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Using Multimedia Social StoriesTM to Enhance Prosocial Behavior of At-Risk Preschoolers

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Prosocial Behavior of At-Risk Preschoolers

by

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Abstract

This study evaluated Social Stories[TM] (SS) with three at-risk preschool children in a high-need

public elementary school. Specifically, this study examined the use of a multimedia SS designed

to decrease problem behavior and increase prosocial behavior. A multiple baseline design across

participants with an ABC sequence was used to assess the impact of the standard SS and

multimedia SS on the children's target behaviors. The results of the study indicated that the

standard SS was successful in reducing problem behavior and increasing prosocial behavior for

all three participating children. The results also indicated that the multimedia SS had positive

effects on the children, further increasing prosocial behavior during intervention. Although the

problem behavior did not further decrease when the multimedia SS was introduced, the low

levels of problem behavior were maintained at a 3-week follow-up for all three children. All

three children demonstrated maintenance of improved prosocial behavior during follow-up.

Overall, the multimedia SS demonstrated high levels of social validity.

Chapter 1:

Introduction

Social skills are considered critical to school readiness and children's long-term success in school and in life, yet 10-15% of typically developing preschoolers have social-emotional and behavior problems (Hemmeter, Ostrosky, & Fox, 2006). Considering that persistent social-emotional and behavior problems in early childhood continue into later childhood and adolescence, careful attention should be given to these young children to prevent future problems. However, many early childhood programs focus solely on teaching pre-academic skills rather than social skills (Scattone, 2007). Although pre-academic interventions may narrow the academic gap, the social gap will likely widen if social skills are not taught as well. Unfortunately, social skills often do not end up on a student's Individual Education Plan (Scattone, 2007). Further, teachers often address the problem behavior by using reactive and punitive procedures (Sugai & Horner, 2002).

There are several empirically validated interventions that are used to teach social skills to young children with social skills deficits, such as peer-mediated interventions (Goldstein, English, Shafer, & Kaczmarek, 1997), video modeling (Sansosti & Powell-Smith, 2008), positive peer reporting (Morrison & Jones, 2006), and Social Stories™ (Gray, 1998). Most of these interventions have been tested with children with autism spectrum disorders (ASD). There are also empirically validated social-emotional curricular or treatment packages designed for classroom-wide or small groups of children to address social-emotional and problem behavior for children 0-5 years. For example, Incredible Years Dina Dinosaur Child Training Program

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(Webster-Stratton, 2003) is intended for use with small groups of children who are exhibiting problem behavior or who have clinical diagnoses.

Social Stories[TM] (SS) have been used for a variety of purposes including addressing social deficits and excesses for children with ASD (Scattone, Tingstrom, & Wilczynski, 2006). SS were found to meet the criteria as evidence-based practice (Mayton, Menede, Wheeler, Carter, & Chitiyo, 2012). SS are short stories that are written in a child-specific format which describe a social situation, person, skill, event, or concept in terms of relevant cues and appropriate social responses (Gray, 1998). Most SS are written following Carol Gray's guidelines, which include, writing the stories from the perspective of the individual child, using a combination of sentences which include descriptive, perspective, and directive sentences, and employing a ratio of one directive sentence for every two to five descriptive and/or perspective sentences. Standard SS typically contain a combination of text and pictures that coordinate with the specific situation described in a paper format (Lorimer, Simpson, Myles, & Ganz, 2002). They are typically read before the target situation addressed in the story (Kuoch & Mirenda, 2003). Researchers, teachers, classroom aides, peers, parents, siblings, or even the children themselves can implement SS (Delano & Snell, 2006, Dodd, Hupp, Jewell, & Krohn, 2008, Hagiwara & Myles, 1999, Powell, 2009, Scattone et al., 2006). If a child can read independently, an adult sits behind and slightly to the side of the child so that they can assist in reading the story if necessary (Thiemann & Goldstein, 2001). If an adult, peer, or sibling reads the story to the child, they typically ask questions to make sure that the child comprehends what is being addressed and discussed in the story (Thiemann & Goldstein, 2001).

Many teachers and families view SS as a feasible intervention that is easy to implement and effective in improving behavior and skills of children with ASD (Smith, 2001). A large body

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of literature indicates that SS are effective in decreasing problem behavior (Agosta et al., 2004; Crozier & Tincani, 2005; Ozdemir, 2008) and increasing task performance or compliance (Hagiwara & Myles, 1999; Norris & Dattilo, 2008) in children with ASD. For example, Ozdemir (2008) decreased disruptive behaviors in school for three children with ASD. In the Hagiwara and Myles (1999) study, two of the three children with ASD showed increases in hand washing skills after SS intervention in their classroom setting. In a single subject study by Barry and Burlew (2004), one child with ASD increased play and choice skills after the use of SS and was thus placed in a general education classroom.

Despite this knowledge base of SS intervention, many of the behaviors targeted for intervention in the research have been problem or inappropriate behaviors, rather than skill deficits. Only a few studies targeted social or play skills (Barry & Burlew, 2004, Crozier & Tincani, 2007, Delano & Snell, 2006). Meta analyses have indicated that the effectiveness of the SS for improving social skills of children with ASD is questionable (Kokina & Kern, 2010; Wang & Sillance, 2009). Kokina and Kern pointed out that SS interventions tend to be more effective when targeting behavior reduction than teaching appropriate social skills and SS interventions had higher impact on the behavior when the SS targeted single routines, rather than complex routines. Kokina and Kern also pointed out that SS used in general education settings had greater effects than those used in self-contained settings. In addition, they suggested that students who implemented SS interventions themselves demonstrated greater benefits than when other individuals implemented the intervention. Kokina and Kern discussed that shorter interventions yielded better effects than medium or long interventions and that SS interventions in different formats (i.e. multimedia) showed superior outcomes compared to traditional teacher-read SS.

While the vast majority of studies on SS have targeted children with ASD, one study examined the potential effect of the SS intervention with a child with emotional behavioral disorders (Delano & Stone, 2008). Delano and Stone discussed the potential of implementing the SS intervention that resulted in decreasing the child's sleeping behavior and increasing his communicative behavior of asking for more time on assignments in math class. The researchers suggested that the SS intervention would have the potential to decrease problem behavior if it were designed based on the results of functional assessment of problem behavior.

Additionally, there is little literature that evaluated the use of SS with typically developing children with social-emotional and behavioral difficulties in early childhood settings, who are at-risk for developing persistent challenging behavior or social-emotional disorders. Toplis and Hadwin (2006) conducted a single subject study that focused on typically developing early elementary-age children who exhibited problem behaviors. Three of five participants in this study showed improvement in lunchtime behaviors upon participating in the SS intervention. Benish and Bramlett (2011) focused on decreasing aggressive behavior and increasing peer relations of typically developing pre-school children. The study showed to be effective in decreasing the aggressive behavior of one of the three participants and increasing peer relations for two of three participants. Clearly, further research is needed to evaluate the SS intervention outcomes for typically developing preschool children.

SS effectively using technology has been shown to further enhance the skills being taught to children with ASD (Hagiwara & Myles, 1999, Richmond Mancil, Haydon, & Whitby, 2009, Sansosti & Powell-Smith, 2008, & Scattone, 2007). For example, Hagiwara and Myles (1999) used multimedia SS with three elementary-age participants who showed improvements in hand washing skills and on-task behaviors in their general education classroom, resource room, and

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lunchroom as results of the intervention. The researchers used video footage of the children, which they embedded into a multimedia social story program on the computer that included visual stimuli and sound. Mancil, Haydon, and Whitby (2009) demonstrated that a computer-assisted SS further decreased problem behavior during lunchtime and transitions for all four participating children with autism. Scattone (2007) utilized a SS with video modeling to increase social communication skills of a nine-year old boy with Asperger's syndrome. The study indicated that the SS intervention combined with video modeling increased the child's eye contact, smiling, and reciprocal social interactions in a school setting.

Recently, researchers have suggested that SS be used as a Tier 2 intervention for children who are not responding to Tier 1 supports within schools that implement system-wide Positive Behavior Support (PBS) (Shores & Chester, 2008). PBS is an applied science that uses educational methods to expand an individual's behavior repertoire along with systems change to redesign an individual's environments to minimize problem behavior and make a person's life better (Carr et al., 2002). The goal of system-wide PBS or multi-tiered interventions is to establish a social culture and individualized behavioral supports that would help make schools an effective learning environment for all students. The school-wide PBS consists of three tiers of intervention. Tier 2 consists of targeted, supplemental interventions and supports in addition to core academic and behavioral curricular that promote social skills of at-risk students and address behavioral concerns (Campbell & Anderson, 2011; Turnbull et al., 2002). A growing body of literature indicates that team-based systems of planning, interventions that are easy to implement by the staff, and use of data to make program decisions are crucial to Tier 2 interventions (Horner, Sugai, Todd, & Lewis-Palmer, 2005).

Benish and Bramlett (2011) demonstrated that individual students or groups of students within the school, who were not demonstrating appropriate prosocial behaviors with their peers, could successfully be supported through the use of SS. Benish and Bramlett chose the participants for this SS intervention because they had scores falling in the "at-risk" or "clinically significant" range on the Behavior Assessment System for Children-2 (BASC-2) Teacher Rating Scale. The SS intervention was utilized in hopes of reducing aggressive behaviors of the participants, prior to moving to a more intensive Tier 3 intervention, which was successful in achieving the goal. However, currently, there are no additional studies that examined the impact of SS intervention within the framework of school-wide or program-wide PBS.

The proposed study aimed to evaluate the impact of a SS intervention augmented with multimedia in a public preschool program on prosocial and problem behaviors of typically developing young children who are at-risk for developing severe social-emotional and behavior problems. It was hypothesized that if multimedia components were embedded into SS interventions, there would be further improvements in child prosocial behavior. The study expands the literature by: a) evaluating the impact of SS intervention on prosocial and problem behaviors in preschoolers when used with multimedia; b) implementing the SS intervention at Tier 2 level to support at-risk preschool children; and c) examining generalization and maintenance effects of the SS intervention.

This research addressed the following questions: a) will standard SS be effective in improving prosocial behavior and reducing problem behavior of preschoolers who are at-risk for developing social-emotional or behavioral disorders?; b) will the use of multimedia SS further enhance children's behavioral outcomes?; c) to what extent will the children generalize their

acquired skills to novel settings?; and d) will the children's acquired skills be maintained at

follow-up?

Chapter 2:

Method

Setting

The study took place in two preschool classrooms at a local high-need public elementary school (Pre-K-5th grade) with approximately 635 students. The school was a Title 1 school with more than 70% of the students eligible for free or reduced price lunch. The school consisted of five to six classes in each grade level with an average of 14 children per class. Additionally, the school had several special preschool classrooms for children with disabilities. The most recent school year (2012-2013) was the school's tenth year of school-wide Positive Behavioral Intervention and Supports (PBIS) implementation. This school scored 100% on their most recent Benchmarks of Quality assessment, which was considered indicative of high-fidelity implementation of school-wide PBIS (Kincaid, Childs, & George, 2010). Data reported from this research site for the 2012-2013 school year indicated that 84% of the students received 0-1 Office Discipline Referrals (ODRs), 13% of the students received 2-5 ODRs, and 3% of the students received six or more ODRs. Data reported that there were 10 referrals per 100 students in the 2012-2013 school year. The preschool classrooms served between 10 and 15 children, including typically developing children and children with disabilities with a ratio of 2 to 1 typically developing children to children with disabilities in one of the classrooms and a ratio of 6 to 1 typically developing children to children with disabilities in the other classroom. The ratio of adults to children in both classes was 1 adult to 5 children. The routines in both classrooms included breakfast, circle time, small group instruction, center time, lunch, naptime, recess,

snack time, and dismissal. The classrooms were implementing the DLM Early Childhood

Express curriculum (Schiller, Clements, Sarama, & Lara-Alecio, 2003).

Participants

Participants in this study were three preschoolers enrolled at the elementary school, who

were referred to the researcher due to prosocial skills and problem behavior concerns of the

teacher at the school. Selection criteria for children were children: (a) who had difficulty

engaging in activities with peers; (b) who had problem behavior during interactions with peers

throughout the day, and (c) whose problem behavior was maintained by social reinforcement.

Exclusion criteria were: (a) who had appropriate social skills for their age; and (b) who exhibited

severe problem behavior such as self-injury and property destruction. Teachers were eligible for

participation if they were interested in using SS as Tier 2 intervention and had at least one, but

no more than two at-risk children with social skill deficits and problem behavior. This ensured

that teachers had enough time to carry out the SS intervention and monitor the participant's

behavior. Teachers with prior experience using SS interventions within the framework of Tier 2

support were excluded.

Inclusion of child and teacher participants was based on a two-phase process beginning

with a teacher interview with questions (See Appendix A) pertaining to the children's target

problematic activities or routines with peers and problem behavior. The second phase of the

process consisted of a brief screening. The children's levels of social skills and behavior

difficulties were screened using the *Social Skills Improvement System Rating Scale-Teacher*

Form (*SSIS;* Gresham & Elliott, 2008), designed to identify children at-risk for social behavior

difficulties and presence of problem behavior, to ascertain if social skill deficits were in line with

selection criteria. Children who had a standard score of less than 85 in Social Skills subscale or

above 115 in Problem Behaviors subscale were included.

Ron was a 5-year old white male who had been enrolled at the school for three years. Ron had a standard score of 92 in the Social Skills subscale and 124 in the Problem Behaviors subscale. Ron often did not follow directions to remain in his center or share and take turns with peers during center time activities. He would grab toys from peers instead of using his words. Doug was a 5-year old African American male who had been enrolled at the school for two years. Doug had a standard score of 72 in the Social Skills subscale and 108 in the Problem Behaviors subscale. Doug engaged in physical aggression toward peers during recess. He often hit, pushed, or kicked his peers, which resulted in reprimands from his teacher. Caleb was a Hispanic 3-year old male who had been enrolled at the school for one year. Caleb had a standard score of 79 in the Social Skills subscale and 124 in the Problem Behaviors subscale. Caleb often wandered away from his center, went under the tables, and did not engage with activity materials for long periods of time during center time.

Two female (White) classroom teachers participated in the study by implementing the SS interventions. Teacher A had been teaching for 6 years and Teacher B had been teaching for 3 years. Teacher A had her degree in Childhood Education and Teacher B had her degree in Early Childhood Special Education. Teacher A typically used time-out to address problem behavior. Teacher B also used time-out to address problem behavior, but provided much verbal attention to children by commenting or reprimanding for problem behavior.

Measures

Problem Behavior and Prosocial Behavior. Both child problem behavior and prosocial behavior were targeted for intervention and were operationally defined on an individual basis in relation to the needs of the children and based on the results of teacher interview, SSIS rating scale, and classroom observations. For Ron, problem behavior included noncompliance, which was defined as any instance of not following teacher directions within 5 seconds, being resistant to a teacher prompt to share or take turns with peers, and violating classroom expectations such as staying in area, keeping hands to self, and using appropriate language. The targeted prosocial behavior was initiating or responding to interaction with peers, defined as verbal statements made toward peers to initiate or continue play or conversation about a toy or game (e.g., "Here you go," "Look", "Let's play", "My turn", etc.).

For Doug, physical aggression was targeted as the problem behavior, which was defined as any attempt or actual physical contact with a peer including hitting any part of their body using a closed or open hand or object, kicking, grabbing at peer's body or clothing with hands, slapping, or pushing. Prosocial behavior included initiating or responding to interaction with peers, defined as verbal statements made toward peers to initiate or continue play or conversation about a toy or game (e.g., "Here you go," "Look", "Let's play", "My turn", etc.).

For Caleb, problem behavior included off-task, defined as any attempt to wander away from the center activity, going under the table, or not manipulating toys or objects for longer than 3 seconds. The prosocial behavior for Caleb was initiating or responding to interaction with peers, defined as verbal statements made toward peers to initiate or continue play or conversation about a toy or game (e.g., "Here you go," "Look", "Let's play", "My turn", etc.).

Direct observations occurred two to three days per week and took place during target activities or routines including centers and recess during which social skills were practiced. All target behaviors were recorded during 15-minute sessions using a 15-second partial interval recording procedure (see appendix B for interval recording data sheet).

Treatment Fidelity. In order to assess correct implementation of SS intervention procedures, treatment fidelity was assessed for the teachers (See appendix C for fidelity checklists). The researcher or a trained research assistant conducted the fidelity checks using a yes/no format checklist. Treatment fidelity assessments occurred in the classroom and included 5 items: (1) read/prepare the social story for the child; (2) ask 4-5 comprehension questions about the social story; (3) provide verbal feedback for responses; (4) give child praise for listening to the story and responding to comprehension questions; (5) give the child an opportunity to practice social skills during centers or lunch/recess. In the event that the teacher scored below 80% on a fidelity check, the researcher was to meet with the teacher to review the steps in the implementation checklist. The treatment fidelity data were reviewed weekly to address any issues in implementing the intervention. However, the average scores for treatment fidelity, which were assessed using the 5-item fidelity checklist, were 100% during both the standard and multimedia social story phases for all sessions in which data was collected thus no additional meetings with the teacher were required. The researcher assisted the teachers during implementation of the multimedia SS by prompting the children to engage in SS activities and to respond to questions at the end of the session if the teacher was busy working with another student. The researcher had 100% fidelity in all sessions where she assisted the teacher during the multimedia SS.

Social Validity. At the end of each intervention phase, participating teachers completed

an adapted Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) to

assess social validity (See Appendix D). This scale included 14 items using a Likert-type scale

(1-6) with higher scores indicating higher acceptability. Questions for teachers addressed

whether the standard SS or multimedia SS intervention was acceptable and effective, and

whether they would recommend the intervention to others. The children also completed a brief

questionnaire at the end of each phase of intervention (See Appendix E). The questionnaire

included 5 items rated on a 3-point scale with a happy, neutral, or sad face for them to circle.

Questions were read to the children by the researcher and addressed whether the standard SS or

multimedia SS intervention was acceptable and whether they would like to participate in an

intervention similar to the one utilized in this study again.

Inter-observer Agreement. In order to assess inter-observer agreement (IOA), two

observers independently and simultaneously recorded data for at least 30% of all direct

observation sessions across participants, behaviors, activities or routines, and experimental

conditions. Percentage of agreements was calculated using a point-by-point method (Kazdin,

1982) by dividing the number of agreements by the number of agreements plus disagreements,

multiplied by 100. Research assistants filling the role of observers consisted of graduate students

in an Applied Behavior Analysis Master's Program, who were trained on data collection for

classroom observations of target behaviors as well as the use of treatment fidelity observation

checklists for teachers. The observers participated in training in which scoring video clips or a

practice data collection session in the classroom were used. Training sessions were as similar to

the targeted data collection context in terms of topography and frequency of targeted behaviors.

A score of 90% or better on the training session was required prior to serving as a data collector

during research sessions. The mean IOA across behaviors, activities or routines, and experimental conditions were 90% (range = 82-97%) for Ron, 96% (range = 92-100%) for Doug, and 95% (83-100%) for Caleb.

Experimental Design and Procedures

The outcome of the SS interventions was tested using a non-concurrent multiple baseline design across participants with an ABC sequence and with four phases: baseline, standard SS, multimedia SS, and follow-up. Generalization probes were conducted during each phase of the study during a non-target activity or routine where the children showed difficulty with positive social interaction with peers. Initial 15- minute observations were conducted during each identified problematic activity or routine across participating children to confirm target activities or routines for intervention and generalization assessment as well as current levels of problem behavior and prosocial behavior as well as the potential functions of problem behavior.

The selected target activities or routines for intervention were center time for Ron and recess time for Doug and Caleb. The selected generalization settings were recess for Ron and Caleb and center time for Doug. Direct A-B-C observations (Bijou, Peterson, & Ault, 1968) during target center activities or recess time indicated that for both Ron and Doug problem behavior functioned as gaining access to teacher attention. For Caleb, off-task behavior functioned as both escaping from task demand and gaining access to teacher attention.

Baseline. During baseline, all participants continued to participate in the school's universal supports as part of school-wide PBS. All children were instructed on the school's expectations in the classroom. Additionally, the school utilized a school-wide token economy, called Sailor Sea Dollars, in which the children could earn paper tokens throughout the day for engaging in appropriate behaviors. The Sailor Sea Dollars could be exchanged for preferred

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items or activities. All faculty and staff participated in administering the tokens to the children throughout the day. Baseline data were collected 2-3 times per week for a period of 2 weeks for each child.

Staff Training and Development of SSs. Preschool faculty attended a 15-minute information session on the basics of SS intervention procedures. The session was conducted by the researcher and consisted of a PowerPoint presentation explaining how to create and implement social story interventions. Once the children had been selected for participation, participating teachers attended additional one-on-one training, reviewing the social story interventions, their role in the process, and how to use social stories. The teachers assisted in writing the SS after training with the researcher. One story was developed for each participant using PowerPoint. Story development took about 30 minutes per participant. There were 1-2 sentences on each slide along with pictures of the participants and environment in which the chosen behavior took place. The SS was individualized based on the target behaviors and environmental stimuli that were associated with the child's difficulties with social interaction with peers and problem behavior. There was a ratio of 4 directive sentences to approximately 10 descriptive and perspective sentences in each story.

The SS for Ron was entitled *Center Time*; it was 9 pages long and included 5 comprehension questions. It included pictures of him playing during center time and provided statements he could use to initiate play with peers, including, "Let's play, Let me see, My turn, or Look!". It addressed his problem behavior of noncompliance, by stating that during center time he needed to follow direction and share toys with friends. The SS for Doug was entitled *Recess Time*, it was 10 pages long and included 4 comprehension questions. It included pictures of him playing during recess time and provided statements he could use to initiate play with

peers, including, "Chase me, Run, Tag.". It addressed his problem behavior of physical aggression by stating that during recess time he needed to keep his hands to himself and play nicely with his friends. The SS for Caleb was entitled *Center Time*, it was 9 pages long and included 4 comprehension questions. It included pictures of him playing during center time and provided statements he could use to initiate play with peers, including, "Let's play, Let me see, My turn, or Look!". It addressed his problem behavior of noncompliance, by stating that during center time he needed to remain on task, by playing with his friends and the toys. For all children, each page of the story was printed on a white sheet of paper and glued to a black piece of construction paper. The story was bound together with yarn, so pages could easily be turned. The SS and comprehension questions developed for each child are presented in Appendix F.

For the Multimedia SS, voice was embedded into the SS by recording narration on the researcher's laptop computer with a microphone and speakers through an application called Garage Band. A student in 3rd grade recorded the voice for each of the participant's SS. This allowed for the children in the study to hear the story in a child's voice, which was more similar to what their own voice would sound like to them. The pictures utilized were of each of the participants and their classrooms as well as the playground, taken when the participating children were engaged in their chosen activities with peers.   There were slides with 4-5 multiple-choice comprehension questions about the SS that the children had to answer after reading the story.

Standard SS. The standard SS intervention consisted of the teacher reading the paper format of the SS to the children individually prior to the children engaging in the target activity routine where prosocial behaviors were utilized. There were suggested phrases and statements the child could utilize to join in playing with peers included in the stories. After the teacher finished reading the SS with the child, the teacher asked them 4-5 comprehension questions

about the story. Implementation of this procedure took about 5 minutes. The teacher then verbally prompted the child to participate in the target activity or routine with peers. The teacher reminded the child to use their prosocial skills when playing with their classmates. Data were collected on the percentage of intervals of the participant's use of prosocial behavior and engagement in problem behavior throughout the 15-minute observation sessions during targeted activities or routines.

Multimedia SS. For all participating children the multimedia SS was implemented in the second phase of intervention to examine whether adding a multimedia component to the standard SS would further enhance the behavioral outcomes of the participating children. The multimedia SS intervention consisted of the children listening to the SS embedded with multimedia on the computer prior to engaging in the target activity or routine with peers, where prosocial behaviors were to be utilized. The children were brought to the computer with the PowerPoint opened and prompted to press the play button so that they could hear the voice recording of the SS and view the pictures. Once the voice recording on each slide was complete, the slide automatically changed to the subsequent slide. At the end of the SS slides, the participants were prompted to respond to questions on their SS. When teachers were not able to ask comprehension questions to the children at the end of the session due to helping other children, the researcher assisted the teachers to implement the intervention by asking comprehension questions and verbally prompting the children to participate in the target activity or routine and to use their prosocial behavior when playing with their classmates. The multimedia SS sessions took about 5 minutes for each child. Data were collected on the percentage of intervals of the participant's use of prosocial behavior and engagement in problem behavior throughout the 15-minute observation sessions. The multimedia SSs for all three participants utilized the same pictures and text as the

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standard SS. There was a solid blue/green background added to all PowerPoint slides, and animation and automatic transitions added between text and between slides. The voice recording was played through iTunes, because it would not embed into the PowerPoint presentation.

Follow-Up. After 3 weeks of completion of the multimedia SS intervention, weekly probe data was collected for a period of 3 weeks during target routines to determine if changes in behavior were maintained without intervention.

Generalization Probes. To investigate the generalized use of the prosocial behavior and decreases in problem behavior, student behavior observations occurred during situations with peers in a novel routine across experimental conditions. Two generalization probes were conducted in each phase, one on the first day (session) of the phase and one on the last day of the phase. The generalization probes were conducted during recess for Ron and Caleb and during center time for Doug.

Chapter 3:

Results

Problem Behavior

Figure 1 displays data on problem behavior across experimental phases for three participants. Data indicated that for all three participants, the standard paper format SS led to decreases in problem behavior; however, implementing the multimedia SS did not appear to further decrease the children's problem behavior. The mean percentages of intervals for Ron's problem behavior were 7.3% (range = 0-17%) in baseline, 3.8% (range = 0-8%) in standard SS, and 6.7% (range =2-20%) in multimedia SS intervention. Doug displayed relatively high levels of problem behavior during baseline (12.4%; range = 5-23%) and consistently low levels of problem behavior during standard SS (5.8%; range 0-8%). However, Doug's problem behavior increased to 9.8% (range =7-13%) during multimedia SS intervention, but remained lower than during baseline. Caleb's mean level of problem behavior decreased from 16.1% (range = 5-28%) in baseline to 6.7% (range = 3-17%) in standard SS. Similar to his peers, Caleb's mean level of problem behavior increased slightly to 7.2% (range = 0-20%) during multimedia SS intervention. These results indicate that multimedia SS was not as successful as standard SS in decreasing problem behavior. However, compared to baseline, problem behaviors were reduced during both standard SS and multimedia SS.

Prosocial Behavior

Figure 1 also displays data on the children's prosocial behavior across experimental phases. Compared to problem behavior, there was a dramatic change in prosocial behavior for all children during standard SS. However, when the multimedia SS was implemented, the prosocial

behavior further increased. Although there was some variability in data with two children, the results were profound.

For Ron, his prosocial behavior rarely occurred during baseline (0.3%; range = 0-1%). However, when standard SS was implemented, there was an immediate increase in prosocial behavior; the mean levels were 0.3% (range = 0-1%) during baseline and 7.2% (range = 10-23%) during standard SS intervention. During multimedia SS, although his prosocial behavior decreased unexpectedly in the third intervention session, an increasing trend continued over the next session with a mean level of 28.5% (range = 7-37%).

For Doug, the mean levels of his prosocial behavior were 1.2% (range =0-3%) during baseline, 17.2% (range = 7-27%) during standard SS intervention, and 26.5% (range =20-30%) during multimedia SS. As shown in Figure 1, upon implementation of the standard SS, Doug, like Ron, demonstrated an increase in prosocial behavior; specifically, a dramatic increase emerged in the third session of this phase. In the multimedia SS intervention phase, Doug's prosocial behavior further increased, demonstrating a stable pattern.

Caleb displayed relatively consistent, low levels of prosocial behavior during the initial baseline phase. His levels of prosocial behavior increased unexpectedly in the middle of baseline; however, there was a decreasing trend during the remaining baseline sessions. Upon implementation of the standard SS, there was an immediate increase in Caleb's prosocial behavior. His mean level increased from 5.6% (range = 0-20%) in baseline to 23.8% (range = 8-33%) in standard SS. The level of Caleb's prosocial behavior further increased to 28.1% (range =2-57%) when the multimedia SS was implemented. However, high variability was observed for Caleb in all phases.

Maintenance and Generalization

Figure 1 and Table 1 display follow-up data. At the 3-week follow-up, three probe observations were conducted across children. Data reflect high levels of maintenance of reduced problem behavior across children. After withdrawal of the intervention, all three children continued to demonstrate low levels of problem behavior. Data were relatively stable across children, and the levels of their problem behavior during the follow-up phase were similar to those observed during multimedia SS. For prosocial behavior, data demonstrated high levels of maintenance for Ron and limited levels of maintenance for Doug and Caleb. After withdrawal of intervention, Ron continued to demonstrate high levels of prosocial behavior; however, both Doug and Caleb demonstrated somewhat increased problem behavior and decreased prosocial behavior, showing higher prosocial behavior than baseline levels. During follow-up, problem behavior averaged 4.3% (range = 3-5%) for Ron, 3.3% (range = 0-8%) for Doug, and 8.3% (range = 0-17%) for Caleb. Prosocial behavior averaged 41.3% (range = 37-45%) for Ron, 16.3% (range = 8-23%) for Doug, and 26% (range = 20-30%) for Caleb.

The results presented in Figure 1 and Table 2 also indicate relatively low levels of generalization of behaviors to the non-targeted routines across children. For Ron, the mean levels were 9.1% (range = 0-20%) for problem behavior and 7.5% (range = 0-28%) for prosocial behavior. For Doug, the mean levels were 3.3% (range = 0-8%) for problem behavior and 12% (range = 2-28%) for prosocial behavior. For Caleb, the mean levels were 20.8% (range = 1-42%) for problem behavior and 26% (range = 20-30%) for prosocial behavior.

Social Validity

Teachers. The average IRP-15 scores indicated that the participating teachers rated both standard SS and multimedia SS as having high levels of social validity. However, the ratings for

multimedia SS were somewhat higher than those of standard SS. Overall ratings for standard SS were a mean of 5.4 out of 6 across children. The mean ratings for standard SS were 5.4 for Ron, 5.4 for Doug, and 5.4 for Caleb, and the mean ratings for multimedia SS were 5.6 for Ron, 5.4 for Doug, and 5.6 for Caleb. Almost all social validity items received response ratings of 5 or 6, indicating a high level of acceptability and satisfaction. Overall average scores for each item for both SS types on the IRP-15 are presented in Table 3 for each of the three children.

Children. Individual child responses on the social validity survey indicated that all participating children rated both standard SS and multimedia SS as having high levels of social validity. All but one of the following items received ratings of 3 by all three children, indicating a high level of acceptability and satisfaction: I liked reading my story, I would like to read another story in the future, My story helped me be good in school, My story helped me play better with classmates, and I liked reading and practicing the story with my teacher. Caleb scored the liked reading the standard story as a 2 out of 3. The mean ratings were 3.0 for both Ron and Doug for both standard and multimedia SS, and 2.8 for Caleb for standard SS and 3.0 for multimedia SS.
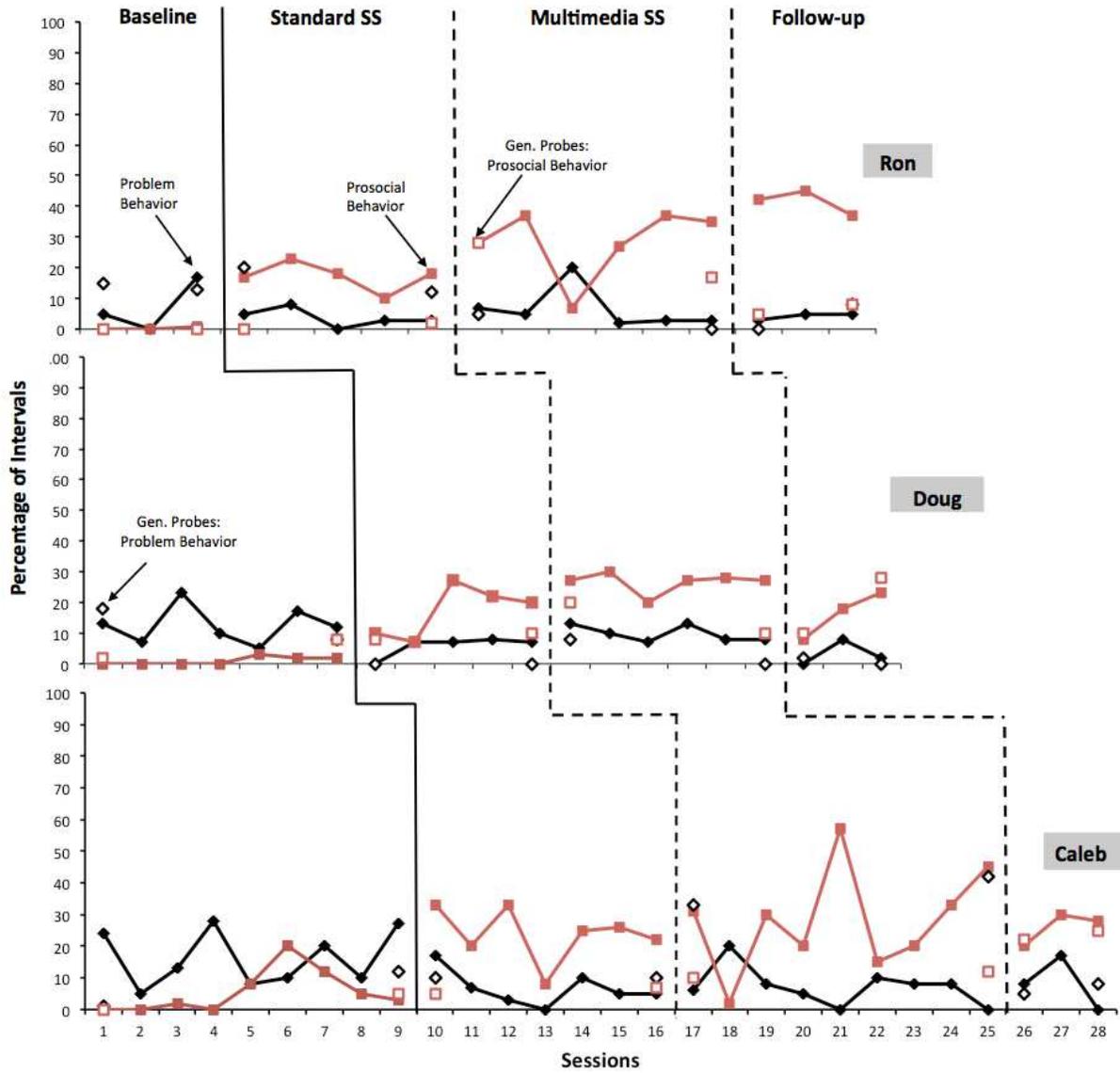
Figure 1. Percentages of intervals with problem behavior and prosocial behavior during each
experimental condition across participants

Table 1

Problem Behavior and Prosocial Behavior by Experimental Condition

Condition	Ron				Doug				Caleb			
	PB		PS B		PB		PS B		PB		PS B	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Baseline	7.3%	3.6	0.3%	0.6	12.4%	6.1	1.2%	1.3	16.1%	8.7	5.6%	6.8
Standard SS	3.8%	2.9	17.2%	4.6	5.8%	3.3	17.2%	8.4	6.7%	5.5	23.8%	8.6
Multimedia SS	6.7%	6.8	28.5%	11.4	9.8%	2.6	26.5%	3.4	7.2%	5.9	28.1%	16.3
Follow-up	4.3%	1.2	41.3%	4.0	3.3%	4.2	16.3%	7.6	8.3%	8.5	26%	5.3

Note. PB = Problem behavior; PS B = Prosocial behavior

Table 2

Generalization of Problem Behavior and Prosocial Behavior by Experimental Condition

Generalization Condition	Ron				Doug				Caleb			
	PB		PS B		PB		PS B		PB		PS B	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Baseline	14%	1.4	0%	0.0	13%	7.1	5%	4.2	6.5%	7.8	2.5%	3.5
Standard SS	16%	5.7	1%	1.4	0%	0.0	9%	1.4	10%	0.0	6%	1.4
Multimedia SS	2.5%	3.5	22.5%	7.8	4%	5.7	15%	7.1	37.5%	6.4	11%	1.4
Follow-up	4%	5.7	6.5%	2.1	1%	1.4	19%	12.7	6.5%	2.1	23.5%	2.1

Note. PB = Problem behavior; PS B = Prosocial behavior

Table 3
Teacher IRP-15 Ratings

IRP Question	Ron		Doug		Caleb		Mean	
	Sd SS	M SS	Sd SS	M SS	Sd SS	M SS	Sd SS	M SS
This intervention was appropriate for behavior problems of my student	6	6	6	6	6	6	6	6
The intervention proved effective in changing the child's problem behavior	4	5	5	5	4	5	4.3	5
I would suggest the use of this intervention to other teachers	6	6	6	6	6	6	6	6
I would be willing to use this intervention again in the classroom setting	6	6	6	6	6	6	6	6
The intervention would be an appropriate intervention for a variety of children	6	6	6	5	6	6	6	5.7
The intervention is consistent with those I have previously used in classroom settings	6	3	5	6	6	3	5.7	4
I like the procedures used in the intervention	6	6	6	6	6	6	6	6
This intervention was a good way to handle this child's problem behavior	6	6	6	6	6	6	6	6
Overall, the intervention was beneficial for the child	6	6	6	6	6	6	6	6
Soon after using the intervention, I noticed a positive change in the problem behavior	4	5	5	5	4	5	4.3	5
Using the intervention improved the child's behavior in the classroom, but also in other settings	5	6	2	2	5	6	4	4.7
I am considering the use of the social story intervention with other students who have similar problem behaviors in my classroom	6	6	6	6	6	6	6	6
The intervention proved effective in changing the child's prosocial skills	5	6	5	5	5	6	5	5.7
Soon after using the intervention, I noticed a positive change in the child's prosocial behavior	4	5	5	5	4	5	4.3	5
Mean	**5.4**	**5.6**	**5.4**	**5.4**	**5.4**	**5.6**	**5.4**	**5.5**

Note. Sd SS = Standard SS; M SS = Multimedia SS

Chapter 4:

Discussion

The primary aim of this study was to examine the impact of a SS intervention augmented with multimedia on problem behavior and prosocial behavior of at-risk young children. Specifically, the researcher sought to answer whether there would be further improvements in child prosocial behavior if multimedia components were embedded into SS. The results of the study indicated that the standard SS was successful in reducing problem behavior and increasing prosocial behavior for all three participating children. The results also indicated that multimedia SS had positive effects on the children, further increasing prosocial behavior during intervention. Although the problem behavior did not further decrease when multimedia SS was introduced, the low levels of problem behavior were maintained at a 3-week follow-up for all three children. One child (Ron) demonstrated even higher levels of prosocial behavior during follow-up than in multimedia SS intervention, and the other two children maintained levels of prosocial behavior similar to those found in the multimedia SS phase (Caleb) or similar to those found in the standard SS phase (Doug). Overall, the multimedia SS demonstrated high levels of social validity. The teachers indicated that the SS intervention was effective in improving the children's target behavior.

However, as found in the study by Benish and Bramlett (2011), there was much variability in data, and a limited generalization of the behavior to non-targeted routines or activities observed. The current study supports previous research on SS utilizing multimedia (Mancil, Haydon, & Whitby, 2009; Richter & Test, 2011; Sansosti & Powell-Smith, 2008). The multimedia used in the current study included PowerPoint slides with voice over and photos of

participating children and teachers. This study suggests that the use of computer and multimedia to implement SS can enhance the outcomes for prosocial behavior in at-risk young children who are developing social emotional disorders. This study is one of the few studies examining the impact of multimedia SS on prosocial behavior in young children. Particularly, the current study is the first to evaluate the use of multimedia SS at Tier 2 level to support at-risk preschool children in a high-need public preschool setting. Our findings indicate that SS should not be restricted to use with children with autism spectrum disorders (Schneider & Goldstein, 2009).

There were many instances in the current study where the participants utilized a prosocial statement from their SS to engage in play with a peer (i.e., "My turn," "Run," or "Look."). The SSs provided the participants with good examples of appropriate words to use to gain the attention of their peers during centers and recess time. With regard to limited reduction of problem behavior in multimedia SS, it should be noted that although the children did not have any difficulty while listening to the standard SS, they did show difficulty listening to the multimedia SS on the computer, sometimes engaging in problem behavior. Their difficulty with listening to the multimedia SS may have been due to the lack of understanding of how to use the computer appropriately and the lack of teacher attention. The teachers prompted the children to read (listen to) the story independently at the computer during which access to teacher attention was not available. Due to the fact that the children's problem behavior was maintained by teacher attention, the children sometimes engaged in problem behavior even though the multimedia was reinforcing to them. The researcher involvement of asking the children comprehension questions on their SS often alleviated their problem behavior during this phase. Thus, it is important to take into consideration the function of the child's problem behavior when implementing SS interventions. All three of the children's problem behaviors in this study had a

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function of attention. Therefore, in the standard SS phase there were fewer problem behaviors demonstrated for all three children because individualized teacher attention was provided prior to the target routine for each child. Whereas, in the multimedia SS phase, teacher attention was not built into the SS, which may have led to higher levels of problem behavior demonstrated by the children. The results indicated that having no access to adult attention before the children engaged in the targeted routines or activities increased the reinforcing effectiveness of attention (deprivation to the reinforcer), thereby increasing problem behavior. Researchers have demonstrated that both deprivation and satiation influence behavioral outcomes (Kahng, Iwata, Thompson, & Hanley, 2000; Michael, 1982).

The current study also supports the findings of previously conducted research on the effects of SS utilizing visual support (Sansosti & Powell-Smith, 2008). Mayer-Johnson picture symbols (Mayer-Johnson, 1994) have been used in SS to increase social communication skills of children with autism spectrum disorders (Sansosti & Powell-Smith, 2008) and to increase on-task behavior in children with ASD (Schneider & Goldstein, 2009). In the current study, photos of participants and teachers were used to teach prosocial behavior.

Limitations and Future Directions

A limitation of the study was the potential effect of the peer partners during center time, as well as the centers in which the children were placed in each day. Due to the classroom schedule and child absences, data were collected on the participants while they were in three target centers and with different peer partners every session. Data were collected on Ron while in house, blocks and cars, or table toy centers. Data were collected on Caleb while in house, blocks and cars, or table toy centers, as well. Both participants were paired with different children in the class throughout the study because of student absences and the teacher allowing

the children to pick their centers and partners on certain school days.

A second limitation of the study was the involvement of the researcher during multimedia SS intervention. The researcher asked the children the comprehension questions rather than the computer. A third limitation was associated with reactivity. There were several occasions during the sessions, particularly for Caleb, when the children engaged in problem behavior during the presence of the researcher. A final limitation involves a great number of absences for Ron and Doug due to illness or parent concerns and subsequent removal of the child from school due to his problem behavior. The large gaps in time of data collection may have contributed to any variability in the data. After being absent from school for three weeks during the multimedia SS phase of intervention, Ron returned and was subsequently suspended from school again. After the third data point in the multimedia SS phase of intervention, Ron was placed on a modified school day and left school at 11:00 a.m., which was an uncontrolled variable that may have affected his data.

Future research should focus on not only using SSs with preschoolers, but with typically developing elementary school children to see if there would be greater improvements in target skills with an older population of children. The presentation of the standard SS and multimedia SS could be switched to see if the order of presentation would change the levels of prosocial skill increases. Future research should also consider using children who have high levels of problem behavior during baseline to see if the multimedia SS will not only keep problem behaviors at low levels, but decrease levels of problem behavior. Lastly, future research could focus on having not only the classroom teacher reading the standard SS to the children, but also other adults in classrooms, such as aides or therapists.

Conclusion

There are several aspects of this study that need to be considered when analyzing the results. The children's attention span and comprehension levels should be taken into account; these variables may have large impacts on the increase or decrease in behavior seen throughout intervention. Also, teacher fidelity of implementation can greatly impact success of the intervention. Classroom schedules and routines along with potential class-wide interventions that may affect participant behavior must be accounted for. Lastly, the skills that children come in with, particularly their prosocial skill levels should be considered when identifying children who may benefit from SS interventions. For example, Ron was selected for the study due to his high levels of problem behavior. However, he had higher levels of prosocial behavior than the other two children, and had the greatest improvement throughout the study. Therefore, children with very limited social skills may need additional supports when using a SS intervention. Overall, the multimedia SS intervention was easy to implement, well received by the teachers and children, and showed promising results in increasing the prosocial behavior of at-risk preschoolers.

References

Agosta, E., Graetz, J.,E., Mastropoeri, M.,A., & Scruggs, T.,E. (2004). Teacher-researcher partnerships to improve social behavior through social stories. *Intervention in School and Clinic*, *39*, 276-287.

Barry, L. M., & Burlew, S. B. (2004). Using social stories to teach choice and play skills to children with autism. *Focus on Autism and Other Developmental Disabilities*, *19*, 45-51.

Benish, T. M., & Bramlett, R. K., (2011). Using social stories to decrease aggression and increase positive peer interactions in normally developing pre-school children. *Educational Psychology in Practice*, *27*, 1-17.

Bijou, S., Peterson, R. F., & Ault, M. H. (1968). A method to integrate descriptive and experimental field studies at the level of data and empirical concepts. *Journal of Applied Behavior Analysis*, *1*, 179-191.

Campbell, A., & Anderson, C. M. (2011). Check-in/Check-out: A systematic evaluation and component analysis. *Journal of Applied Behavior Analysis*, *44*, 315-326.

Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L.,Turnbull, A. P., Sailor, W… Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions*, *4*, 4-16.

Crozier, S., & Tincani, M. (2005). Using a modified social story to decrease disruptive behavior of a child with autism. *Focus on Autism and Other Developmental Disabilities*, *20*, 150-157.

Crozier, S., & Tincani, M. (2007). Effects of social stories on pro-social behavior of preschool

  children with autism spectrum disorders. *Journal of Autism and Developmental*

  Disorders, 37, 1803-1814.

Delano, M. E., & Stone, L. (2008). Extending the use of social stories to young children with

  emotional and behavioral disabilities. *Beyond Behavior, 18,* 2-8.

Delano, M. E., & Snell, M. E. (2006). The effects of social stories on the social engagement of

  children with autism. *Journal of Positive Behavior Intentions, 8,* 29-42.

Dodd, S., Hupp, S. D. A., Jewell, J. D., & Krohn, E. (2008). Using parent and siblings during a

  social story intervention for two children diagnosed with PDD- NOS. *Journal of*

  Developmental and Physical Disabilities, 20, 217-229.

Goldstein, H., English, K., Shafer, K., & Kaczmarek, L. (1997). Interaction among preschoolers

  with and without disabilities: Effects of across the day peer intervention. *Journal of*

  Speech, Language, and Hearing Research, 40, 33–48.

Gray, C. (1998). Social stories 101. *The Morning News, 10,* 2-6.

Gresham, F.M., & Elliott, S.N. (2008). *Social Skills Improvement System (SSIS) Rating Scales*

  Manual. Minneapolis, MN: Pearson.

Hagiwara, T., & Myles, B. S. (1999). A multimedia social story intervention: Teaching skills to

  children with autism. *Focus on Autism and Other Developmental Disabilities, 14,* 82-95.

Hemmeter, M. L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early

  learning: A conceptual model for intervention. *School Psychology Review, 35,* 583-601.

Horner, R. H., Sugai, G., Todd, A. W., & Lewis-Palmer, T. (2005). School-wide positive

  behavior support: An alternative approach to discipline in schools. In L. Bambara & L.

  Kern (Eds.) *Positive behavior support* (pp. 359-390). New York: Guilford Press.

Kahng, S. W., Iwata, B. A., Thompson, R. H., & Hanley, G. P. (2000). A method for identifying

satiation versus extinction effects under noncontingent reinforcement schedules. *Journal*

of Applied Behavior Analysis, 33, 419-432.

Kazdin, A. E. (1982). *Single case research design:* Methods for clinical and applied settings.

New York, NY: Oxford University Press.

Kincaid, D., Childs, K., & George, H. (2005). *School-wide Benchmarks of Quality - Revised*.

Unpublished instrument, University of South Florida.

Kokina, A., & Kern, L. (2010). Social Story^TM interventions for students with autism spectrum

disorders: A meta-analysis. *Journal of Autism and Developmental Disorders, 40*, 812-

826.

Kuoch, H., & Mirenda, P. (2003). Social story interventions for young children with autism

spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18*, 219–

228.

Lorimer, P. A., Simpson, R. L., Myles, B. S., & Ganz, J. B. (2002). The use of social stories as a

preventive behavioral intervention in a home setting with a child with autism. *Journal of*

Positive Behavior Interventions, 4, 53-60.

Mancil, G. R., Haydon, T., & Whitby, P. (2009). Differentiated effects of paper and computer-

assisted social stories on inappropriate behavior in children with autism. *Focus on Autism*

and Other Developmental Disabilities, 24, 205-215.

March, R., Lewis-Palmer, L., Brown, D., Crone, D., Todd, A. W., & Carr, E. (2000). *Functional*

assessment checklist for teachers and staff (FACTS). Educational and Community

Supports. University of Oregon, Eugene, Oregon.

Mayer-Johnson, R. (1994). *The picture communication symbols: Combination book*. Mayer-Johnson Company.

Mayton, M. R., Menendez, A. L, Wheeler, J.J., Carter, S. L., & Chitiyo, M. (2013). An analysis of Social Stories[TM] research using an evidence-based practice model. *Journal of Research in Special Education Needs*, *13*, 208-217.

Michael, J. (1982). Distinguishing between discriminative and motivational functions of stimuli. *Journal of the Experimental Analysis of Behavior*, *37,* 149-155.

Morrison, J. Q., & Jones, K. M. (2006). The effects of positive peer reporting as a class-wide positive behavior support. *Journal of Behavioral Education, 16,* 111-124.

Norris, C., & Dattilo, J. (2000). Evaluating effects of a social story intervention on a young girl with autism. *Focus on Autism and Other Developmental Disabilities, 14,* 180-186.

Ozdemir, S. (2008). The effectiveness of social stories on decreasing disruptive behaviors of children with autism: Three case studies. *Journal of Autism and Developmental Disorders, 38,* 1689–1696.

Powell, J. L. (2009). Using social stories and behavior skills training involving family members to increase social skills for a child with autism. (Unpublished doctoral dissertation). University of South Florida, Tampa, FL.

Richmond, M., G., Haydon, T., & Whitby, P. (2009). Differentiated effects of paper and computer-assisted Social Stories[TM] on inappropriate behavior in children with autism, *Focus on Autism and Other Developmental Disabilities, 24,* 205-215.

Richter, S., & Test, D. (2011). Effects of multimedia social stories on knowledge of adult

   outcomes and opportunities among transition-aged youth with significant cognitive

   disabilities. *Education and Training in Autism and Developmental Disabilities*, *46*, 410-

   424.

Sansosti, F. J., & Powell-Smith, K. A. (2008). Using computer-presented social stories and video

   models to increase the social communication skills of children with high-functioning

   autism spectrum disorders. *Journal of Positive Behavior Interventions, 10*, 162-178.

Scattone, D. (2007). Enhancing the conversation skills of a boy with Asperger's disorder through

   social stories and video modeling. *Journal of Autism and Developmental Disorders, 38*,

   395-400.

Scattone, D. (2007). Social skills interventions for children with autism. *Psychology in the*

   Schools, 44, 717-726.

Scattone, D., Tingstrom, D. H., & Wilczynski, S. M. (2006). Increasing appropriate social

   interactions of children with autism spectrum disorders using social stories. *Focus on*

   Autism and Other Developmental Disabilities, 21, 211-222.

Schiller, P., Clements, D. H., Sarama, J., & Lara-Alecio, R. (2003). *DLM Early Childhood*

   Express. *Teacher's Edition*. Columbus, OH: SRA/McGraw-Hill.

Schneider, N., & Goldstein, H. (2009). Social Stories[TM] improve the on-task behavior of children

   with language impairment. *Journal of Early Intervention, 31*, 250-264.

Shores, C., & Chester, K. (2008). *Using RTI for school improvement: Raising every student's*

   achievement scores. Thousand Oaks, California: Corwin Press.

Smith, C. (2001). Using social stories to enhance behaviour in children with autistic spectrum

   difficulties. *Educational Psychology in Practice, 17*, 337–345.

Thiemann, K. S., & Goldstein, H. (2001). Social stories, written text cues, and video feedback:

      Effects on social communication of children with autism. *Journal of Applied Behavior*

      Analysis, 34, 425-446.

Toplis, R., & Hadwin, J. A. (2006). Using social stories to change problematic lunchtime

      behavior in school. *Educational Psychology in Practice, 22*, 53-67.

Turnbull, A., Edmonson, H., Griggs, P., Wickham, D., Sailor, W., Freeman, R.,…Warren, J.

      (2002). A blueprint for schoolwide positive behavior support: Implementation of three

      components. *Journal of Exceptional Children, 68*, 377-402.

Wang, P., & Spillane, A. (2009). Evidence-based social skills interventions for children with

      autism: A meta-analysis. *Education and Training in Developmental Disabilities, 44*,

      318-342.

Webster-Stratton, C. (1999). How to promote children's social and emotional competence.

      London, England: Sage.

Appendices

Appendix A: Functional Assessment Checklist for Teachers and Staff (FACTS)

Student/ Grade: _____   Date: _____
Interviewer: _____   Respondent(s): _____

Student Profile: Please identify at least three strengths or contributions the student brings to school.
_____
_____

Problem Behavior(s): Identify problem behaviors

___ Tardy	___ Fight/physical Aggression	___ Disruptive	___ Theft
___ Unresponsive	___ Inappropriate Language	___ Insubordination	___ Vandalism
___ Withdrawn	___ Verbal Harassment	___ Work not done	___ Other _____
	___ Verbally Inappropriate	___ Self-injury	

Describe problem behavior: _____

Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.

Schedule (Times)	Activity	Likelihood of Problem Behavior						Specific Problem Behavior
		Low 1	2	3	4	5	High 6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	
		1	2	3	4	5	6	

Select 1-3 Routines for further assessment: Select routines based on (a) similarity of activities (conditions) with ratings of 4, 5 or 6 and (b) similarity of problem behavior(s). Complete the FACTS-Part B for each routine identified.

Functional Assessment Checklist for Teachers & Staff (FACTS)

Student/ Grade: _____   Date: _____
Interviewer: _____   Respondent(s): _____

Routine/Activities/Context: Which routine(only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

Provide more detail about the problem behavior(s):

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it does occur?

What is the intensity/level of danger of the problem behavior(s)?

What are the events that predict when the problem behavior(s) will occur? (Predictors)

Related Issues (setting events)	Environmental Features
___ illness Other:_____ ___ drug use _____ ___ negative social _____ ___ conflict at home _____ ___ academic failure _____	___ reprimand/correction ___ structured activity ___ physical demands ___ unstructured time ___ socially isolated ___ tasks too boring ___ with peers ___ activity too long ___ Other ___ tasks too difficult _____

What consequences appear most likely to maintain the problem behavior(s)?

Things that are Obtained	Things Avoided or Escaped From
___ adult attention Other: _____ ___ peer attention _____ ___ preferred activity _____ ___ money/things _____	___ hard tasks Other: _____ ___ reprimands _____ ___ peer negatives _____ ___ physical effort _____ ___ adult attention _____

<div align="center">

SUMMARY OF BEHAVIOR
Identify the summary that will be used to build a plan of behavior support.

</div>

Setting Events & Predictors	Problem Behavior(s)	Maintaining Consequence(s)

How confident are you that the <u>Summary of Behavior</u> is accurate?

Not very confident					Very Confident
1	2	3	4	5	6

What current efforts have been used to control the problem behavior?

Strategies for preventing problem behavior	Strategies for responding to problem behavior
___ schedule change Other: _____	___ reprimand Other: _____
___ seating change _____	___ office referral _____
___ curriculum change _____	___ detention _____

March, Horner, Lewis-Palmer, Brown , Crone, Todd , & Carr (2000)

Appendix B: Data Sheet

Interval Recording Data Sheet

Participant:_____ Observer:_____ Date:_____

Start Time:_____ End Time:_____

[PS]= Prosocial Skill [P]= Problem Behavior   **Leave Non-Occurrences Blank**

1	PS	P	2	PS	P	3	PS	P	4	PS	P
5	PS	P	6	PS	P	7	PS	P	8	PS	P
9	PS	P	10	PS	P	11	PS	P	12	PS	P
13	PS	P	14	PS	P	15	PS	P	16	PS	P
17	PS	P	18	PS	P	19	PS	P	20	PS	P
21	PS	P	22	PS	P	23	PS	P	24	PS	P
25	PS	P	26	PS	P	27	PS	P	28	PS	P
29	PS	P	30	PS	P	31	PS	P	32	PS	P
33	PS	P	34	PS	P	35	PS	P	36	PS	P
37	PS	P	38	PS	P	39	PS	P	40	PS	P
41	PS	P	42	PS	P	43	PS	P	44	PS	P
45	PS	P	46	PS	P	47	PS	P	48	PS	P
49	PS	P	50	PS	P	51	PS	P	52	PS	P
53	PS	P	54	PS	P	55	PS	P	56	PS	P
57	PS	P	58	PS	P	59	PS	P	60	PS	P

Total # of Occurrences of PS:_____   % of Occurrences of PS:_____

Total # of Occurrences of P:_____   % of Occurrences of P:_____

Total # of Non-Occurrences:_____   % of Non-Occurrences:_____

Appendix C: Fidelity Checklist

Student: _____

Intervention Agent: _____

Date of Observation: _____

Social Story Intervention	Did the implementer complete the step?	
1. Read standard social story/set-up multimedia social story for the child prior to chosen activity	Yes	No
2. Ask the child 4-5 comprehension questions about the social story	Yes	No
3. Provide verbal feedback for response to comprehension questions	Yes	No
4. Praise the child for reading and responding to the comprehension questions	Yes	No
5. Provide child with an opportunity to practice social skill during centers or lunch/recess	Yes	No
TOTAL (# Yes / # Total)		
Percent Score		

Appendix D: Teacher Adapted Intervention Rating Profile–15 (IRP-15)

Student: _____Teacher: _____Date: _____

This questionnaire consists of 14 items. For each item, you need to indicate the extent to which you agree or disagree with each statement. Please indicate your response to each item by circling one of the six responses to the right.

Questions	Responses					
1. This intervention was appropriate for the behavior problems of my student	1	2	3	4	5	6
2. The intervention proved effective in changing the child's problem behavior.	1	2	3	4	5	6
3. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
4. I would be willing to use this intervention again in the classroom setting.	1	2	3	4	5	6
5. The intervention would be appropriate intervention for a variety of children.	1	2	3	4	5	6
6. The intervention is consistent with those I have previously used in classroom settings	1	2	3	4	5	6
7. I like the procedures used in the intervention.	1	2	3	4	5	6
8. This intervention was a good way to handle this child's behavior problem	1	2	3	4	5	6
9. Overall, the intervention was beneficial for the child.	1	2	3	4	5	6

(continued)

10.	Soon after using the intervention, I noticed a positive change in the problem behavior.	1	2	3	4	5	6
11.	Using the intervention improved the child's behavior in the classroom, but also in other settings	1	2	3	4	5	6
12.	I am considering the use of the social story intervention with other students who have similar problem behaviors in my classroom.	1	2	3	4	5	6
13.	The intervention proved effective in changing the child's prosocial skills.	1	2	3	4	5	6
14.	Soon after using the intervention, I noticed a positive change in the child's prosocial skills.	1	2	3	4	5	6

Appendix E: Child Social Validity Questionnaire

Participant Social Validity Form

Name:_____Date:_____

1. I liked reading my social story.

2. I would like to read another social story in the future.

3. Social stories helped me be good in school.

4. Social stories helped me play better with my classmates.

5. I liked reading and practicing my social story with my teacher.

Appendix F: Social Story Scripts

Center Time; Ron's Story
Every weekday I come to Mrs. K's class. I get to play with my friends during centers and recess time. During centers we can play with blocks, cars, legos, and lots more. During center time I need to follow directions and share toys with my friends. If I want to play with a friend I can say, "Let's play," "Let me see," "My turn," or "Look!" Usually, my friends will say, "Ok," and we can play with the toys together. If they do not want to play, I can ask again later. Asking my friends to play and following directions makes Mrs. K very happy! Playing with my friends is fun!

Comprehension Questions:
1. When do we get to play?
2. What can we play with during center time?
3. What do I have to do during center time?
4. If I want to play with a friend, what can I do?
5. If a friend does not want to play, what should I do?

Recess Time; Doug's Story
Every weekday I come to Ms. D's class. I get to play with my friends during centers and recess time. We usually play on the playground during recess time. During recess I need to keep my hands to myself and play nicely with my friends. When I want to play with my friends, I can say, "Chase me," "Run," "Tag." I can also tap their shoulder gently to get their attention. If I ask a friend to play, they will usually play with me. If my friends do not want to play, they may say, "Later," and play with me in a few minutes. Keeping my hands to myself and playing with my friends makes Ms. D happy! Playing safely together outside is lots of fun!

Comprehension Questions:
1. When do we get to play?
2. What should I do during recess time?
3. If I want to play with a friend during recess, what can I do?
4. How else can I get my friends attention?

Center Time; Caleb's Story
Every weekday I come to Mrs. K's class. I get to play with my friends during centers and recess time. During centers we can play with blocks, cars, legos, and lots more. In centers, I need to play nicely with the toys and my friends. If I want to play with a friend I can say, "Let's play," "Let me see," "My turn," or "Look!" Usually, my friends will say, "Ok," and we can play with the toys together. If they do not want to play, I can ask again later. Playing with toys and my friends Mrs. K very happy! Playing with toys and my friends is fun!

Comprehension Questions:
1. When do we get to play?
2. What can we play with during center time?
3. What do I have to do during center time?
4. If I want to play with a friend, what can I do?

Appendix G: USF IRB Approval

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 ● Tampa, FL 33612-4799
(813) 974-5638 ● FAX (813) 974-7091

11/21/2013

Daniella Suric, MA
ABA-Applied Behavior Analysis
Department of Child and Family Studies
13301 Bruce B Downs Blvd., MHC 2113A
Tampa, FL 33612

RE: Expedited Approval for Initial Review
IRB#: Pro00014697
Title: Using Multimedia Social StoriesTM to Enhance Prosocial Behavior of At-Risk
        Preschoolers

Study Approval Period: 11/18/2013 to 11/18/2014

Dear Dr. Suric:

On 11/18/2013, the Institutional Review Board (IRB) reviewed and APPROVED the above
application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
Protocol_V1_11-5.docx

Consent/Assent Document(s)*:
IC Parents_V1_11-5.docx.pdf
IC Teacher_V1_11-5.docx.pdf

*Please use only the official IRB stamped informed consent/assent document(s) found under the
"Attachments" tab. Please note, these consent/assent document(s) are only valid during the
approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which
includes activities that (1) present no more than minimal risk to human subjects, and (2) involve
only procedures listed in one or more of the categories outlined below. The IRB may review
research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR

56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board