gently guide back and state "These toys stay in the play area."
9. If the child keeps leaving the play area then arrange the environment to have the child's highly preferred item visible.
10. After playtime, return all toys to the appropriate boxes and arrange play area to the start of day arrangement

#### Criterion Playtime Opportunities

- Developmentally appropriate and diverse play materials (Early childhood criterion play environment)
- High preference and novel options available for each child
- Coach stays in proximity of child
- Coach is responsive to child: provides social attention if child requests, interacts if child requests actions or play; in all other cases the coach is pleasant and happy, but does not provide programmed models, instructions, imitation or reinforcement for particular play activities

## **Tier 1 – Criterion Playtime Opportunities**

### **Supporting Research & Clinical Wisdom**

Research in child development has evaluated the impact of the early childhood environment on children. When it is evident that a child will have difficulty acquiring a skill that is necessary for functioning in a particular environment, consideration should be given to adaptations that may allow or enhance participation (Brown, Branston-McClean, Baumgart, Vincent, Falvey, & Schroeder, 1979). These adaptations can be providing personal assistance, adapting materials, skill sequence, devices, rules, and adapting physical and social environments (Brown et. al., 1979). Having permanent play areas in a child's daily settings allows for a level of external structure that better equips a child for play (Wolfberg, 2003). Play areas should optimize children's motivational and developmental potential as well as maximize opportunities for social interactions, communication, play and imagination (Wolfberg, 2003).

### **References**

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- Isbell, R. T. (2001). *Early learning environments that work*. Gryphon House, Inc.
- Wolfberg, P. J. (2003). *Peer play and the autism spectrum: The art of guiding children's socialization and imagination*. AAPC Publishing.

## General Procedures – Tier 2 Supported Play Instructions

### Procedures:

1. Prior to the start of playtime arrange the play area so that all toys are out of boxes or with lids off and arranged in a way that is inviting. For examples of how the play area should look reference “Playtime” folder located by the child binders
2. The child is free to play with any of the toys available in the free play area
3. Deliver a verbal cue for the child to start playing, for example “You can go play!”
4. If the child selects an item to play with then sit by the child as they play.
5. Use one or a combination of the following procedures:
  - Reciprocal Imitation – imitate all of the child’s actions with toys, gestures, and vocalization
  - Play Expansions – follow the child’s lead in play, imitating the child’s play actions and then add one or more play actions that are closely related to the child’s preceding action
  - Scaffolding – facilitate play activities by guiding the child to initiate, join, and maintain play, fade support when child demonstrates ability

	<b>Reciprocal Imitation</b>	<b>Play Expansions</b> (Models & verbal phrases)	<b>Scaffolding</b>
Stimulus Conditions	Child is playing with a ball	Child is playing with a spoon and bowl	Child and peer are playing next to each other
Child Responses	Spinning balls into each other	Uses spoon to stir in a bowl	Imitates walking dinosaur over to peer and joins in play
Coach Responses	Imitates spinning balls into each other	Stirs spoon in own bowl then used spoon to pretend to feed a baby	Initiates play walking dinosaurs over to a peer who is also playing with dinosaurs

6. Provide reinforcement for variations of actions and engagement with other toys
 

Examples:

  - Verbal Praise: relevant comment related to consequence – Coach says “Wow! Your Barbie jumped so high!” after they imitated the Barbie jumping
  - Social Embedded: orients to and engages with positive affect with child, with and without tangible or praise – Coach and child are building blocks. Joint attention is occurring (i.e., they are referencing each others structure as well as each other) and coach has positive affect
  - Non-social: access to item or vocal response that was not present while engaging in desired response – Child is provide with counting dinosaurs (preferred item) after imitating coaches model
7. If the child removes materials from play area then gently guide back and state “These toys stay in the play area.”
8. If the child keeps leaving then present them their high-preferred toy



## **Tier 2 – Supported Play**

### **Supporting Research & Clinical Wisdom**

There are various ways to support children’s play. Three techniques included in this phase of intervention are reciprocal imitation, expansions, and scaffolding. When facilitating play activities the level of external support the adult provides should be structured in a “scaffold” fashion. As the child demonstrates increasing competence and skill level during the play activity the adult will gradually remove themselves, reducing the amount of support they provide (Wolfberg & Schuler, 1993). The adult should guide the child’s play to initiate, join, maintain elaborate, and negotiate play routines. In 2006 Brooke Ingersoll and Laura Schreibman assessed the benefits of reciprocal imitation - a naturalistic behavioral technique - for teaching object imitation to young children with autism. Participants in the study increased their imitation skills and also displayed increases in language; pretend play, and joint attention (Ingersoll & Schreibman, 2006). When compared to typically developing peers children with autism differ in the frequency, diversity, and complexity of play with objects. The play actions are simpler, less diverse, and more repetitive (Frey & Kaiser, 2011). Jennifer Frey and Ann Kaiser evaluated the use of contingent imitation, modeling expansions of play actions, and describing play actions to increase the diversity of object play in children with disabilities (2011). The study found that all participants increased their performance of different actions and the complexity of their play with toys showed an increase (Frey & Kaiser, 2011).

### **References**

- Frey, J. R., & Kaiser, A. P. (2011). The use of play expansions to increase the diversity and complexity of object play in young children with disabilities. *Topics in Early Childhood Special Education, 31*(2), 99-111.
- Ingersoll, B., & Schreibman, L. (2006). Teaching reciprocal imitation skills to young children with autism using a naturalistic behavioral approach: Effects on language, pretend play, and joint attention. *Journal of autism and developmental disorders, 36*(4), 487-505.
- Wolfberg, P. J., & Schuler, A. L. (1993). Integrated play groups: A model for promoting the social and cognitive dimensions of play in children with autism. *Journal of autism and developmental disorders, 23*(3), 467-489.

#### **Supported Play**

- Criterion Playtime Opportunities
- Follow child’s lead use reciprocal imitation - interacting with and vocalizing about toys child selects
- Expand child’s play with novel models of actions using child & introduced toys
- Support play in a scaffold approach
- Reinforce variations and engagement

#### **Criterion Playtime Opportunities**

- Developmentally appropriate and diverse play materials (Early childhood criterion play environment)
- High preference and novel options available for each child
- Coach stays in proximity of child
- Coach is responsive to child: provides social attention if child requests, interacts if child requests actions or play; in all other cases the coach is pleasant and happy, but does not model, provide instruction, imitate or reinforce particular play activities

APPENDIX D  
SATISFICATION AND FEEDBACK SURVEY

## Playtime Satisfaction and Feedback

Directions: Please do not put your name on the questionnaire so that all answers are kept confidential. Answer each question by placing a checkmark in the box that most closely matches your opinion. Use the lines provided to comment on your answer. Please complete all three pages of the questionnaire. Once complete, place the questionnaire in the provided envelope labeled 'Playtime Satisfaction/Feedback' located next to the sign-in sheet. Your feedback is greatly appreciated and will be considered when improving Playtime.

1. Do you or the staff feel Playtime at [REDACTED] is important?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not<br>Important         | Somewhat<br>Important    | Unsure                   | Important                | Extremely<br>Important   |

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2. How effective has Playtime been for increasing the play skills of the child you or the staff work with?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not<br>Effective         | Somewhat<br>Effective    | Unsure                   | Effective                | Very<br>Effective        |

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3. How effective has Playtime been for increasing the social skills of the child you or the staff work with?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not<br>Effective         | Somewhat<br>Effective    | Unsure                   | Effective                | Very<br>Effective        |

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4. How would you or the staff rate the importance and advantages of Playtime?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not                      | Somewhat                 | Unsure                   | Important                | Very                     |
| Important                | Important                |                          |                          | Important                |

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5. How comfortable were you or the staff with implementing the Playtime procedures (e.g., reciprocal imitation, expansions, and scaffolding)?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not                      | Somewhat                 | Unsure                   | Comfortable              | Very                     |
| Comfortable              | Comfortable              |                          |                          | Comfortable              |

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6. How often were you or the staff able to take date while running Playtime?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Not                      | Somewhat                 | Unsure                   | Often                    | Very                     |
| Often                    | Often                    |                          |                          | Often                    |

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7. Overall, how do you or the staff feel about Playtime being a part of the daily schedule?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Very                     | Dissatisfied             | Unsure                   | Satisfied                | Very                     |
| Dissatisfied             |                          |                          |                          | Satisfied                |

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8. If you observed changes as a result of Playtime, please describe one specific instance:

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9. What improvements would you or the staff suggest for Playtime?

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Additional Comments:

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Thank You!!

APPENDIX E  
OBSERVATION CODE

# Observation Code

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- I. Engagement
- II. Social Engagement
- III. Play Type
- IV. Supported Play Techniques
- V. Interactions

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## I. Engagement

*Coding engagement involves selecting the type of engagement(s) that corresponds with the child's engagement during a 5-sec interval. If any of the measures occur within the interval then they should be scored (i.e., more than one engagement may be recorded during one interval).*

Peer: "child is engaged in the same activity in interdependent or shared play. (Interdependent play includes handing materials to the peer, participating in the same activity or talking about the same topics)" (MacDonald et al., 2009; Rossi, 2012)

- *Examples:*
  - Child walks over to a peer and starts playing with them by putting balls in the dinosaur tunnel
  - Peer comes over to the child and the child hands them a Lego to help them build with
  - Child and peer are playing Mr. Potato Head together by picking parts out of the box
- *Non-examples:*
  - Peer comes over to the child to build with blocks but the child pushes their hand away from the blocks
  - Child says, "no" when a peer approaches
  - Child walks over to a peer but just watches what the peer is playing with
  - Child and peer are next to each other but not interacting
  - Child and peer are orienting toward each other but not interacting

Adult: child is engaged in the same activity with the participation of an adult. Must be involved in the same activity (Rossi, 2012).

- *Examples:*
  - Child grabs the coach's hand to help put gears on the gear board.
  - Child has a dinosaur and says, "Roar" while attacking the coach's dinosaur
  - Child and coach are shopping for food to cook for their customers
  - Child and coach are building with blocks
  - Child brings play-doh ice cream to coach's mouth and coach says "Yum, Yum"
- *Non-examples:*
  - Child approaches a coach and starts to play with their hair
  - Child watches a coach as they play with trains
  - Child is sitting next to the coach with no interaction
  - Child is walking away from the coach
  - Child is not near the coach



Alone: child independently plays with materials with no social interaction between peers or coaches in the play area (Harder, 2008).

- *Examples:*
  - Child takes different balls and places them in the dinosaur tunnel
  - Child is holding gears in their hand
  - Child is rolling play-doh to make cupcakes
  - Child is playing with cars but is not moving car similar to other children
  - Child is sitting next to peer or coach, but there is no eye contact or interaction
- *Non-examples:*
  - Child hands a ball to the coach to put them in the dinosaur tunnel
  - Child grabs the coach's hand to direct them to push a button on the letter apple
  - Child and a peer are cooking food in the kitchen
  - Child is playing with dinosaurs and is imitating what the peer is doing

Not Engaged: child does not physically manipulate or interact with items in the play area or leaves the play area.

- *Examples:*
  - Child was playing with trains then they got up and went to set at the kitchen table
  - Child left the play area or did not approach the play area
  - Child is looking out the window, not part of activity
  - Child is wondering around the room, not part of the activity
- *Non-examples:*
  - Child is holding the pen of the water wow
  - Child spins the hamburger bun on the floor
  - Child takes apart the puzzle mat and uses it as a sword

## II. Social Engagement

*Coding social engagement involves selecting the type of engagement(s) that corresponds with the child's engagement during a 5-sec interval. If any of the measures occur within the interval then they should be scored (i.e., more than one type of engagement may be recorded during one interval).*

Proximity: child is within two feet of an adult or a peer.

- *Examples:*
  - Child is sitting in a staff members lap playing with the Apple Letter board

- Child is playing with water wow next to their assigned staff member
- Child is picking out parts for Mr. Potato Head with a peer that is putting parts on a different Mr. Potato Head
- Child is opening and closing the cash register while a peer is putting pennies into the side of the register
- Child is sitting at the table with a peer and each are playing with play-doh
- *Non-examples:*
  - Child is walking next to a peer or an adult to get past them
  - Child leaves the adult to engage in a different activity
  - Child is playing with a toy next to their peer then the child leaves

Attending: child's body is orientated and they are looking towards an adult or a peer.

- *Examples:*
  - Child makes eye contact with the adult or peer
  - Child is following the movement of the adult's hand that holds a play item
- *Non-examples:*
  - Child is looking towards someone that is off screen
  - Child is looking at a peer playing with play-doh
  - Child turn around to look at a peer that was saying "roar" with dinosaurs

Initiating: child approaches, gestures, or vocalizes towards an adult or peer to engage or attempt to engage in a play interaction. This can include taking items from a peer or adult.

- *Examples:*
  - Child hands the adult a toy
  - Child picks up a toy from a play set and interacts with the toy in similar way to their peer or adult
  - Child points to an adult and then makes a vocalization and points to an object
  - Child grabs the adults hand and puts a toy in their hand to manipulate
  - Child points to a peer and makes a gesture for them to sleep
- *Non-examples:*
  - Child throws an item in the direction of a peer
  - Child walks next to a peer and knocks down the item they built

### III. Play Type

*Coding play type involves selecting the type of play that corresponds to the particular type of play the child engages in with an item and/or activity within a 5-second interval. If any of the measures occur within the interval then they should be scored (i.e., more than one type of play may be recorded during one interval).*

Simple Manipulation (S): child physically manipulates play materials but does not make contact with them according to their conventional function (e.g., kicking a ball, putting parts on Mr. Potato Head, building with Legos, etc.), and not within context of play or makes a verbal statement attaching a pretend function (e.g., play-doh shaped like ice cream saying “nom, nom”) to the play material (Gudmundsdotter, 2002).

- *Examples:*
  - Child touches or holds play materials
  - Child plays with a kitchen fridge by opening and closing the door
  - Child picks up an item and spins a component of them item (e.g., spinning the wheels of a car)
  - Child picks up a plate and taps it
  - Child pushes a transformer with their head
  - Child pops bubble that the adult blew
  - Child moves beads along the bead track
  - Child turns the knobs of a pop-up toy to make characters pop up
  - Child puts foam shapes over their head
- *Non-Examples:*
  - Picking up or pushing away items
  - Dumping items from storage containers
  - Driving a car across the play area floor
  - Cooking play-doh in the kitchen
  - Child puts different parts on Mr. Potato Head
  - Child opens the cash register and puts money in the drawer

Advanced Manipulation (A): child makes physical contact with play materials according to their intended uses that require multiple and advanced sequences or combinations of actions. This does not include toys that have simple cause effect manipulations as part of conventional function (such as rattles, stacking cups, push pull toys, etc.)

- *Examples:*
  - Child places kicks a ball across the room
  - Child builds a house with Legos
  - Child puts together Mr. Potato Head
  - Child puts wand in container and blows bubbles
  - Child drives a car around the play area
  - Child puts an angry bird in catapult and launches it at blocks
- *Non-examples:*
  - Child rubs blocks together
  - Child takes Mr. Potato Head on a car ride to the carnival
  - Child lines cars up in a row
  - Child turns knob to make the animal pop-up on

Pretend (P): at least a single-step action with or without an item that appears to imitate a real-life situation (DiCarlo & Reid, 2004), manipulates toys in their conventional use imitating a real-life situation, or uses one object to represent another object. These actions may or may not be accompanied by words indicating the child's actions (Harder, 2008).

- *Examples:*
  - Child pushes shape sorter around the floor/ furniture making car noises and acting as if they are driving the object
  - Child opens a fridge door and acts as if they are feeding food items into the “mouth” of the fridge
  - Child goes shopping with Mr. Potato Head to cook food for the dinosaurs in his restaurant
  - Child puts on dress up clothes to be a vet for the dinosaurs
  - Child puts play-doh in a pan and takes it to the kitchen to cook on the stove
  - Child uses scanner of cash register to scan food items
  - Child has Barbie eat food
  
- *Non-examples:*
  - Child places shape(s) on surface of sorter
  - Child drapes beads over the surface of the shape sorter
  - Child builds with waffle blocks
  - Child pushes button on the Apple letter board
  - Child scoops kinetic sand and puts it in a shape mold
  - Child bounces a ball in the play area

Off-screen (O): cannot see any of the child's play interaction.

#### IV. Supported Play Techniques

*Coding supported play techniques involves recording if a technique occurred or not during a 5-sec interval.*

Supported Play Techniques: staff member utilizes one or a combination of the following techniques:

Reciprocal imitation – staff member imitates child's actions with toys, gestures, or vocalizations

- *Examples:*
  - Child is turning the knobs on the kitchen stove the staff member imitates turning the knob
  - Child has a dinosaur and says “Roar” the staff member has a dinosaur and says “Roar”

- Child throws bubble blocks out of a box the staff member throws bubble blocks out of a box

Play expansions – staff member imitates the child’s play action and then adds one or more play actions that are related to the child’s preceding action

- *Examples:*

- Child is playing with the stove by turning the knobs, the staff member turns the knobs and then adds a piece of toasts to cook it
- Child is driving cars down the dinosaur tunnel the staff member drivers cars down the tunnel and then drives it around the birds at the top
- Child is holding food with a Barbie, the staff member has the Barbie eat food while saying “nom, nom”

Scaffolding – staff member facilitates (modeling, prompting, providing instructions, reinforces) the child’s play activities by guiding the child to initiate, join, or maintain play

- *Examples:*

- Child is unable to turn parts of a pop-up toy the staff member helps the child turn the part
- Staff member models driving a car over to a friend playing with angry birds
- Staff member provides social reinforcement for the child initiating play with a peer by them going over to the peer and adding dinosaurs to the fire truck like the peer

#### IV. Interactions

*Scoring interactions involves recording each item or activity that the child engages with during a 1-minute sample and how they interact with each item or activity. Use the play type code below for scoring how the child interacted with the item or activity.*

Interaction: Two or more seconds of touching, manipulating, or interacting with a toy or engaged in an activity (Zeug, 2008)

- *Examples:*

- Child presses buttons on cash register
- Child puts Legos together
- Child cuts Barbie’s hair with play scissors
- Child motions for the adult to go to sleep
- Child and adult are spinning around in circles
- Child and peer are pretending to sleep
- Child holds on to Superman while playing with Legos

- *Non-examples:*

- Child touches a doll before grabbing farm animals
- Child is next to the foam shapes but is putting parts on Mr. Potato Head

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