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A Transdiagnostic Social Skills Intervention: Using a Structured Story to Teach Children How to Ask a Friend to Play

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ABSTRACT

An (independent samples comparison) controlled study was conducted to assess the efficacy of a novel approach to social skills training for children in a local socialization group at Knippenberg, Patterson & Associates (KPA). The treatment condition involved the combination of a Structured Story (i.e., novel bibliotherapy technique for children with social skills deficits), and a behavioral rehearsal (or role-play) segment, where the children practiced the target social skill featured in the Structure Story. The control group did not receive the Structured Story nor the behavioral rehearsal. Children in both groups engaged in ten-minutes of free play that was videorecorded for later observation and scoring by the principal investigator. Two target behaviors were assessed; asking a friend to play, and duration of joint play between two or more peers. The results did not show significant differences for either target variable between the group that received the novel intervention and the control group. Limitations of the current study and implications for further research are discussed.

A Transdiagnostic Social Skills Intervention

The Importance of Social Skills in Human Development

Despite early beliefs related to the role of internal forces (e.g., Freud), it is now much more widely accepted that human development is a relational and interpersonal process (e.g., Kohut, Stolorow). Indeed, the early work of Lev Vygotsky suggested that social interaction precedes development, asserting that consciousness and cognition are actually the end products or result of successful socialization and social behavior (Social Development Theory; Vygotsky, n.d.). According to Vygotsky,

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological).... All the higher functions originate as actual relationships between individuals. (Cherry, 2014).

Our ability to adequately engage in early social learning is what allows us to appropriately progress through the later steps of our development. Consequently, research in the field of human development asserts that if a child is not able to engage in early social learning, it will alter the course of their neural and psychological development (Griffith, 2014).

When considering important aspects of an individual's psychological development that are commonly influenced by our ability to engage socially, concepts such as self-esteem, resiliency and school performance frequently come to the surface. A very important influence on the development of self-esteem is the support and approval an individual receives from those around them. This concept is one that has been present in developmental psychology for decades, and the tenets of this idea can be seen in the work of many early developmental theorists. Both Erickson's Psychosocial Theory of Development (1950) and Bowlby's Social Learning Theory

(1969) suggest that a child's sense of self is grounded in the quality of their relationships with others.

Resiliency has been defined as a child's ability to bounce back from adversity, and has been shown to be an important asset in the promotion of psychological health and well-being. In fact, the concept of developmental resilience (Garmezy, 1983; Masten, Best & Garmezy, 1990 in Siegler, DeLoache & Eisenberg, 2003 p.79) emerged from studying a group of children who were able to overcome multiple developmental hazards that should have otherwise predicted poor outcomes. When studying the factors that predicted such developmental resilience, researchers defined "responsiveness to others" as an important personal characteristic demonstrated by those children within the developmentally resilient group.

In the late 1970s, renowned clinical psychologist Edward Zigler of Yale University posited that social competence should be considered a more valuable outcome measure than a child's IQ score, which at that time was commonly used as the sole outcome measure to indicate whether an early intervention had created positive improvement. In fact, he stated that only half of the variance in school performance found among students could be accounted for by differences in IQ scores. Consequently, he suggested instead that a child's social competence might be a more accurate determinant of positive improvement, implying that this collection of skills more adequately predicts future success than someone's cognitive ability score on its own (Zigler & Trickett, 1978).

Social competence has been defined as a set of skills that help individuals achieve personal goals in social interactions, while maintaining positive relationships with those around them. Individuals with social competence are typically better able to regulate their emotions by employing skills, such as inhibiting inappropriate behaviors and delaying gratification. These

children who tend to be more socially competent are typically more well-liked by their peers, and are generally more well-adjusted individuals overall (Calkins & Dedmon, 2000; Gilliom, Shaw, Beck, Schonberg & Lukon, 2002; Lemery, Essex & Snider, 2002; Lengua, 2002 in Siegler et al., 2003 p.386).

Additionally, for school-aged children, positive social skills have been linked to higher academic performance, increased satisfaction within peer and family relationships, and more frequent involvement in extracurricular activities. Contrarily, children with social skills deficits experience increased difficulties in their interpersonal relationships, and frequently evoke highly negative responses from others that often lead to peer rejection. They also show increased tendency to exhibit signs of depression, aggression and anxiety, demonstrate poor academic performance, and show a higher incidence of involvement in the criminal justice system as adults. (*Social Skills: Promoting Positive Behavior, Academic Success and School Safety,* 2002).

The Importance of Joint/Collaborative Play in Social Skills Development

Children are afforded the ability to learn and participate in social relationships by exploring their environment through play. Thus, children play an important role in their own development by being active explorers. Indeed, studies have shown that children who display high exploration behaviors have higher levels of school achievement (Anastasiow, 1977 in Zigler & Trickett, 1978). When considering what childhood exploration looks like, it is apparent that a child's ability to engage actively with their environment is not only mediated by their ability to navigate the physical world around them, but also by the demands of the social landscape as well.

Play allows children to experience the value of relationships and social connectedness, and provides opportunities for children to develop a heightened understanding of effective social

interaction. Problem solving, emotional regulation, impulse control, negotiation, listening and communication skills are all woven into the nuances of social play.

Mildred Parten was an American sociologist in the early to mid 1900s who was one of the first to study children's play behavior. Her seminal research was largely based on observations she conducted of preschool children who were engaged in group play. Parten observed children's play behavior minute by minute in order to document specific details about how they engaged with one another (initiation of play), with which materials they preferred to play, with whom they chose to engage, and how they tended to engage with their available play partners. One of the most widely known outcomes of her early research was the categorization of different stages of play that typically develop in children between the ages of three and five. These stages are described as: unoccupied behavior, solitary independent play, onlooker behavior, parallel play, associative play and cooperative play.

The final two stages of her six-tiered model are the two most socially interactive stages of her developmental play model. Associative play requires that the children are engaging in some type of verbal interaction, even though they may not be actively working together toward a common goal. In cooperative play, children actively work together to plan and structure the play activity in full collaboration. Parten noted that as children get older, their play becomes increasingly socially engaged, asserting that this is the natural progression for typically developing children as they move through their own development.

The benefit of social play has been well documented throughout the years. Social play enhances children's creative and problem solving abilities (Smith & Simon, 1984), it contributes to the development of self-regulation, as well as the development of other social skills such as turn-taking, collaboration, following rules, empathy, and motivation (Bodrova & Leong, 2007;

Krafft & Berk, 1998, as cited in School Readiness Through Play, n.d.). As such, it acts as the foundation from which children continue to grow and develop their social competence, enabling children to build relationships and continue to develop their interpersonal skills. In turn, this paves the way for the continuation of social development within the context of friendships.

Neurodevelopmental Disorders and Social Skill Deficits

Social skills deficits are hallmarks of all neurodevelopmental or neurobehavioral disorders. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; 2013) defines neurodevelopmental or neurobehavioral disorders as a group of disorders that begin during the developmental period. They are described as "developmental deficits that produce impairments of personal, social, academic or occupational functioning" (p. 31). These disorders serve to disrupt an individual's ability to engage appropriately in their early relationships, putting the child at risk of further complications resulting from compromised social engagement. Three of the most common neurobehavioral disorders are Attention Deficit/Hyperactivity Disorder (ADHD), Learning Disorders (LD) and Autism Spectrum Disorder (ASD).

Several studies have demonstrated compromised social competence in children diagnosed with ADHD (Carlson, Lahey, Frame, Walker & Hynd, 1987; Landau & Moore, 1991; Milich & Landau, 1989; Whalen & Henker, 1980, 1985, 1988, 1992; Wheeler & Carlson, 1994 in Greene, Biederman, Faroane, Sienna & Garcia-Jetton, 1997). In fact, the interpersonal problems of children with ADHD have been documented as among the most salient and debilitating aspects of their behavior (Hinshaw, 1992 in Greene et al., 1997). Similarly, social skills deficits are prevalent within populations of children diagnosed with learning disorders. In 1996, Kavale and Forness conducted a meta-analysis of 152 studies related to the presence of social skill deficits in children with known learning disabilities. Their analysis demonstrated that 75% of children

diagnosed with learning disabilities also displayed deficits on measures of social competence (as cited in National Dissemination Center for Children with Disabilities, n.d.). Lastly, according to the DSM-5, all individuals diagnosed with ASD will by its definition demonstrate some impairment in the area of social communication and interaction, including deficits related to social-emotional reciprocity, compromised engagement in and understanding of social relationships, and reduced ability to effectively utilize nonverbal communicative behaviors in the context of social interaction (American Psychological Association, 2013).

The prevalence of such disorders reflects a large percentage of our nation's children. The DSM-5 indicates that approximately 5% of the population has been diagnosed with ADHD (2013), but the Center for Disease Control has found numbers as high as 11% within the United States (Center for Disease Control, 2013). Similarly, the expanded and updated version of the 2014 report by the National Center for Learning Disabilities titled *The State Of Learning Disabilities* suggested a 5% prevalence rate for children who have been formally diagnosed with a specific learning disorder, but estimates an additional 15% of children with unidentified or unaddressed learning or attention issues who are in need of intervention services. Lastly, the increasing rate of ASD over the last several decades has been a popular topic in clinical research, with the most recent prevalence rates as high as 1 in every 68 children, which has increased from 1 in 88 children in 2012.

Existing Strategies for Teaching Social Skills to Children

It is clear that intervention is needed to support the high number of children impacted by neurobehavioral diagnoses, especially considering the importance of social skills on a child's development and subsequent trajectory in life. Over the years, several different methods have been proposed and studied in an effort to assess the most effective way of helping children with

compromised social competence increase their social skills and interpersonal effectiveness. Many of these methods have been specific to an individual's diagnosis, with particular considerations made related to the unique challenges posed by each disorder. A brief overview of some of the most influential strategies is discussed below. For the purposes of the present study, the identified intervention techniques below are those that most heavily influenced and informed the development of the Structured Story and Role Play method, which are proposed and investigated in this study.

Applied Behavior Analysis. Applied Behavior Analysis (ABA) is a behavioral modification teaching method shown to be significantly effective in working with individuals with ASD. Based on the foundational principles of behaviorism (Watson, 1913), ABA involves careful analysis of the function of various human behaviors in order to create circumstances around which desired behavior can be elicited, and undesired behavior can be extinguished. ABA is defined as a science in which a broad range of techniques have been used to help manage socially relevant behaviors within the context of an individual's social environment (Dillenbuger & Keenan, 2009).

Early Start Denver Model. The Early Start Denver Model (ESDM) is an early intervention behavioral approach that was developed based on many of the principles of ABA. The research community at Autism Speaks, Inc. has described ESDM as follows:

> ESDM combines the [ABA] teaching methods with developmental 'relationship-based' approaches. This approach was novel because it blended the rigor of ABA with play-based routines that focused on building a relationship with the child (press release "Early Intervention for Toddlers with Autism Highly Effective, Study Finds" as cited in *Autism Speaks*, 2009).

ESDM involves a developmental curriculum that defines the skills to be taught as a child progresses through their early development and the specific teaching procedures that should be

used to deliver this content. One of the unique applications of the ESDM program is that it is not tied to a particular delivery setting, but can be delivered by therapy teams and/or parents in group programs or individual therapy sessions in either a clinic setting or the child's home. The main goal of ESDM is to bring the child back into the social loop by teaching the building blocks of social life. These building blocks are defined as imitation, emotion identification, communication, shared experiences, social and symbolic play and language development.

Social Stories. Social Stories™ (Gray, 1991) has been used as a teaching tool for children with social communication deficits. This specific type of bibliotherapy involves a concrete and personalized story that teaches a particular social skill through explicit, simplistic language, and the supplementary use of illustrations or photographs. The GrayCenter website defines this particular intervention as follows:

> A Social Story™ describes a situation, skill, or concept in terms of relevant social cues, perspectives, and common responses in a specifically defined style and format. The goal of a Social Story™ is to share accurate social information in a patient and reassuring manner that is easily understood by its audience (What are Social Stories?, n.d.).

Although this approach to intervention is commonly used with children with ASD, Gray asserts that it also has been successful with individuals with general social and communication delays as well as with neurotypical individuals.

Social Stories™ is a widely used intervention technique. As Adam Styles cites in his 2011 review, some studies reflect rates as high as 100% of all respondents (teachers) who endorse using Social Stories™ as an intervention approach in working with children with ASD. Additionally, 93% of those respondents perceived Social Stories to be an effective intervention for their students (Reynhout & Carter, 2009 in Styles, 2011).

However, despite its apparent popularity, researchers are unsure if the Social Stories™ approach truly boasts the evidence base to support its popularity (Hanley-Hochdorfer, Bray, Kehle, & Elinoff, 2010; Styles, 2011). Most studies have recognized more success related to Social Stories™ positively influencing the reduction of inappropriate or undesired behaviors, but have not seen as strong trends supporting Social Stories™ as a method for increasing positive or prosocial behaviors (Hanley-Hochdorfer, Bray, Kehle, & Elinoff, 2010). Nevertheless, the personal, creative and user-friendly approach of the Social Stories™ technique has made it a very popular intervention strategy among educational psychologists and other mental health professionals working with individuals with social skills deficits.

General Teaching Approaches. As a greater understanding of the important role social skills play on healthy psychosocial development evolves, more and more social skills programs have emerged – both in therapeutic settings and general classroom environments alike. One of the key tenets related to social skills training for young children has involved creating activities during which the child practices a specific social skill in a natural context, resulting in naturally reinforcing and rewarding consequences. This hopefully results in the child being able to generalize the skill to other settings as well. However, for many preschool and school aged children – in particular those diagnosed with ADHD, LD, ASD – mastery takes practice and explicit instruction. Thus, several common teaching strategies have been adapted to fit the needs of a social skills curriculum. Modeling and coaching strategies have long demonstrated successful results related to their ability to train and facilitate adaptive social behaviors in all children (Keller & Carlson, 1974; Gottman, Gonso & Schuler; Oden & Asher, 1977 in La Greca & Santogrossi, 1980). Additionally, behavioral rehearsal with feedback has also been

incorporated into social skills programs with success (Curran, 1975 in La Greca & Santogrossi, 1980).

Need for Innovative Intervention Strategies

David H. Barlow has committed much of his clinical research career to creating treatment protocols that are evidenced-based and effective for specific disorders. More recently, he has also brought attention to the need for treatment strategies that address symptom commonalities across diagnoses. In light of the high number of comorbidities for individuals diagnosed with mental disorders, Barlow (2011) asserts that thinking of these problems as related, or on a "spectrum," is the approach being taken by leading therapists and researchers in the field. As such, Barlow has created a series of "unified" approaches to the treatment of various emotional disorders that share common symptomatology.

As discussed previously, social skills deficits are seen across most neurodevelopmental disorders. This raises the question whether similar, unified approaches to social skills training might be used transdiagnostically. This is especially relevant when considering the substantial number of children diagnosed with neurodevelopmental disorders, and the numerous difficulties related to access to mental health services. This is particularly relevant for those diagnosed with autism spectrum disorder, which has historically demanded unique therapeutic strategies that can only be practiced by specially trained individuals through specific funding sources. With the prevalence rate currently set at 1 in 68 individuals diagnosed with ASD, close to 10% of the population diagnosed with ADHD, and up to 20% with some type of learning disorder, there are a considerable number of children who will need some kind of support or intervention related to developing healthy social skills.

Thus, more accessible and more easily implemented strategies for helping children develop social competence are vital. Services that adequately meet the needs of children who exhibit similar symptomatology despite different diagnoses would go a long way in making services broadly available. Intervention techniques effective for a range of diagnoses might also be easily implemented as part of a general education classroom or utilized by parents and/or caregivers in the family home.

A Novel Transdiagnostic Social Skills Intervention

The following proposal attempts to integrate previous social skills research into an intervention strategy that respects – but does not depend on – diagnostic presentation. It is an effort to create a strategy that creatively combines what has proven effective in more limited interventions, is developmentally appropriate and easily implemented, and is effective for all children with known social skills deficits. This intervention was created for application in a local social skills group in Denver, Colorado. Knippenberg, Patterson & Associates is a private practice that specializes in working with children and adolescents with neurobehavioral diagnoses and social challenges.

The structure of this intervention was largely influenced by previous research utilizing similar techniques, but includes an important foundational influence derived from the global goals of ESDM training. As mentioned previously, two of the main goals identified for professionals during introductory training in ESDM are "bringing the child back into the social loop," and "teaching the building blocks of social life." The building blocks of social life are then defined as follows: imitation, emotion, communication, sharing experiences, social and symbolic play and language (Griffith, 2014). Thus, it was the goal of this author to create an

intervention strategy that would address each of these building blocks in some way within one treatment approach.

Step 1 – Creation of the Structured Story

The primary portion of the novel treatment technique involved the creation of the Structured Story. The main reasoning behind this literary-based technique stems from its natural and common use as an educational method for preschool and school-aged children. Considering the role stories play in human development, one of the primary functions of the use of story is to create a dialogue with ourselves and with others. As described by Burke and Copenhaver (2004),

> The structures of story become an agreed upon social tool. In this way, we can hold a mental discussion to reexamine decisions or converse with others concerning what the relevant events and issues are, how they relate to each other, and what impact this will have on our world (Vygotsky, 1986; Bahktin, 1981). The structures then become the tools we need to make adjustments to our understanding. (p. 206).

Additionally, the popularity of Gray's Social Stories™ (1991) method as an easily implemented social skills intervention provides additional support for using bibliotherapy techniques to teach social skills to populations of children with social skills deficits. Specifically, Delano and Snell (2006) found that social stories, when used in isolation with children with ASD, led to increased social engagement with their peers. However, Hanley-Hochdorfer et. al. were not able to replicate these results in their 2010 study. One of the main differences noted in their study spoke about the difference in setting when the intervention was implemented, stating that the Delano study utilized social stories in isolation, whereas the Hanley-Hochdorfer study intervened in a classroom environment. It seems that Social Stories™ as developed by Gray demonstrates a very concrete, direct and personal method of story telling that is appropriate for some children with ASD, but may be too simplistic for children who are not as severely debilitated. Consequently, significant adjustments to the structure, content and visual

presentation of Gray's Social Story™ technique were made in the creation of the proposed Structured Story technique.

The principles of ABA require that intervention be clear, concise and direct. Gray takes this into account by applying particular guidelines to the way Social Stories™ are written, including very specific details related to sentence structure, sentence content and the overall structure of the composition (as described in Styles, 2011). Additionally, renowned author and lecturer Temple Grandin has described similar concepts in her books and presentations related to the tendency of the ASD brain to be better able to comprehend concepts that are concrete, organized and specifically structured. Contrarily, abstract ideas, indirect connections (e.g., metaphor) and the greater concept of central coherence are generally weaker for individuals with ASD (Grandin & Panek, 2013). Consequently, behavioral interventions for individuals with ASD, ADHD and LD often rely on setting specific expectations in an organized manner that is logical, literal and concrete.

In order to honor the guidelines above without creating a story that was limited to the very specific sentence guidelines and content established by Gray, this author created the Structured Story in a concerted effort to appeal to "different kinds of minds." This idea, stemming from Grandin's work and research related to neurological strengths and weaknesses within individuals with neurodevelopmental disorders, served to broaden what could be utilized within the Structured Story, instead of just appealing to one particular presentation and therefore limiting how the story was written and presented. This was done in an effort to design a therapeutic story that could be used transdiagnostically, thereby appealing to children on various different places on the spectrum of individuals who struggle with social skills. This underlying framework was derived from three main types of minds identified in Grandin's (2013) latest

book, which included "pattern thinkers, word-fact thinkers and picture thinkers." Consequently, the author took special consideration in creating the Structured Story in a manner that would reach each of these different types of thinkers, while still covering all of the social skills building blocks as defined by the practices of ESDM.

Literary structure: rhyme, meter and repetition. Grandin defined pattern thinkers as those individuals who are able to recognize the specific structure and arrangement of things in their environment, and in doing so can easily interpret such things by putting together different parts of the pattern to make a globalized whole. Thus, within the Structured Story, the author utilized specific literary techniques to allow the story to be accessible to those who may be pattern thinkers. In particular, the use of rhyme, meter, and content repetition were three major components built into the story to appeal to children who may have brains that are wired to work best within the structure created by patterns. All three of these components suggest a particular pattern within their implementation, with rhyming, a pattern related to sound[1]; with meter, a pattern related to rhythm, tempo and tone; and with repetition, a pattern related to content. Additionally, all three of these practices have shown to be beneficial literary techniques in improving auditory skills in young children (Harmon, 1999), suggesting that their use not only grabs and keeps the attention of young children better, but it also serves to enhance their auditory attention skills at the same time.

These three components (of rhyme, meter and repetition) also created an opportunity for word-fact thinkers to become attached to the story. As Grandin (2013) states, "you'll know these word-fact thinkers because they'll tell you. They'll recite all the dialogue from a movie. They'll

[1] Additionally, on a more general note, the use of rhyme in children's stories has been supported by several longitudinal studies, which have demonstrated that children who are better at detecting rhymes are shown to have more success when learning to read (Bradley, 1988c; Bradley & Bryant, 1983; Ellis & Large, 1987 as cited in The Benefit of Rhymes, 2014).

rattle off endless statistics about baseball. They'll calmly recall all the important dates in the history of the Iberian Peninsula" (p.187). For children who tend to be prone to internalizing facts and knowledge through rote memorization, the Structured Story is assembled in such a way to make this process easier through the use of rhyme, meter and repetition, as they lend themselves to memorization[2].

The use of fictional characters.

> The talking, thinking, acting animals could provide for children … a buffered engagement with a message of cultural significance. The lively animals would soften the didactic tone and ease the tensions raised by dealing with issues not yet fully resolved or socially controversial (Burke & Copenhaver, 2004, p.210).

The excerpt above from Burke and Copenhaver's 2004 paper entitled "Animals as People in Children's Literature" sheds light on some of the reasons why anthropomorphism has emerged as such a common literary technique in children's literature throughout the past century. This specific technique is one that demonstrates a significant departure from Gray's approach in Social Stories™, where stories are typically personalized to reflect the targeted child as the main character. As one of the goals of the Structured Story technique is for it to be implemented in a group setting and accessible to several children at once, personalizing the story to that degree did not fit within the author's framework for this intervention. Consequently, all of the characters in the story were animals in hopes of transforming the "lesson" into an activity that would more aptly entice the children's interest and reflect a developmentally appropriate method of instruction.

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[2] Additionally, as an anecdotal piece of evidence to support this notion, in past years, several students in the KPA groups showed heightened ability to memorize stories written by this author that included these three literary elements.

The use of illustrations. "Illustrations are literature in their own right and…they sharpen the perception of children, stimulate their imagination and increase their sense of observation. The overall development of children can be aided by good illustrations" (Segun, 1988, p.27). Grandin's (2013) third category of mind is labeled the "picture thinker." She describes this neurological strength as a brain that "thinks in pictures," tending to take in, understand and process information in a primarily visual manner (Grandin, 1995; 2005; 2013). Additionally, significant research exists suggesting that the use of visual schedules, cues and learning tools have been successful interventions for children with attention difficulties and challenges related to verbal comprehension. Of course, the use of pictures also has well documented effects for children without identified neurobehavioral issues as well. Studies have shown that children exposed to books with illustrations have improved comprehension and ability to retell the story than those children who heard the same story without accompanying illustrations (Nicholas, 2007).

On account of the above assertions, the addition of colorful illustrations was an important addition to the Structured Story method. The use of bright colors and cartoon-inspired facial features were incorporated into this process, due to the developmental appropriateness for this specific age group as well as personal preference/style of the author.

Step 2 – Choosing Target Behaviors

In Jan N. Hughes' 1986 review of methods used to select the specific social skills used in social skills training included the following quote from Rathjen's 1984 paper, which stated "the choice of the behavior to be targeted in an intervention program is critical; it is worth the time to ensure that the behavior contemplated for the course will actually lead to success on the goal which has been selected" (p.304).

In this review, Hughes' team considered three different methods used to determine the social validity of the chosen target skill. They defined social validity as "the establishment of a relation between the targeted skill and socially important outcomes, such as peer acceptance or ratings by significant others" (Gresham & Elliot in Hughes, 1986, p. 237). One of these methods, the *functional relation* method, involved selecting skills that had been seen in previous research to result in gains in peer acceptance or other socially important outcomes. This method, along with consideration of the typical curriculum utilized by the Knippenberg, Patterson & Associates, input from the current group leader on what skill she considered to be most in need of specific instruction, and adherence to the ESDM building blocks of social skills was used to determine this study's two identified target behaviors of asking a friend to play and duration of joint play.

As we know, children with neurobehavioral diagnoses commonly have difficulty engaging socially with their same-aged peers. As a result, these children have a tendency to avoid or miss out on opportunities for collaborative play, further compromising the development of positive social skills due to their difficulty initiating and maintaining peer relationships and friendships. As discussed previously, engaging in joint play is an important part of child development that affords children the opportunity to learn and develop adaptive prosocial skills (Parten, 1932). Children who discuss emotions with friends and interact in positive ways with their peers develop a better understanding of the mental and emotional states of others, relative to those children who develop less close peer relationships (Hughes & Dunn, 1998; Maguire & Dunn, 1977 in Siegler et. al., 2003). Thus, targeting asking a friend to play and duration of joint play seemed well-supported goals for the treatment intervention. Additionally, both of these skills have solid foundations in the ESDM social skill's building blocks of emotion, communication, sharing experiences, social and symbolic play and language.

Step 3 – Addition of Experiential Practice Measure

In an effort to make this specific intervention strategy a more experiential and active approach, and to explicitly address the *imitation* component of ESDM's social skills building blocks, an additional opportunity to practice the targeted skills was included in the treatment condition. A similar concept was utilized by More, Sileo, Higgins, Tandy & Tannock (2013) who compared children who received a social-story only intervention with those who received a social-story plus practice session. Although this study did not reflect significant results between the two treatment conditions, it did assert that the children in the social-skills only group demonstrated more ineffective behaviors. (More et al., 2013).

As mentioned previously, modeling, coaching and behavioral rehearsal techniques have all been shown to have positive impact on social skills training. This is particularly relevant when considering past research that suggests the possibility of early interference in important neurological processes for children with social skill deficits. For instance, within the last decade, the suggestion of possible deficits in the mirror neuron system in children with autism spectrum disorder has been a controversial topic related to their compromised social engagement (Oberman & Ramachandran, 2007).

Others have thought disruption in one's ability to engage in appropriate imitation behaviors before the age of two to be a significant contributor related to later challenges in the development of appropriate social behaviors (Young, Rogers, Hutman, Rozga, Sigman & Ozonoff, 2011). Although the research has posited many different possibilities with little agreement, both of the above theories suggest that a more experiential approach to learning (i.e., doing rather than seeing) may be more beneficial for skill development. Thus, the addition of an

explicit, leader-assisted role-play segment was included in the treatment condition to provide a more experiential opportunity for the skill to be internalized.

Research has shown that children who play out the events of a story have improved story comprehension and develop a stronger ability to understand the feelings, thoughts, views and beliefs of others outside of themselves (i.e., theory of mind) (Pellegrini & Galda, 1980 in School Readiness Through Play, n.d.). Additionally, role-play is a commonly used intervention strategies within the Knippenberg, Patterson & Associates socialization group model, further encouraged the principal investigator to include this additional piece of social skills training as a necessary part of the treatment condition.

Description of the Current Study

The present study attempts to reorganize, combine and further develop aspects of previously existing social skills intervention strategies is an effort to create a novel treatment approach that is transdiagnostic, effective and easily implemented across settings and providers. This novel intervention, presented here as the Structured Story technique, involves the methodical implementation of a children's story written and illustrated in a specific manner to make it not only developmentally appropriate, but specifically accessible for children with preexisting social skill deficits. This story was then supplemented by scripted role-plays to allow increased opportunities for the children to physically and verbally practice the skill with other peers in the group in efforts to further internalize the skill being taught.

As discussed previously, the specific social skill of asking a friend to play was chosen due to its foundational position within the hierarchy of social skills development, mainly based on the fact that children who are engaged with other children in play will have more opportunities to develop additional social skills then those who engage in solitary or parallel play.

The treatment phase of the study lasted for four weeks. Each week, the children in the treatment condition were read the story and walked through the role-play scripts by the group co-leaders. Immediately following the completion of the role-plays, the children were granted 10 minutes of free play, which was video taped for later review by the principal investigator. These segments were then coded to assess for the presence of play initiations (e.g., asking a friend to play) as well as duration of joint play between two or more children.

Method

Participants

This study was conducted in affiliation with a private practice in Denver, Colorado. Knippenberg, Patterson & Associates is a private therapy group that specializes in socialization groups for children with neurobehavioral disorders. All children enrolled in the two preschool through first grade groups during the 2013-2014 academic year were given the opportunity to participate in the study. As per the requirements of the socialization group program, all children involved in the study were between the ages of 4 and 7 who had either (a) A preexisting neurobehavioral diagnosis and/or (b) Previously observed social skills deficits, as determined through a screening appointment conducted by the lead therapist.

Consent

Parental consent was collected prior to implementation. Given the ages of the children involved, child assent was not required for participation. If parental consent was not granted for participation, the child was removed from the room during the video taped segment. Of 14 potential group members across two groups, we received consent for 13 children in the current study. As the practice runs it socialization groups out of two different locations within the greater Denver area, all children involved in the study were assigned to either the treatment

condition or the control condition, depending on the group day and location in which they were enrolled. These locations were named location 1 and 2. Relevant information related to the age, presenting diagnoses and participation location of the children involved are included in Table 1.1 found in Appendix A.

Confidentiality

The privacy of all children involved in the study was maintained throughout its implementation. Measures taken to protect the identities of the children and families involved in this study included using a number system to identify all participants during the scoring phase. This number system was then utilized on all scoring documents, data spreadsheets and presented results of the study. When all scoring was complete, the lead therapist and principal investigator matched this number system to the previously collected initial questionnaires. This was done in order to keep the principal investigator "blind" to the diagnoses of participants prior to scoring. Thus, the children's identities were only known to the lead therapist, her two assisting co-leaders, and the principal investigator.

Data collected via paper questionnaires was transferred to electronic files protected under two levels of security (i.e., locked computer and password protected document), maintained by the principal investigator. All hard copies of these forms were shredded following this transfer, along with all raw scoring materials.

The video camera was kept in a locked closet in between sessions. Video recordings of the play segments were erased from the original camera after they were downloaded onto the personal laptop of the principal investigator. These video recordings were deleted following the completion of the scoring phase by the principal investigator.

Settings/Administrators

As mentioned previously, the study took place in two different locations within the greater Denver area. In both locations, the same group therapy room was utilized throughout all 4 weeks of the active phase of the study. As mentioned above, the two locations have been labeled Location 1 and Location 2.

The study was implemented by the same lead therapist in both locations. This therapist holds a masters degree in Counseling and is a licensed professional counselor in the state of Colorado. This lead therapist learned the study protocol and the specific directions for implementation over three one-hour meetings with the principal investigator. She then communicated these protocol guidelines to the two graduate-level co-leaders with whom she runs these specific groups. At Location 1, the co-leader was a graduate-level student pursuing her social work degree, and at Location 2, the co-leader was a graduate-level student pursuing her doctoral degree in clinical psychology. The lead therapist determined which location would be the treatment condition and which would be the control condition. Consequently, children enrolled in the group that met at Location 1 were assigned to the treatment condition, while children enrolled in group at Location 2 were assigned to the control condition.

Timeline

The study was initially designed to be carried out over a time period of 5 weeks, with week one of the study designed to gather baseline data, and weeks two through five to be the active treatment phase of the study. The original plan for the baseline session consisted of allowing the children in both groups to engage in a ten-minute free play segment that would be video recorded by the lead therapist. For those enrolled in the treatment condition, information gathered during the baseline session was to provide an important data point that would allow the investigator to compare their behavior before and after the intervention was put in place. However, due to an

administration error early in the study, the children in the treatment condition were administered the intervention during the first week of the study, thus tainting the possibility of acquiring any baseline data for the treatment group. Although this administration error significantly compromised the original plan for how the data would be analyzed, the investigator chose to continue the study as planned as comparisons could still be made between the two groups. The timeline was then adjusted to accommodate this error, by counting the first week of the study as the first week of the active phase of treatment. Regular group practices were restored following week four of the study.

Materials and Measures

Initial questionnaire. The parents of all consenting participants received an initial questionnaire prior to the active treatment phase of the study. The purpose of this questionnaire was two-fold: to capture demographic data related to age, school grade and diagnosis, as well as to provide an additional pre-screen related to each child's proficiency with five social skills that are fundamental parts of the preexisting socialization group curriculum at Knippenberg, Patterson & Associates. The five specific skills in question were listed as follows: (a) Asks a friend to play, (b) Shares with others, (c) Plays by the rules, (d) Gets along with others, and (e) Handles frustration appropriately. Parents rated their child's proficiency level for each of these five skills on a five point Likert scale. A copy of the initial form is located in Appendix B.

Structured story. The lead therapist was given a laminated and bound copy of the Structured Story entitled "Zog the Frog Asks his Friends to Play." Based on evidence-based concepts from existing literature related to how social skills are best taught to children with existing social skills deficits (see literature review), the Structured Story is the first component of the treatment condition. It is included in Appendix E.

Therapist Scripts. The lead therapist was given specific scripts to be utilized in each of the study's locations. This was done in an effort to increase standardization of how the intervention was implemented, and to reduce confounding treatment effects such as prompting or redirections, which are frequent teaching methods utilized in social skills training. The scripts are included in Appendices C and D.

Follow-Up Questionnaire. After the completion of the last active treatment week of the study (week 4), all parents were asked to complete a follow up questionnaire. This questionnaire was identical to the one distributed the parents initially, with the same questions related to demographic data and the accompanying questions related to social skills proficiency (see Appendix A).

Play Materials. The Structured Story "Zog the Frog Asks his Friends to Play" involves three different play scenarios in which the main character approaches a peer and requests to join in on their play activity. Consequently, prior to the start of the active phase of treatment, both groups were provided with play materials that mimicked those featured in the Structured Story. The treatment group was given 12 zip locked bags of materials which contained the following: four bags of 4-5 vehicles, four bags of a mixture of plastic colored blocks and four bags of an assorted collection of colored markers. During the role-play segment, children used these materials to act out each scenario from the book where Zog requests to play with his peers. During the free play segment for both the treatment and control group, these materials were distributed throughout the play area to be utilized if the children chose to do so. Additional play materials provided by Knippenberg, Patterson & Associates or brought in by group members were also available to use during these play segments.

Procedures

Implementation of the intervention in the treatment phase consisted of reading the Structured Story (10-15 minutes), completing all three role-plays (15 minutes), and engaging in the video-recorded free play segment (10 minutes). This time allotment was the same utilized in Delano and Snell's 2006 study and thus was deemed an appropriate amount of time to gather adequate information and fit comfortably within the KPA group's typical 60 minute session. Thus, from start to finish, the intervention took approximately 40 minutes to implement.

Scoring

Observation. "Naturalistic observation is the mode of data collection most strongly advocated by behavior therapists" (Bellack, Hersen & Lamparski, 1979). As such, it was the goal of the principal investigator of this study to attempt to replicate natural observation in order to collect and code all data. However, real-time observations were determined to be too disruptive to the group process at KPA, resulting in the use of video camera to record all play segments. The video recordings will not be used in any presentation related to this study or otherwise; it was kept for data collection and scoring purposes only.

Documentation. Excel charts were used to track target behaviors for each individual child across all four weeks of the active phase of the study. Results were further interpreted through statistical analysis with the aid of the Statistical Package for the Social Sciences (SPSS) computer software. Both files were password protected as individual documents and further password protected by preexisting security measures already in place on the private computer.

Target Behaviors. The outcome of this study was measured based on two specific target behaviors. Each child was scored for the number of play initiations they made as well as the duration of time spent engaged in joint play with at least one other child.

Play initiations were defined as any initial instance where a child made a verbal attempt to involve another child in play. This included statements like “Can I play with you?,” and “will you play with me?” as well as more specific play requests such as, “Do you want to build a railroad?” It also included statements such as “do you want to be this car?” or, “you can have this block,” as these statements served to instigate a play sequence. Other social bids, such as “this is so cool!” or “who had school today?” were not coded as play initiations, but were documented as social bids. Children did not get credit for initiations made during an already existing play segment (e.g., if two children were engaged in joint play and one suggested, “now let’s make a tower,” this was not counted as an additional initiation because the children were already engaged in joint play). Similarly, some children used play initiations within their play sequence, (e.g., making one puppet say to another, “will you play with me?”) which was also not counted as an additional initiation, as it was within an already existing play sequence. These determinations were influenced by early delineations in Parten’s research related to the 6 most common types of social initiations observed in her original study (1932). They were further operationalized as described above to clarify scoring procedures.

For the purposes of this study, joint play included:

> associative play – when children play together, share materials and engage in some social interaction, but do not work toward a common goal.
> cooperative play – when children engage in “teamwork” and play together for a common purpose. (as cited in Rock, n.d.)

The investigator defined joint play as both of these stages because of the developmental appropriateness for the children enrolled in the study. Parten, along with present day developmental researchers and theorists, agree that most typically developing children start to engage in associative play between the ages of 3 and 4. Cooperative play is then expected to

develop between the ages of 4 and 5. For scoring purposes in this study, associative play was differentiated from parallel play (when children play near each other but do not interact or engage with each other) by closely monitoring for instances of social communication between the children as they engaged in the activity.

Coding. All data was coded, scored and analyzed by the principal investigator following the active phase of treatment. All recorded video segments were coded and scored for both target behaviors, amount of play initiations and duration of joint play. The scoring procedure required that the principal investigator watch one child at a time, minute by minute, for the entire ten-minute segment. Similar methods in Parten's seminal research suggested that coding smaller segments allowed for more accurate observations of what was occurring during busy, free-play environments (1932).

Results

An independent samples T-test was used to compare group differences between the treatment and control conditions for both target behaviors. Due to several complications related to administration errors and inconsistent attendance (discussed in more detail below), the statistical comparison was made between averages derived for each target behavior across all members of each group. The averages were first computed on an individual basis, and then these were used numbers to find averages across all group participants session by session. For instance, five children participated in session one at Location 1. After coding and scoring was complete for child 1, the principal investigator then computed the percent of time this child was engaged in joint play. The number of initiations for this child was also documented for session one. This was then repeated for the remaining four children present for session one at Location 1.

The results for each child in this group were then added together in order to compute an average number of initiations, and an average percent of time in which all members at Location 1 were engaged in joint play during the first session. This was repeated for all sessions at both locations. When averages had been computed for each of the four treatment sessions at both locations, all averages gathered from Location 1 (for both initiations and percentage of session spent in joint play) were added together in order to compute an average final amount for each of the target skills that represented that group's overall performance over the four-week treatment implementation. Thus, the final average score for duration engaged in joint play and final average score for initiations for Location 1 was then statistically compared to those same numbers as computed for Location 2. The original data tables reflecting the breakdown of these numbers, session by session, for each location are included in Appendix F.

Although raw results indicated that the children who received the Structure Story with Role-Play intervention performed slightly better (participated in joint play an average of 48% with an average of 6 appropriate initiations per session), than the children at who did not received the intervention (participated in joint play 42% of the time with an average of 3.75 initiations per session), the statistical analysis of this data did not reflect significant results for either the joint play (t=.330, p=.747) behavior or the number of initiations (t=1.081, p=.303). These results are highlighted in Table 2.1 below.

Table 2.1 Independent Samples T-test Results

	n	Mean (S.D.)	t-test	p value
Joint play				
Location 1	7	.481		
			.330	.747
Location 2	6	.429		
Play Initiations				
Location 1	7	1.30		
			1.08	.303
Location 2	6	.72		

Discussion

Researchers have long acknowledged the importance of early social functioning and its role in healthy development. Though many early social skills develop naturally within the course of typical development, children with neurodevelopmental disorders frequently exhibit deficits in social functioning, often needing additional support in order to effectively master these skills. As the rates of common neurodevelopmental disorders continue to increase, more and more children will be in need of services to address their social challenges.

The current study was an effort to pilot a therapeutic approach to social skills teaching that can be implemented easily by parents, teachers and other providers across multiple settings. Though this study was carried out as part of a specific social skills therapy group, the intention of the author was to create a novel approach that could be utilized outside of therapeutic settings, accessible to children with social skills challenges as well as their typically developing peers in a child's natural environment.

The implementation of this study faced many challenges, both related to execution and design. These complications are discussed in more detail below, with considerations of how these challenges could be controlled for in future research.

Determining Target Behavior

In Hughes (1986) review of the methodology behind social skills selection, he stated

> "…researchers need to determine if individuals selected for training are actually deficient in the targeted cognitive or behavioral skills. Minimally, individualization requires evidence that the research participant-trainee is deficient in the selected skills, based on preintervention assessment of the subject's skill level." (p. 242).

Connie Kasari (2014), social skills researcher at the University of California, also speaks to the necessity of individualization in social skills training, and advocates for getting input from children and determining their specific deficits by observing them in their natural settings. Kasari has also spoken to the overly generalized approach taken by many social skills groups and didactic programs that tend to follow a predetermined curriculum rather than assess the relevance of a particular social skill for the children involved. Though no formal social skills assessment was done for each child prior to the implementation of this study, the lead therapist indicated that asking a friend to play was a specific skill deficit she observed in the children enrolled in this year's preschool groups.

The biggest challenge to the validity of the current study involved an administration error at the first week of treatment. This prevented gathering data prior to the intervention to determine pre-intervention levels for the target behaviors. As mentioned previously, the first week of implementation was designed to include a ten-minute video recorded free play segment before the children were read the Structured Story. As this was not obtained, no baseline was established for the treatment group. This is an important step that would need to be included in any future replications of this intervention.

Population and Setting Considerations

The results of the current study were also significantly weakened by the small and inconsistent sample utilized. Though the groups were relatively close in size, the study population was constantly in flux due to absences. Although an attempt was made to control for this by utilizing group averages in the data comparison, absences affected how frequently children received the intervention, thus preventing any conclusions to be drawn related to frequency of exposure and outcome.

As one of the objectives of the current study was to implement a novel intervention in the most natural way possible, this created additional variables that may have affected the final outcome. For instance, though both groups were provided with specific play materials to be utilized during the video recorded segments, these were not consistently distributed for all four treatment sessions. Additionally, other materials available during the free play segment (which is a common KPA practice), proved to promote some inconsistencies week to week. This was observed especially when a child would bring in a favorite toy that they were not willing to share, or if a child brought in a board game that required more than one player.

Another observation that was not adequately addressed in the study design was the issue of interpersonal conflict. This occurred many times throughout the play segments, resulting in the need to create a way to code for the behavior during the initial tape review. Joint play was operationally defined as associated or cooperative play for the purposes of this study. However, children also engaged in conflict with peers, which could not be coded as participating in joint play during the time they were engaged in conflict. The time spent engaged in conflict also fluctuated depending on how the child resolved the problem. As an example, some children asked the co-leaders for assistance when experiencing a peer conflict, which frequently required several redirections and assistance from the co-leaders, thus decreasing the amount of time that child could be coded for target behaviors.

Addressing Transdiagnostic Efficacy

All demographic data, including preexisting diagnoses, were collected when the study began in hopes of analyzing data across different diagnoses. Due to many of the complications listed above related to small sample size and absences, these data did not seem robust enough to by analyzed for any specific treatment effects related to diagnosis. In the future, with the addition of

collecting pre-intervention baseline levels for the target behaviors and a larger census of participants, it would be helpful to assess for transdiagnostic efficacy by comparing diagnostic groups.

Comparison Groups

Given the structure of the existing KPA groups, using one group as the treatment condition and one as the control condition seemed an easy and natural way to implement the current project. However, though a randomized application of the intervention to control for design bias is important, a closer look at the demographic breakdown of each group may be warranted, particularly when attempting to make the argument of transdiagnostic efficacy. If replicated, it is advisable to ensure that both the treatment group and control group reflect similar populations. Though this was partially controlled for by using children who have already been enrolled in a social skills group, better documentation of the diagnostic distribution across groups may help bolster the study's validity in future replications.

Another consideration related to the make up of test groups is that of pre-existing familiarity among members. This might have been partially captured by the intended pre-intervention baseline video, but some supplemental input from the group leaders may have also been helpful regarding this issue. As in all social skills programs, the goal of this intervention is to teach a skill that can be easily generalized. As this study began several months after the start of group, it is likely that group members had developed a context for one another that included more and less preferred play partners. A similar study would produce the most meaningful results if implemented immediately at the start of a social skills program at which time none of the members have preexisting friendships with in the group.

Comparison Measures

In the first iteration of this study's proposal, the study involved comparing three groups and utilizing a second treatment condition. In this version, one group would remain the control group, one group would be administered the Structured Story without the supplemental role plays, and the last group would get the combined condition, as implemented in the current study. This design was created in hopes of analyzing the effectiveness of the story on its own versus when it is combined with role-play. This would be valuable information in determining what parts of this intervention are truly contributing to greater outcomes.

Another challenge of the current study was that the teaching strategies/weekly activities in the control condition were largely unknown to this author. The control condition was defined to be a typical week of group, as determined and implemented by the group leader, but the details of what that looked like more specifically were not able to be obtained. It may be beneficial in future replications to conduct a within group design where post-test measures are compared to baseline measures for the same group. Then, if the intervention yields significant results as compared to no intervention within one group, it could then be compared to other specific strategies (e.g., Structured Story condition or Social Stories^{TM} condition) to determine its efficacy as compared to other approaches to social skills training.

Coding and Scoring

To increase study validity, more specific guidelines should be created related to the coding and scoring procedures. Through observation, additional behaviors that needed specific coding (e.g., conflict and social bids) in order to cleanly distinguish target behaviors from other observed behavior were found. The use of a multiple rater system would also be a necessary addition to the study design in order to prevent bias and make the study more thorough. This

would likely lead to more specific definitions of the target behaviors, as all of the individuals involved in the scoring process would need to clearly understand all scoring criteria.

Considering the Addition of Qualitative Components

Though no explicit measure, nor supplemental scoring system, was created to capture qualitative data, this might be an interesting addition to consider in future studies. Rating scales related to the implementing provider's opinion of the intervention might be a useful way to gather additional information. Ease of implementation and relevance to your group/classroom might be questions to consider asking the implementing provider after the intervention has been put in place. Additionally, a more formal method for capturing data related to the children's interest in the Structured Story may be valuable to consider. Significant research exists related to children's motivation and engagement as predictive factors for successful learning (Griffith, 2014).

Though the current study faced many obstacles related to its implementation and the overall study design, the concept of the Structured Story approach is one that may benefit from additional consideration in future research. Creating more specific guidelines to control for confounding variables and improve the study's implementation will be necessary steps in improving the study design for future replications. Social competence plays a critical role in healthy development, and as the rates of children with neurobehavioral diagnoses continue to increase, we need easily applicable and naturalistic interventions to teach and encourage prosocial behaviors for all children. Additional research may help to determine if the Structured Story approach may be one way of addressing this important issue in the future.

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APPENDIX A

Table 1.1. Participant Demographics – Age, Year in School, Diagnosis

Participation Number	Treatment Location	Age	Year in School	Primary Diagnosis	Additional Diagnosis	Additional Diagnosis
Child 1	1	6	kindergarten	ASD	Anxiety	
Child 2	1	5	kindergarten	ASD	ADHD	SPD
Child 3	1	5	kindergarten	DBD		
Child 4	1	6	kindergarten	SPD	APD	LD
Child 5	1	4	preschool	ASD	SPD	
Child 6	1	6	kindergarten	SPD		
Child 7	1		first grade	ASD	Speech Impediment	
Child 8	2	5	first grade	ASD		
Child 9	2	4	preschool	ADHD		
Child 10	2	7	first grade	Profound Hearing Loss - cochlear implants		
Child 11	2	5	kindergarten	ADHD		
Child 12	2	5	kindergarten	ASD		
Child 13	2	6	kindergarten	unknown		

Table 1.1 Participants in current study – Diagnostic presentation, age, study location
*ASD – Autism Spectrum Disorder; ADHD – Attention Deficit Hyperactivity Disorder; APD – Auditory Processing Disorder; SPD – Sensory Processing Disorder; DBD – Disruptive Behavior Disorder

APPENDIX B

Child's Name: _____ Date:_____

Date of Birth: _____

My child is currently in:

□Preschool □Kindergarten □First Grade

Pre Existing Diagnosis (choose all that apply):
□ Autism Spectrum Disorder (including Pervasive Developmental Disorder, not otherwise specified; Asperger's Syndrome)
□ Attention Deficit/Hyperactivity Disorder □ Sensory Integration Disorder
□ Auditory Processing Disorder □ Anxiety Disorder
□ Mood Disorder □ Unknown
□ Learning Disorder Please Specify:_____
□ Other Please Specify:_____

Current Social Skills
Please circle the number that best describes your child's proficiency with each of the following social skills:

Asks a friend to play	**1** Rarely does this	**2**	**3** Occasionally does this	**4**	**5** Always does this
Shares with others	**1** Rarely does this	**2**	**3** Occasionally does this	**4**	**5** Always does this
Plays by the rules	**1** Rarely does this	**2**	**3** Occasionally does this	**4**	**5** Always does this
Gets along with others	**1** Rarely does this	**2**	**3** Occasionally does this	**4**	**5** Always does this
Handles frustration appropriately	**1** Rarely does this	**2**	**3** Occasionally does this	**4**	**5** Always does this

APPENDIX C

Therapist Protocol –
Control Treatment Condition
(To be administered on Day 1 for both groups. To be administered on weeks 2-5 for control group only.)

The therapist should introduce the play segment by following the script below. As the lead therapist introduces the play segment, the coleader can get out the play materials and spread them around the room. These materials should include the specific materials provided by the study and other play materials typically available for use in group.
T: Today we are going to have a chance to have play time with our friends! You will have 15 minutes to play with the materials provided. See if you can find some one in group to play with you! It's always more fun being able to share toys and play games with our friends. Ready, set, go! (start timing/videorecording 15 minute segment. Do not offer direct prompts regarding playing together during the timed segment. Do redirect maladaptive behaviors as usual.)

APPENDIX D

Therapist Protocol –
Treatment Condition

Start the lesson by gathering all group members around the therapist who will be reading the story. State the following:
T: *Today we will be reading a story about Zog the Frog. Zog has trouble playing with his friends at school. In this story, we watch as Zog learns how make friends and has more fun during play time.*
(Read Story)
T: *Now we are going to practice asking our friends to play – just like Zog! We are going to take turns pretending to be the characters we learned about in this book. You will get a turn to be every character we read about. We will start by giving you a partner to practice with.* (At this point – number all children 1 or 2 by counting off. Each child will be working with the person sitting next to them. If there is an uneven number of children that day in group, the coleader can partner with the odd numbered child.)
(First trial)
T: *All of the ones are going to be Zog, and all of the twos are going to be Rox the Fox. What was Rox playing with?* (wait for children to answer Blocks, if they do not, refer to this page in the book to prompt them. Then give each child who is pretending to be Rox four blocks to play with. Encourage them to play with the blocks, just like Rox did. Then prompt the child pretending to be Zog to tap the other child on the shoulder and ask *"can I play blocks with you?"* Help the children do this if they are having trouble. Then prompt the child playing Rox to answer, *"you may!"* Allow children to act out playing with these materials for 30 secs to one minute. Then the children will switch roles and repeat.
(Second Trial)
T*: Ok – now we are going to try to be different characters. All of the ones get to be Zog again and all of the twos will be Beasle the weasel! What was Beasle playing with?* (wait for answer or prompt with book. Then give everyone who is playing Beasel a piece of white paper and 4 markers. Encourage them to start drawing, just like Beasle did. The prompt the child pretending to be Zog to tap the other child on the shoulder and ask *"can I play markers (or draw) with you?"* Prompt children playing Beasle to answer, *"you may!"* Allow children to act out playing with these materials for 30 sec to one minute. Then all children will switch roles and repeat.
(Third Trial)
T*: Ok – now this is our last character in the story – Buck the Duck! All of the ones get to be Zog again and all of the two will be Buck the Duck! What was Buck playing with?* (wait for answer or prompt with book. Then give everyone who is playing Buck two small car/trucks. Encourage them to start playing with the cars and trucks, just like Buck did. The prompt the child pretending to be Zog to tap the other child on the shoulder and ask *"can I play cars/trucks with you?"* Prompt children playing Buck to answer*, "you may!"* Allow children to act out playing with these materials for 30 sec to one minute. Then all children will switch roles and repeat.
Once all of the children have had a chance to act out each character, start script to introduce play time, included below.

Following the completion of the role-plays, introduce the play segment by reading the introductory prompt below. As the lead therapist introduces the play segment, the coleader can get out the play materials and spread them around the room. These materials should include the specific materials utilized in the story (provided by the study) and other play materials typically available for use in group.

T: *Now you guys are going to have a chance to play just like Zog and his friends. You will have 15 minutes to play together! Remember, Zog was able to have more fun when he asked his friends if he could play with them – so you should try to play with your friends too! Ready, set, go!* (start timing/videorecording 15 minute segment. Do not offer direct prompts regarding playing together during the timed segment. Do redirect maladaptive behaviors as usual.)

APPENDIX E
"Zog the Frog Asks his Friends to Play"

(*insert story here*)

APPENDIX F

Location 1; Session 1

Child	Percent of time engaged in joint play	Child	Initiations
1	70%	1	1
2	90%	2	2
3	77%	3	2
4	94%	4	4
5	0%	5	0
AVERAGE TOTAL:	66%	TOTAL:	9

*Child 6 and 7 absent

Location 1; Session 2

Child	Percent of time engaged in joint play	Child	Initiations
1	13%	1	0
2	46%	2	0
3	55%	3	0
4	60%	4	0
5	13%	5	0
6	67%	6	1
7	21%	7	3
AVERAGE TOTAL:	39%	TOTAL:	4

Location 1; Session 3

Child	Percent of time engaged in joint play	Child	Initiations
2	97%	2	0
5	2%	5	0
6	97%	6	1
7	2%	7	2
AVERAGE TOTAL:	50%	TOTAL:	3

*Child 1, 3 and 4 absent

Location 1; Session 4

Child	Percent of time engaged in joint play	Child	Initiations
1	15%	1	0
2	28%	2	2
3	58%	3	4
4	72%	4	2
5	11%	5	1
AVERAGE TOTAL:	50%	TOTAL:	9

*Child 6 and 7 absent

APPENDIX F (contd)

Location 2; Session 1

Child	Percent of time engaged in joint play	Child	Initiations
8	3%	8	0
9	23%	9	0
10	11%	10	0
11	62%	11	5
12	52%	12	0
AVERAGE TOTAL:	30%	TOTAL:	5

*Child 13 absent

Location 2; Session 2

Child	Percent of time engaged in joint play	Child	Initiations
8	14%	8	0
9	14%	9	0
10	3%	10	0
11	53%	11	0
12	78%	12	0
13	78%	13	4
AVERAGE TOTAL:	40%	TOTAL:	4

Location 2; Session 3

Child	Percent of time engaged in joint play	Child	Initiations
8	0%	8	0
9	55%	9	1
10	0%	10	0
11**	41%	11	1
13	52%	13	1
AVERAGE TOTAL:	30%	TOTAL:	3

*Child 12 absent; **Child 11 entered session at 7:35 of ten-minute free play segment. Percentages were calculated based on the amount of time present.

Location 2; Session 4

Child	Percent of time engaged in joint play	Child	Initiations
8	7%	8	0
9	61%	9	0
10	83%	10	0
11	55%	11	1
13	83%	13	2
AVERAGE TOTAL:	48%	TOTAL:	3

*Child 12 not visible in video