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Role Play And Social Stories: An Intervention For Increasing Verbal Initiations In Children With Autism

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ROLE PLAY AND SOCIAL STORIES: AN INTERVENTION FOR INCREASING
VERBAL INITIATIONS IN CHILDREN WITH AUTISM

by

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ABSTRACT

The effect of a treatment package consisting of social stories and role play on the verbal initiation of one 4-year old girl with autism was examined. Using a multiple baseline across activities treatment design, the investigator measured the number of verbal initiations during 10-minute sessions while the participant engaged in one of three activities, board games, pretend play, or constructive play. Baseline data, baseline probes and treatment data were collect for the three activities. The results indicate that the treatment package was effective in increasing the participant's verbal initiations across all three activities.

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TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

In the past 10 years there has been an unprecedented rise in the rate of autism spectrum disorder (ASD) diagnosis. The Center for Disease Control's (2012) current estimate of 1 in every 88 births resulting in an autism diagnosis has led many to consider it the next epidemic. With an overwhelming number of young children diagnosed with ASD, there is a clear necessity for evidence-based practices that support the exceptional needs of these children.

Autism can be described as "a complex disorder involving delays in and problems with social interactions, language and a range of emotional, cognitive, motor and sensory abilities" (Greenspan & Weider, 2006). Central to the diagnosis of ASD is the presence of deficits in the social domain, as children with ASD are often "uninterested in reciprocity, playing with others, peer relationships, sharing or even eye contact" (Kearney, 2006, p. 138). As a result, children with autism often have difficulty engaging with others, communicating with peers, taking another's perspective or understanding empathy. Given these social deficits, children and adults with ASD tend to experience higher rates of loneliness (Bauminger & Kasari, 2000), and when in school, have an increased likelihood of rejection from peers and thus, social isolation (Chamerbalin, 2000). The undeniable link between social competence and school success, independence and other optimum adult outcomes (Kemple, 2004), indicates a paramount need for empirically supported interventions that effectively enrich a child with ASD's social function. One potential intervention for addressing some of the social deficits associated with autism is social stories. However, two facts indicate a need for additional empirical investigation of the effectiveness of social stories as a means to increase social

skills in children with autism. First, there exist inconsistencies in the effectiveness of social stories to increase social skills, like joining-in and maintaining conversation with peers in children with ASD (Karkhaneh, Clark, Ospina, Seida, Smith, and Hartling, 2010). Second, social stories are frequently used by practitioners working with children diagnosed with ASD (Ali and Frederickson, 2006).

CHAPTER TWO: LITERATURE REVIEW

While ASD can result lead to deficits in the cognitive, motor and communication domains, the diagnostic criteria suggests that most children with ASD have at least some difficulties engaging in, and understanding how to interact with peers. For instance, Jackson, Fein, Wolf, Jones, Hauck, Waterhouse and Feinstein (2003) found that those participants diagnosed with ASD were less likely to engage in sustain play, would infrequently responded to peers , and would often ignore peers, and these rates were significantly lower then the 11 children with mental retardation in which the ASD participants were compared. Moreover, unlike neurotypically developed children, children with ASD have been shown to be more aloof in their social interactions and when they did interact with others, their lack of social understanding led to odd interaction (Scheeren, Koot, & Begeer, 2012). It has also been shown that children with ASD tend to have greater difficulty understanding and interpreting emotions, body language and vocal intonation making it difficult to appropriately interact with other children (Baron-Cohen, Wheelwright, Hill, Raste, & Plum, 2001). Schietecatte, Roeyers, and Warreyn (2011) also noted hat children with ASD initiate joint attention at low levels. As Strain and Schwartz (2001) noted, the consequence of theses social difficulties is that children with ASD have fewer friendships and meaningful relationships, and when compared to typical peers, are less likely to be part of a group and are seldom accepted by their peers at school (Chamerberlain, Kasari and Rotheram-Fuller , 2007). Therefore, it is crucial for children with ASD to learn how to effectively interact and communicate with peers.

One intervention often widely used to address deficits associated with ASD has been social stories. In fact, social stories are readily cited as having success in reducing inappropriate behavior such as aggression, tantrums, loud vocalization and other disruptive and socially isolating behaviors (Kokina & Kern, 2010). Social Stories are short stories created specifically to address an aspect of a social situation that may be challenging for a child with autism to interpret and, therefore, are unable to respond to appropriately (Gray, 1998). By using simple explanations, social stories can explain the social phenomenon, clarify the social cues and also provide children with responses that would be appropriate for them to use in the given social situation. When effective, social stories teach children with ASD the skills necessary to be successful in often confusing social situations, which is consistent with Hanley-Hochdorfer, Bray, Kehle and Elinoff's (2010) recommendation that skill acquisition should be central to any intervention aimed at improving social deficits.

Research exists that has exclusively explored social stories as an intervention for social skill acquisition, but it has yielded varied results. For instance, Crozier and Tincani (2007) utilized social stories over several weeks to enhance the play behaviors of one boy with autism. However, the participant exhibited only a slight increase in appropriate play and these increases were not maintained once the intervention was removed. Modest increases of socially appropriate behavior were also reported in Scattone, Tingstrom and Wilczynski (2006), suggesting that social stories have noticeable, albeit small benefits for children. Also important to note, in Scattone, Tingstrom and Wilczynski (2006), slight increases were only observed in two of the three male participants, revealing that the moderate effectiveness of social stories is inconsistent across participants. These results

4

were supported by Quirmbach, Lincoln, Feinberg-Gizzo, Ingersoll and Andrews (2008) who found that there was an overall increase in play skills (greeting, requesting play, asking others what they want to play and accept another's game choice), but only 30 of the 45 showed individual improvement.

Furthermore, Ricciardelli (2006) examined how social stories influenced five social domains for six children with autism. Improvements from baseline were noted in only one of the five domains, paying attention. Similarly, Sansosti and Powell-Smith (2006) also found social stories' effectiveness to be limited to the type of social skill, as they noted that the reading of social stories by caregivers over a 3-week time span increased the percent of intervals in which maintaining conversation with peers occurred from 57 % of intervals to 86 % of intervals which was a 57 % increase from baseline. These results led Sansosti and Powell-Smith (2006) to conclude that social stories were an effective procedure for increasing the participant's ability to engage in reciprocal communication with peers. However, the second participant's joining-in behavior increased only 36% from baseline, which Sansosti and Powell-Smith's (2006) note was not sufficient to propose that the social stories were an effective procedure for increasing the participant's joining-in behavior. Reynhout and Carter's (2006) extensive review of the literature on social stories also notes mixed results regarding the effectiveness of social stories in teaching children with autism important social skills.

Social stories, however, have received empirical support as an effective procedure when used as a part of a treatment package. In Scattone, Tingstrom and Wilczynski (2006), investigators examined the influence video modeling and social stories had on the ability of 3 boys, aged 8 and 13 who were diagnosed with autism, to initiate appropriate

social interactions. In their study, Scattone et al. (2006) defined appropriate social interactions as "a verbal, physical, or gestural initiation or response to a peer, a comment or question related to the activity or conversation; continued engagement in the same activity as the peer; a response to a peer's comment or question with a comment related to the conversation; an initiated comment or question related to the conversation; or a physical gesture such as nodding to indicate approval or disagreement" (p.214)**.** They used a multiple-base line approach across participants. For participant one, the data revealed that appropriate social interactions increased by 51 % over baseline. For participant two, the data showed that there was an increase of 48 % from baseline. Since, maintenance data was not collected on these participants, it is unclear if appropriate social interactions persisted once the intervention was removed. Interestingly, unlike the prior two participants, the third participant did not exhibit any change in rates of appropriate social interactions during the intervention phase, suggesting that there may be individual variation with regards to the effectiveness of social stories. In a study with similar methodology, Scattone (2008) found that video modeling and social stories resulted in a moderate increase of eye contact and social initiation for a 9-year old boy diagnosed with autism. Moreover, data collected 2-weeks following the removal of the intervention indicated that the participant maintained the targeted skills, as rates of eye contact and social initiation remained similar to the rates observed during the intervention phase. These results propose that the intervention may have been effective in teaching the boy social skills. Social stories in conjunction with positive reinforcement (Bernad-Ripool, 2007; Agosta Graetz, Mastropieri, & Scruggs, 2004) and with prompting (Washburn, 2006; Smith, 2001; & Scattone et al., 2002) have also been studied

thoroughly and their effectiveness as treatment packages has been empirically supported. These studies, also suggest that a treatment package involving social stories not only would be more effective, but might support maintenance of the skills not observed in many social story only interventions.

One social skills intervention that might pair well with social stories is role playing. Role playing is an intervention where skills are practiced by acting out a social situation, and has shown success when used as an exclusive treatment for improving social skills (Mason & Witkins, 2006). Yet, the use of social stories and role play interventions as a combined treatment package for improving social skills has not been widely studied. In fact, there exists only one study, Chan and O'Reilly (2008) that has that has utilized role playing together with social stories as a treatment package for teaching social skills. In Chan and O' Reilly's (2008) study, two boys, age 5 and 6 with autism, showed an increase in both their hand raising and appropriate social interaction as a result of the treatment package. These results suggest that a treatment package consisting of social stories and role play may be a potential intervention for teaching children with autism social skills. Additionally, Chan and O' Reilly (2008) found that skills were maintained at both the 2 and 7 month post intervention follow-ups. These findings support the notion that some of the maintenance issues associated with social story only interventions may not be present when social stories are used with role playing to teach social skills.

The purpose of the current study is to explore the effectiveness of a treatment package comprised of both social stories and role play, in teaching children with autism how to generate verbal initiations during play with peers. More specifically, the research

question being examined is "Will a treatment package comprised of a social story and role play prompts, increase the verbal initiation of children with autism spectrum disorder towards peers across varying play activities?

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CHAPTER THREE: METHODOLOGY

Participants

The study examined the verbal initiations of one female evaluated by a neurologist and determined to meet the criteria for Autism Spectrum Disorder (ASD) based on the criteria delineated in the Diagnostic and Statistical Manuel-4th edition (DSM-IV). The participant was 4-years old at the start of the study, but during the course of the study she turned 5 years old. Participant received a diagnosis of ASD at 2 years 6 months, and has been receiving ABA services through two private companies shortly after receiving the diagnosis. She has received speech therapy in the past, but was not receiving such services at time of the study. Participant attends a local private preschool program with some behavioral support and occasional behavioral support staff. While she is able to verbally express herself and has a large play repertoire, engaging in a variety of play activities independently, she has difficulty communicating with peers. She also relies on the peers to direct and carry out play scenarios, and will often try to initiate a game without asking peers. For example, she has been observed going up to a peer and saying "tag, your it", and running off without asking the peer if she wants to play tag. Moreover, when playing with others, she engages in a marginal number of verbal responses compared to her like-aged peers. Based on an examination of the Assessment of Basic Learning and Language Skills (ABLLS) which assesses the strengths and weaknesses of an individual in 25 skill sets where each skill set is broken down into multiple skills, ordered by typical development or complexity, it is evident that the participant exhibits delays in the areas of communication, social interactions, group instruction, and some gross motor delays. The ABLLS was completed by one of the

participants ABA therapists. The norm-based assessment, The Developmental Profile 3 (DP-3) was also conducted. The results of the DP-3 indicated that the participant was in the 61st percentile for the physical and cognitive domains meaning 39% of like age peers scored higher on this assessment. It also suggests an average level of performance for those domains. Average performance was also noted for the adaptive behavior domain, as she ranked in the 58 percentile. However, she scored in the 3rd percentile for the social-emotional domain, which is considered "low" and suggest she is significantly behind 97% of like-aged peers in the social-emotional domain. While the participant possesses several strengths, and often shows a desire to interact with peers, she has significant difficulty interacting and relating with peers when placed in social situations.

Setting

For our participant, the ABA sessions occurred in the child's home and the peers were siblings and family friends. Given that the ABA sessions occurred in the participant's home, the intervention and data collection also all occurred at the participant's home. The participant's home was a single-family home located in the local suburbs. While a majority of the play occurred in the client's play room, many of the play scenarios would extend outside or into one of the children's bedrooms. Thus, with the exception of reading the social stories at the desk, the participant and peers were free to play were ever they choose within the confines of the house.

Materials

In this study, three social stories, one for each of the activities was devised to target increase use of verbal initiations. Verbal initiations were defined as any

verbalization given in the absence of verbal models, where the child verbally asks a peer to play, gives information to peers, makes comments related to the context of the activity, or makes comments directed towards another person (e.g., come play). The social stories used for the current study were created by the investigator and were based on the social story used by Hanley-Hochdorfer, Bray, Kehle and Elinoff (2006), but modified in response to Gray's guidelines that social stories should be individualized to each child for which the stories are being used (Gray, 2000). Thus, each of the specific social stories used were individualized to include the names and personal preferences of the participant.

Each social story used in this study also included the use of descriptive, directive, perspective and affirmative sentence types and discussed what the skill was, how to use the skill, the importance of the skill, and the impact it had on others. Appendix A provides an example of the specific text used for the social story. The example is a general social story developed for this study.

Each social story was presented in a book form. The book included a cover with a title, with each instruction page ranging from 6- 8 sentences. All words were printed in 14-inch Arial black font. The stories were then printed on 8 ½ by 11 inch pieces of paper.

Also used to encourage verbal initiation were three sets of investigator created role play prompts, a set for each of the three activities. These role play prompts addressed common social scenarios that the children would often encounter in such activities, but would require verbalization. Each prompt described in detail a common play scenario that the child would often confront while playing the specified activity. At the end of each prompt, a question related to what the child could or should do in the scenario was

posed. Examples of the prompts used for this study are provided in Appendix B. The prompts focused on scenarios that require the participants to 1) engage peers, 2) get a peer's attention, 3) ask to play, and 4) make ongoing comments about the activity in which they are engaged. These prompts provide the participant an opportunity to practice verbalizing with peers in situations that would commonly occur during play with the targeted activities.

Dependent Variable

Data on verbal initiations were collected through the investigator's observation of the participant while engaging in one of the three activities, board games, imaginary play, and constructive play. Similar to Hanley-Hochdorfer, Bray, Kehle and Elinoff (2006), verbal initiations were defined as any independent verbalization given in the absence of verbal models or verbal output by peers, where the child verbally asks a peer to play, gives peers information, makes comments related to the context of the activity, or makes comments directed towards another person (e.g., come play)." Examples include asking a peer, "Do you want to play chutes and ladders with me?" or "Come play airplanes with me." While direct responses to questions were not included, each extension was included as a verbal initiation. An example of this is when the peer was asked, "Do you want to be the fairy?" the participant said "Yes, I want to be the prettiest fairy of all". A new verbal initiation was coded if it occurred at least 2 seconds following the prior initiation. Thus, length of utterance was irrelevant, as each initiation, regardless of length was coded as one initiation. Nonverbal attempts at initiating play such as gestures, staring at the children playing or waiting for a peer to ask were not coded as verbal initiations. Any

self-talk (taking to yourself) was not counted. Whether or not the peer was accepted into the play was also not documented.

Verbal initiations were coded by the investigator using an event recording method. Thus, during the observations, the investigator, using a data sheet, coded the number of times a child made a verbal initiation. Data was collected by the investigator through observations of the participants during their play with the targeted activities during regularly scheduled applied behavior analysis (ABA) therapy sessions. Moreover, the activities targeted where those the child most often engaged in during therapy sessions. Event recording always occurred during the first 10-minutes of play to ensure consistency of data and to account for the variation in play times. Thus, results yielded the number of times the child made verbal initiations during the initial 10-minute of each play for the three targeted activities.

<center>Design</center>

A multiple baseline across activities was used to determine the effectiveness of a treatment package consisting of role play prompts and social stories, on the participant's verbal initiations. With a multiple baseline across activities, the treatment package of social story and role play were implemented and their effects on verbal initiation during three differing activities, constructive play (building), imaginary play and board games were evaluated. There was two phases of this study. The first was a baseline phase to evaluate pre-intervention levels, and control for non-experimental variables. Baseline was followed by the intervention phase in which the interventions was staggered across three activities and the interventions effectiveness was determined by calculating the total number of verbal initiations during 10-minute play sessions.

<u>Baseline</u>

During the initial phase (baseline), the participants did not receive, nor had they received any prior interventions aimed at facilitating verbal initiations. To obtain baseline data, the participants were observed during the first 10-minutes of a play session for the three activities, and the number of verbal initiations recorded. Baseline data was gathered in the participant's home, the same environment where the intervention was implemented. For this study, baseline was gathered concurrently, thus, frequency of verbal initiations throughout each of the three activities was during the same sessions. During baseline, the order and time that each of the three activities occurred varied from each session to eliminate sequence effects. Once baseline was gathered for five sessions, an analysis of the data was completed to determine the activity with the most stable baseline and thus, was the activity brought into the intervention phase first. Once an activity was brought into intervention, baseline data collection was also terminated for the remaining two activities. However, the session prior to implementing the intervention for the remaining activities, a baseline probe was completed to ensure that baseline has remained stable before implementing the intervention for that activity. Moreover, during the 10-minutes of play when baseline data was being collected, the investigator did not interact with either the participant or the peer(s).

<u>Intervention</u>

The intervention phase was implemented during the session following the last day of baseline on the tier or activity with the most stable baseline. On the first intervention session, the participant was introduced to the social story and role play intervention. Each day the intervention was implemented, the investigator read to the participant the social stories created for the specified activity. All social stories are based on Gray

(2000)'s guidelines for social stories. Social stories were read during the ABA session at the table in a room free of distractions, allowing for optimal attention from the participant. The story was read by the same investigator and in the same area each time. Each social story focused on the importance of verbal initiations during the specified activity, and provided some examples of how to initiate with peers during the specified activity types. After reading the social story, the participant was then asked several comprehension questions. If the student did not respond or provided an incorrect response, then the investigator prompted the correct response to the questions. Following the social story, the investigator implemented the role play activity. To do this, the investigator verbally explained that they would practice playing with friends. The investigator then proceeded to read the first prompt. Each prompt was read and played out during each session and was delivered in the same order throughout each session. As part of the role play, the participant was required to act out what he or she would say in the situation while the investigator was present to prompt or guide the student when necessary. Each scenario was considered complete when the participant successfully engaged in the necessary target behavior for the contrived social situation. Once all four scenarios were completed, the investigator instructed the participant to go play the specific activity being examined. Data was then collected on the number of verbal responses completed by the participant during the 10-minute play session. During this play time, the investigator was sure to observe from the same spot 10 feet away from the participant, and did not interact with the participant or the peers. This procedure was used across all three activities.

The intervention data examining verbal initiations for the first activity was gathered for a minimum of five days. If data showed a stable change in rate following 3 sessions then the intervention will be implemented for the second activity as well, but the intervention and data will still continue to be implemented for activity one. However, if no results occur after a maximum of five days then the intervention for activity 2 was implemented to prevent undue delay in an intervention for the second activity. The same approach was also be used for the third activity. Intervention will be implemented until all activities have had the treatment package implemented for at least five sessions.

<div align="center">Social Validity</div>

Social validity data was collected on the significance of the targeted skill (verbal initiations during play), parents' willingness to implement such a strategy in the future, the parent's ability to use the intervention, and the perceived effectiveness of the intervention. The goal of measuring social validity was to determine if the intervention would be practical for parents to implement, as the parent's ability to support and meet the needs of their child without the support of a therapist is the ultimate goal of ABA therapy. Data was obtained through the use of a questionnaire (See Appendix C) where each aspect examined was rated using a Likert 5-point scale. Acceptance of or agreeability was denoted by high scores and low scores represented dissatisfaction or disapproval. The questionnaires were given to the participant's parents at the beginning of the final session of data collection, as parents are required to be present during all ABA therapy sessions.

Inter-observer Agreement

To ensure quality of measurement, inter-observer agreement (IOA) was obtained through the use of total count IOA where the investigators total response counts were compared with those gathered by another behavioral therapist who has prior training in data collection and holds a minimum bachelor's degree in psychology or related field. Training of co-observer included an explanation of the purpose of the study, a discussion of the operational definition and a 30-minute trial session prior to study implementation. During the practice session, the secondary observer watch as the principal investigator gathered data demonstrating how data was to be collected. Following the observation, both observers independently collected frequency data while the participant played. Scores were compared, and all discrepancy and ambiguities with the operational definition were discussed and altered accordingly.

During session where inter-observer data was collected, the two observers sat in the same area, approximately 10 feet away from participant and independently, but simultaneously recorded frequency data. To determine agreement, the smaller of the counts was divided by the larger count and multiplied by 100 resulting in percentage of agreement. In this study, the investigator's counts were compared with the counts collected by the secondary observer who gathered data during 32% of the total observation sessions. The inter-observer agreements for the sessions ranged from 75-92%, with an overall level of inter-observer agreement reported at 82%, which is an acceptable level for inter-observer agreement as it falls above the minimum standard of 80% (Kazdin, 1977).

Treatment Fidelity

A checklist delineating the steps for implementing the interventions was created by the primary investigator to evaluate the treatment integrity of the interventions. Using the checklist, a behavior therapist watched as the primary investigator implemented the intervention, checking off those steps that were completed. A copy of the checklist is provided in the Appendix D. The secondary observer was present during a 33% of the intervention sessions to complete the checklist during the implementation of the intervention. The secondary observer was asked to check-off the components that were successfully completed. The number of steps completed compared to the total number of steps was analyzed to determine the overall treatment integrity. The mean score for treatment fidelity was 85%, with the scores ranging from 78%- 91%.
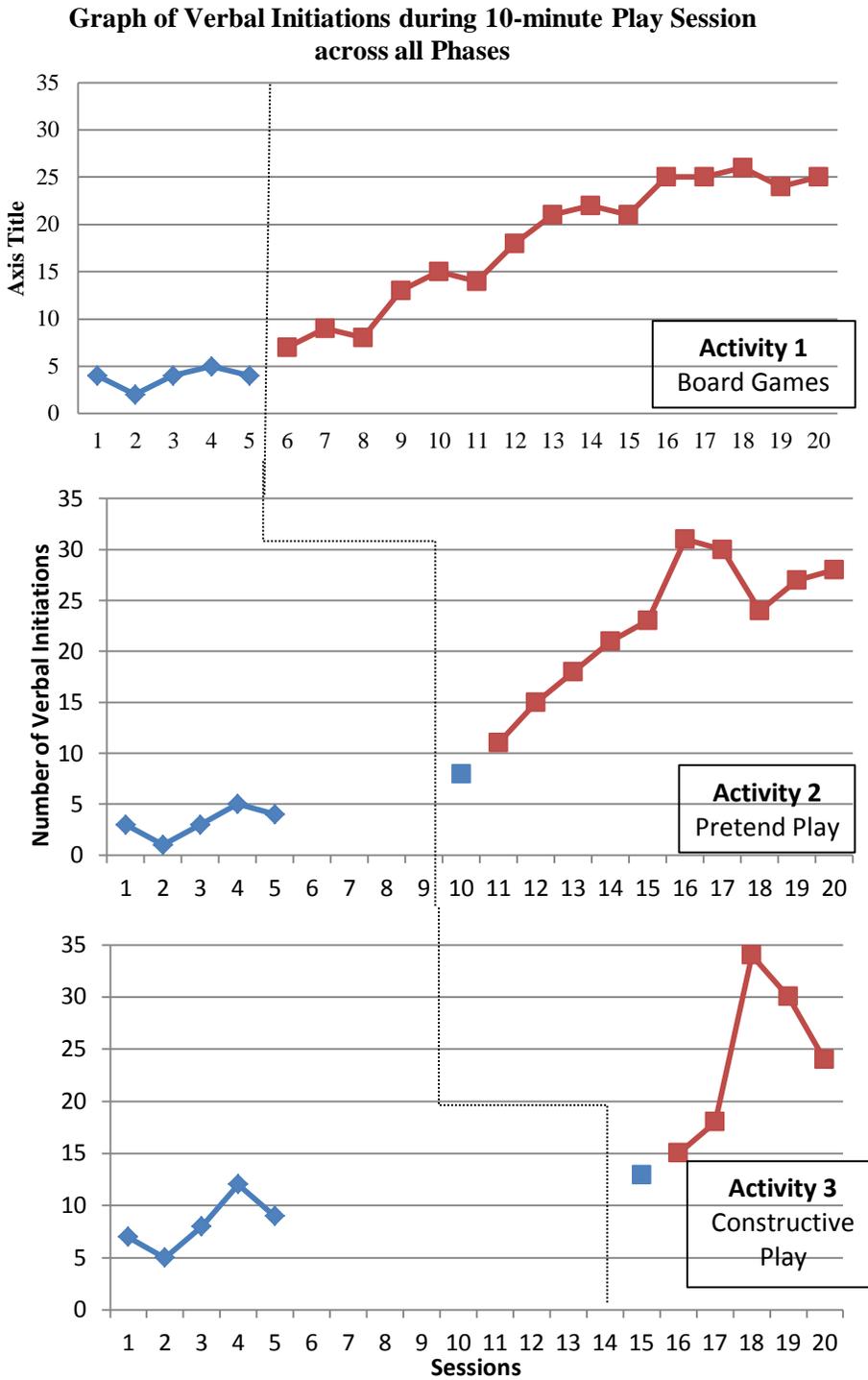
CHAPTER FOUR: RESULTS

Graph of Verbal Initiations during 10-minute Play Session across all Phases

Figure 1: Graph of Verbal initiations during 10-minute play sessions across all phases

Results

Figure 1 displays the verbal initiation frequency counts across sessions, phases, and the three activity types. For activity 1, the graph indicates that verbal initiations were low during baseline and remained low, suggesting stable low levels of verbal initiation (M=3.8, range= 2-5). Upon implication of the intervention, there was slight but immediate increase in the number of verbal initiation. The mean number of verbal initiations increased to 17 verbal initiations per 10-minute session during the intervention phase. However, a visual analysis of the data indicates that the increase was a result of a gradual rise in verbal initiations overtime rather then an immediate increase. Moreover, this increasing trend stabilized around 25 initiations during the last 5 sessions of the intervention. The intervention also resulted in a clear change in trend, from stable baseline to an accelerated trend during the intervention phase. To evaluate effect size, the percent of non-overlapping data points (PND) were calculated. The PND was determined by computing the total number of data points that did not overlap across phases divided by the total number of data points in the intervention phase. For activity 1, the percent of non-overlapping data was 100%. Interpretations were based on Scruggs, Mastropieri, Cook, and Escobar (1987) guidelines for interpreting PND where higher than 90% indicates highly effective outcomes, 70% to 90% illustrates fair outcomes, 50% to 70% represents questionable outcomes, and a PND of less than 50% suggests an unreliable treatment. Therefore, the PND of 100% between both baseline and intervention phases was interpreted as yielding a highly effective outcome.

A visual inspection of activity 2, pretend play, reveals that baseline was low and relatively stable with a range of 1-5 and mean of 3.2 verbal responses during a 10-minute

20

play session. However, when a baseline probe was calculated the baseline had increased to 8 verbal initiations in a 10-minute pretend play session. Throughout the intervention phases for activity 2, verbal initiations ranged from 11- 31 per session, and the mean number of verbal initiations during the intervention phase was 22.8. The visual inspection of the data indicates that following the implementation of the treatment package there was a steady increase throughout the first 6 sessions following baseline, but some variability in data was observed during the remaining 4 sessions. However, the trend line suggests an overall trend upwards. While the baseline probe was slightly higher, the trend line indicates that the rise would have been at a rate significantly lower then what was demonstrated in the data. The PND for activity 2 was also calculated at 100%. Thus, when interpreting the effectiveness of the intervention for activity 2, the PND suggests a high level of effectiveness.

The final intervention was implemented on activity 3 which was constructive play. There was slight variability in the baseline for activity 3, as data ranged from 2-12 (M=8.2). The baseline probe conducted the session prior to the intervention was denoted as 13 and increase from the mean level during the initial baseline. Throughout the implementation of treatment package, variability in data was observed (range =15 to 30). The mean number of verbal initiations during the intervention phase for activity 3was noted as 20.8. A visual analysis indicates that there was a trend upwards during the first 4 sessions, followed by a sudden drop during the final session. However, the drop resulted in a data point well above baseline data. The PND was also calculated for activity 3 at 100%.

Overall, the mean for baseline across all three activities was M=5.7 (Range= 1-13). The overall mean during the intervention increased to 20.5 verbal initiations in a 10 minute session. The change from M=5.7 to M=20.5 resulted in an over 200% increase in verbal initial from baseline. Such a significant increase supports the effective of the intervention in increasing verbal initiations in social settings. Moreover, the PND, used to determine effect size, was found to be 100% across all three studies, indicating a high level of effectiveness (Scruggs, Mastropieri, Cook, & Escobar, 1987)

Social Validity Results

The social validity of this intervention was obtained through the use of a questionnaire where each aspect examined was rated using a Likert 5-point scale. The survey was completed by the participant's mother and the family's caregiver. All questions were scored with a 3 or above, indicating an overall high level of agreement. Most questions were scored with a 5 which suggest that the caregivers found the intervention to be of significance importance to the participant and feasible intervention for nonprofessional to implement, and therefore, indicates that the intervention was seen as socially valid.

Discussion

The results of this study support the prevailing notion in the literature that social stories are an effective intervention when part of a treatment package (Bernad-Ripool, 2007; Agosta Graetz, Mastropieri, & Scruggs, 2004; Washburn, 2006; Smith, 2001; and Scattone et al., 2002). However, perhaps more importantly, the study adds to the very

small quantity of literature that has specifically examined social stories and role play interventions together. Important to note, the present studies results are consistent with Chan and O'Reilly (2008) results, as they also noted that the use of a role playing in conjunction with social stories as a treatment package was an effective procedure for teaching social skills to children with autism. However, the results of this study differed in many ways to other studies using multiple baselines to examine treatment package. For instance, studies such as Paterson and Arco (2007), show immediate changes in behavior as a result of the intervention, the present study, although noting slight increases immediately following the implementation of the treatment, displayed increases that were the result of a gradual increase overtime. However, these results are not exclusive to this study as Reichow and Sabornie (2009) also noted a gradual increase in verbal greetings as a result of their social story intervention. The gradual change may indicate that the repeated exposure and practice are contributing factors to the treatment packages effectiveness in increasing verbal initiations. Moreover, it shows that role play and social stories intervention may not result in immediate changes in behavior.

Also, it is important to note that while the types of activities (board games, pretend play, and constructive play) remained the same, there was variation in the activities for each session. For instance, the participants did not always play the same board game or engage in the same pretend play scenario, as would be expected in naturally occurring play situations. Thus, while the trend lines for all three activities indicate an upward trend, the observed variability in the data can likely be attributed to the varying activities, as the participant might enjoy one activity more, or one activity

23

may provide a varying degree of opportunity for a child to initiate verbal responses with peers.

Another interesting observation was that baseline probes were slightly higher then the initial baseline. While this could be a slight cause for concern when interpreting the data for the intervention, the baseline probes were only slightly higher then the earlier baseline averages, and the stability in the initial 5 days of baseline allow for confidence in our interpretation. Additionally, it is important to note that these baseline probes were conducted followed the implementation of the intervention, suggesting that some of the skills learned from the initial social story and role play intervention could have been generalized to the other two activities. This would not be surprising, as many of the skills needed to initiate play or add to play are similar across all play activities.

To ensure consistency and strengthen certainty that any changes from baseline were in fact of the intervention, a treatment fidelity checklist was employed. While the overall treatment fidelity was at an acceptable level, some variation was observed in the implementation. However, this variation was almost always a result of an omission of a step, and never a result of adding or modifying the procedure. Therefore, while some steps were missed, the overall integrity of the intervention was not comprised as no technique or strategies were added. Also, while the investigator did not interact with the participant during data collection, there were two occasions where the participant came and talk to the observer. These verbal initiations were not included, as they were not directed at peers or related to the play scenario.

Limitations and Future Research

While the results support the use of a social story and role play treatment for increasing verbal initiations for children with autism, there are some limitations that must be considered when interpreting these results. One of the greatest threats to the internal validity of the study was the co-occurring support the participant was receiving during the study. In addition to the treatment package, the participant does receive an additional 2 hours of ABA therapy a week and guided participation support at school. Although a baseline was conducted to help control for these interventions that were occurring during baseline, it would be imprudent to not consider that these support could have influenced the outcomes of this study. Therefore, replication of this studies methodology is necessary to confirm the results of the study. Additionally, while the intervention was found to be effective, adding to the already abundance of empirical support that social story treatment packages are more effectives then social stories alone (Kokina and Kern, 2010), this study remains only the second study besides Chan and O'Reilly (2008), to look at social story and role play intervention. This s a concern, as effectiveness of a treatment can only be maintained if there is a large body of empirical data that has replicated and consistently support the findings. Thus, because of the limited number of studies that have specifically examined role play a social story as a treatment package, additional empirical exploration is necessary before we can be confident in the treatments effectiveness.

Another potential threat to the internal validity was that the primary investigator was also the individual primarily responsible for data collection, leaving the potential for researcher bias. While a nonbiased observer would have enhance the internal validity of

25

the study, limited time a resources prevent the investigator from receiving a nonbiased observer.

This study utilized a multiple baseline design across activities to evaluate and replicate outcomes of a treatment package on verbal initiation. As a result, another important consideration when interpreting the results is to considered the limitations to generalizing the findings. For example, although the study looked at different activities, and the results were replicated across all three activities, all these activities occurred within the participant's home. Therefore, the study provides no information as to whether or not these verbal initiation skills generalize to other important social settings like in the participant's school. This is potential limitation as school is an environment where children spend much of their time and where there are ample opportunities for playing with peers. Thus, it is not only necessary that a child with autism learn to socialize at home, but in the confines of his or her classroom environment. Fortunately, studies employing a multiple baseline across settings design to examine the treatment package would be able to provide evidence to provide the required evidence regarding the generalization of the treatment packages effectiveness across differing play settings or environments. Moreover, given that only one participant was used, there are some concerns over the generalizing of the findings to other children diagnosed with autism, as it remains unclear whether such a treatment package will remain effective across subjects. Therefore, additional studies exploring the effectiveness of the treatment package across subjects, perhaps by a multiple baseline across subject are necessary.

Another precaution required in interpreting the results is to consider the intervention. Given that the intervention was a treatment package, consisting of two

26

different treatments implemented concurrently, one can not be certain if the outcomes were a result of the social stories alone, the role play alone, or were in fact a result of the combination of the two interventions. Therefore, research examining the relative effectiveness of the role play, social story, and combination of the two are necessary to confirm that changes were a result of the combination of the treatments and not one specific component of the intervention.

A final limitation of the study relates to the lack of information regarding the maintenance of the verbal initiation after the removal of the treatment. This posses a potential concern, as most of the studies in Karkhaneh, Clark, Ospinda, Seida, Smith and Hartling's (2011) review of the literature, including Reichow and Sabornie (2009), show a lack of maintenance once the intervention was withdrawn, as verbal initiations returned to baseline. Thus, because of the importance of participants maintaining skills overtime without the perpetual need for interventions, it would be apropos for future research to examine the maintenance of verbal initiation after the treatment package consisting of social stories and role play has been removed for a period of time. Both for the short-term and long-term evaluations on maintenance of skills would be necessary.

While this study improves to the growing collection of research, by supporting the use of a social story and role play intervention for enhancing verbal communication for children with Autism in social settings, additional empirical for social story treatment packages is imperative in order to establish social story treatment package as a viable treatment for children with ASD.

CHAPTER FIVE: CONCLUSION

While this study strengthens the growing collection of research by supporting the use of a social story as part of a treatment package, as well as the use of a more specific social story and role play treatment package intervention for enhancing verbal communication for children with Autism in social settings, one should exercise caution when considering a combination social story and role play intervention for enhancing communication for children with autism in play settings. This is primary due to the need for additional empirical support. Given the limited number of studies, and the limitations for generalization, additional research is necessary before one can state with any degree of confidence that social stories combined with role play are effective for increasing social communication, particularly verbal initiations for children with autism. However, regardless of the empirical support for a social story treatment package, such as the one in this study, it is imperative because of the unique individuality of each child with autism that the individual themselves be considered foremost, and that each intervention is tailored to the child's specific needs and ability, and not their diagnosis.

APPENDIX A: SOCIAL STORY

Talking with my Friends

I'm _____ and I love playing with other kids.

Picture of kid playing with peers

There are always lots of children at my house, or at school (therapy center) that I can play with. Playing with other kids can be lots of fun.

Picture of *therapy center or house*

When I see someone playing a game and I want to join, I have to use my words to let them know I want to play.

Picture of kid playing

When I want to play with a friend I need to ask them to play by saying, "Can I play with you?", "Will you play with me?" or "Want to play a game? This will let them know I want to play with them which will make them happy.

Picture of a child looking up

Also, when I am playing with my friends they like to know I am interested and enjoying playing with them. There are lots of things I can say to my friends while we play. I can use my green statements or compliments and say, "I like your toy" or "I'm having fun playing with you". These comments let my friends know like playing with them. This makes them happy, and when my friends are happy they will want to play with me more.

I can also ask questions when playing. There are many questions I can ask like, "what are you doing? and "how did you build that?". Asking question is a good choice, because it will let my friends know I like them and find them interesting. This will make them feel happy. When I use my words then my friends will know I want to play with them, and this makes them happy. When I remember to use my words then I can make lots of great friends which will make me happy.

APPENDIX B: ROLE PLAY PROMPTS

Let's pretend your friend is playing blocks next to you, but does not invite you to play. You want to play so you look over, but your friend has still not asked you to play. What could you say to your friend so that you can play block too?

You really want to get your friends attention to get her to add to your building, but he or she is not looking at you. How can you get their attention to talk to them?

You and your friend are working on a painting together. You want your friend to help you make a car, what can you say so he or she will help you?

Let's pretend you and your friend are playing with action figures. Your friend has them flying to space, but you want him to come help you save the alien. Think of some ways you can share your idea and get your friend to join in on your play idea?

You are playing dolls and you have a new idea about what your dolls can play. How could you tell your friend you have an idea about what your dolls can do?

You are playing "house" and you feel all done with the activity and what your friend to come play blocks with you instead. What could you tell your friend, so she will stop playing house and come play blocks with you?

You are setting up a board game with your friend, but she is not sure what to do because she has never played before. How can you help your friends figure out how to play?

You are playing a game and you want to go first. What could you say to your friend about how you should take turns?

You want to play Candyland with your friend, but she is reading a book. What could you say to get her to come play Candyland with you?

APPENDIX C: SOCIAL VALIDITY SURVEY

Please read each question and circle, based on the scale below, the number that most closely represents how you feel about each statement.

5=Strongly agree 4 =Agree 3=Neutral 2=Disagree 1=Strongly disagree

1. My child needed to become more proficient at verbally initiating during peer interactions.

   5   4   3   2   1

2. I feel that the behaviors taught will have a positive impact on my child's independence and social skills.

   5   4   3   2   1

3. I feel that the intervention is easy enough that I can implement it myself.
   5   4   3   2   1

4. I will implement this intervention with my child.

   5   4   3   2   1

5. The intervention produced noticeable positive changes in my child's behaviors?

   5   4   3   2   1

APPENDIX D: FIDELITY CHECK-LIST

Implementation of social story intervention

☐ Story read at the beginning of the session

☐ Let participant know they will be reading a story about how to play with friends

☐ Reads story verbatim

☐ Story is read in a quiet area free from distraction and other peers or adults

☐ Participant sits next to investigator at a table

☐ Investigator holds story directly between herself and the participant, allowing the participant to readily see the story

☐ Asks participant at least 2 comprehension questions

☐ Asks participant, "How can you ask your friends to play a game?"

☐ If student is correct, investigator tells the participant, "that's right, good job"

☐ If participant gives incorrect or no response, investigator prompts the correct response

☐ Investigator/data collector is 10-feet away from participant

☐ No adults interact with child during data collection

☐ Data collection occurs for the first 10-minutes of play only

Implementation of role play intervention

☐ Let's participant know they will be practice playing with friends

☐ Investigator reads each prompt verbatim

☐ After prompt is read, investigator verbally explains to the participant what he or she must do

☐ Prompts are read in order with A first and c last

☐ Prompts read and acted out in a quiet room free of distractions

☐ Each role play ends when participant uses target behavior

☐ When each role play ends, investigator lets participant know that they were successful, by saying Great, you did it, you_____."

☐ When all prompts have been completed, investigator will tell participants to "Go play with your friends"

APPENDIX E: IRB PERMISSION LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

University of
**Central
Florida**

Approval of Human Research

From: **UCF Institutional Review Board #1**
           FWA00000351, IRB00001138

To: **Andrea Dinon**

Date: **November 20, 2012**

Dear Researcher:

On 11/20/2012 the IRB approved the following human participant research until 11/19/2013 inclusive:

Type of Review:	Submission Correction for UCF Initial Review Submission Form Expedited Review Category # 7
Project Title:	Role Play and Social Stories: An Intervention for Increasing Verbal Initiations in Children with Autism.
Investigator:	Andrea Dinon
IRB Number:	SBE-12-08675
Funding Agency:	
Grant Title:	
Research ID:	N/A

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 11/19/2013, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Patria Davis on 11/20/2012 11:21:07 AM EST

IRB Coordinator

Page 1 of 1

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