An Exploration of Perseverative Behaviors in Young Children with Autism

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An Exploration of Perseverative Behaviors in Young Children with Autism

by

Madison M. Ralph

A Thesis
Submitted to the Honors College of
The University of Southern Mississippi
in Partial Fulfillment
of the Requirements for the Degree of
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Abstract

This study explored the interplay of stereotypical behaviors and social skills interventions in a clinical environment when stereotypy was not the focus of the interventions. A case study design was implemented to observe two participants that exhibited stereotypical and repetitive behaviors (SRBs) as well as the interventions that influenced these SRBs. Findings demonstrated prompting, positive reinforcement, and response interruption/redirection had a positive impact on shaping some SRBs but, as SRBs were not the focus of the interventions, other SRBs developed.

Key Terms: autism, early intervention, intervention, perseveration, positive reinforcement, prompting, response interruption/redirection (RIR), social skills program, stereotypical and repetitive behaviors (SRBs)
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Introduction

The Diagnostic and Statistical Manual of Mental Disorders 5 (American Psychiatric Association, 2013) characterizes an autism spectrum disorder by social communication deficiencies and stereotypical or repetitive behaviors (SRBs) (American Psychiatric Association, 2013). The National Institute of Health defines SRBs as behaviors that exhibit stereotypies, rituals, compulsions, obsessions, perseveration, or repetitive speech (Watt, Wetherby, Barber, & Morgan, 2008). Stereotypical behaviors are the third most often studied behaviors of autism (Horner, Carr, Strain, Todd, & Reed, 2002). Researchers have defined stereotypy in several ways. One study sought to divide repetitive behaviors into higher order SRBs and lower order SRBs. According to Turner (1999), higher order SRBs include circumscribed interests, rigid routines, and arranging of objects. Lower order SRBs include repetitive behaviors or repetitive motions. Both classifications of SRBs can cause significant disruptions in learning and performance of daily life functions (Turner, 1999). Due to the potential for their negative impacts on learning and/or social acceptance of SRBs, it is critical to find and implement a successful intervention at the onset of the behaviors.

Early Intervention

According to Horner and colleagues (2002), researchers have learned that it is important to decrease or eliminate SRBs at a young age before they become a habit for the individual. The Individuals with Disabilities Education Act (IDEA 2004) requires that school districts provide a service called “early intervention” to those students ages three to five who have a disability or who are at risk of a disability (IDEA, 2004). The purpose of the service is to reduce the effects of the disability by aiming the intervention at five
areas: physical, cognitive, communicative, social/emotional, and adaptive. The objective is to teach young children socially and academically appropriate behaviors and skills so that schools can place students in a less restrictive environment upon entering kindergarten. Early intervention is particularly important because interventions are more successful before a child establishes a routine of disruptive behaviors (Horner et al., 2002). Not all SRBs are considered problem behaviors. Those that impact learning and/or social skills are problematic and should be addressed through intervention (Watt et. al, 2008).

**Stereotypies and toddlers**

Stereotypies are identifiable in infants as young as 17 months (Matson, Dempsey, & Fodstad, 2009). However, stereotypies may be more accurately attributed to autism if they are still exhibited when children are three to four years of age. Many infants exhibit stereotypical behaviors that may not be related to a disability (DiGennaro Reed, Hirst, & Hyman, 2012).

A study sponsored by the National Institute of Health examined children 18-24 months of age (Watt, Wetherby, Barber, & Morgan, 2008). The study identified and contrasted the SRBs exhibited in children with autism, developmental delays not associated with autism, and typical development. The results proved that children with autism exhibited much higher frequency and longer duration for those SRBs with objects and those of the body. In contrast to SRBs associated with the body and objects, sensory SRBs did not differ much from children who were typically developing or having other developmental delays. Particular SRBs that distinguished the children with autism from the other children include: banging objects on a surface, flinging objects back and forth,
holding objects for longer than expected, moving objects stereotypically, repetitively 
swiping objects, and trying to spin objects. Stiffening of the posture, rubbing oneself, and 
banging on surfaces made up the distinguishable SRBs of the body. Although these body 
and object behaviors were indicative of autism, it is important to note that the typically 
developing children also exhibited a variety of SRBs, which provides evidence that age 
three is the best age to begin looking at SRBs in children. It is clear that young children 
with autism exemplify very distinct SRBs as opposed to other children at this age (Watt, 
Wetherby, Barber, & Morgan, 2008, Matson et al., 2009). However, SRB patterns 
identified in infants are parallel to SRB patterns in adolescents with autism (Matson et al., 
2009). This supplements the fact that distinct SRBs are prevalent very early in the life of 
infants with autism and that these patterns will likely persist unless intervention occurs. 

While there are many up to date systematic reviews of prior research of SRB’s 
(Boyd, McDonough, Bodfish, 2012, Patterson, Smith and Jelen, 2010, Horner et al., 
2002), there are few actual studies that implement specific interventions towards 
repetitive behavior (Liu-Gitz & Banda, 2010, Ahearn, Clark, MacDonald, 2007, 
Rodriguez et al., 2012, Kennedy, Meyer, Knowles, & Shukla, 2000). This study sought to 
focus on lower order SRBs in participants ages 3-5. Specifically, this study aimed to 
identify interventions implemented for social skills training with participants with autism 
spectrum disorder (ASD) ages 3-5 enrolled in a summer social skills clinic and explored 
the impact of those interventions on participants’ lower order SRBs.
A Review of the Literature

The Role of Interventions

Though researchers have not yet identified the cause of autism, they have developed many interventions to replace or shape the behaviors and stereotypies associated with the disorder. The development of applied behavioral analysis (ABA) has brought about many scientifically based intervention strategies for working with students with challenging behaviors associated with autism (Scheuermann & Hall, 2012). ABA is a set of guiding behavioral principles that require proof of the correlation between an intervention and the improvement it has on a specific behavior. ABA is founded on the assumptions that: 1) all behavior serves a purpose and 2) all behaviors are maintained by the same principles; either a behavior occurs to gain a reinforcer or escape a condition (Wong, 2015).

Interventionists implement interventions that are based on evidence based practices (EBPs). In 2014 the National Professional Development Center (NPDC) on Autism Spectrum Disorder conducted research to identify all EBPs successful in reducing problem behaviors associated with autism (Wong et al., 2015). NPDC identified 27 interventions that are EBPs for intervening behaviors associated with autism. Further, researchers divide interventions for autism into comprehensive treatment models (CTM’s) and focused intervention practices (FIP’s) (Wong et al., 2015). CTMs aim to advance individuals with autism in a comprehensive range of different areas. In contrast FIPs seek to better a certain skill by providing a shorter and more focused intervention that has an operationally defined goal. Most of the EBPs identified by the NPDC include FIP (Wong et al., 2015).
Selecting Interventions

Factors vital to designing a successful intervention include: when the problem behavior occurs, where the problem behavior occurs, the frequency of the problem behavior, and the outcome of the problem behavior (Patterson, Smith, and Jelen, 2010). In order to gather these components, most studies emphasize the importance of conducting a functional behavior assessment (FBA) (Kennedy, Meyer, Knowles, & Shukla, 2000, Horner et al., 2002, Sniezyk & Zane, 2015). An FBA is an assessment of challenging behaviors based on the environmental, social, and cognitive conditions and the supposed function of the behavior (Scheuermann & Hall, 2012). An interventionist conducts an FBA through indirect (interviews, surveys) or direct (observation) measures. NPDC considers FBAs an evidence-based practice in assessment of individuals with ASD (Wong, 2015).

An FBA is most vital in designing interventions for stereotypies or SRBs, as these behaviors serve different functions depending on the child (Kennedy et al., 2000). SRBs may serve the function of escape or a way to communicate distaste for an antecedent. After conducting a meta-analysis of all studies done using behavioral interventions in autism from 1990-2000, Horner found that the more specific the FBA, the more successful the intervention is in reducing the problem behavior (Horner et al., 2002). An FBA should also determine what reinforcers are maintaining the behavior. The intervention will then target the maintaining reinforcers by interrupting or changing them. Reinforcers can function in the form of a sensory, positive social, positive non-social, or negative reinforcer (Patterson et al., 2010).
Commonly Used Interventions

The following section presents several interventions commonly used to replace or shape challenging SRBs. The interventions discussed are response interruption, reinforcement, prompting, and sensory integration therapy. The National Professional Development Center (NPDC) identifies all of these as evidence based practices (EBP) with the exception of sensory integration therapy, which is a popular form of behavior treatment but not an EBP.

Response interruption/redirection.

The NPDC defines response interruption/redirection (RIR) as the process of interrupting the relationship between the response and the reinforcer (Wong et al., 2015). This intervention has been a success for interrupting the SRBs associated with autism in order to introduce a more appropriate behavior (Rodriguez et al., 2012). One study implemented RIR to replace the rearrangement of objects of three participants with autism between the ages of 13 and 15 (Rodriguez et al., 2012). The RIR in this study involved the experimenter putting his/her hand between the participant with autism and the object he was seeking to rearrange. If the participant persisted, the experimenter would put the participant’s hand in his lap to interrupt the engagement of rearranging. For the first and second participants, response blocking almost completely eliminated the rearranging. RIR resulted in aggression for the third participant, so the interventionist implemented alternate interventions.

In another study, the researchers used RIR to disrupt vocal stereotypy (Ahearn, Clark, & MacDonald, 2007). The teacher in the study would interrupt the vocal stereotypy by asking the child a direct question. The child must answer three questions
without the vocal stereotypy being replaced before the teacher would deliver praise and move on. This implementation of RIR immediately reduced the vocal stereotypy in all four of the participants. For three participants, RIR also increased appropriate vocalizations.

**Reinforcement.**

The NPDC defines reinforcement as the relationship between a particular behavior and the consequence that follows it (Wong et al., 2015). A consequence is only reinforcement if the reinforcer increases the behavior (Wong et al., 2015). Several studies have explored altering the reinforcer and observing the impact it has on the SRB. One study conducted informal functional assessments through survey to determine the type of reinforcement maintaining children with autism’s most severe SRB (Wilke et al., 2012). Thirty-nine surveys were conclusive; of those 39 surveys, 35 indicated that the automatic reinforcement maintained the behavior. Automatic reinforcement is reinforcement that occurs independent of anyone else or the social environment (Patterson defines this as positive non-social reinforcement) (Rodriguez, Thompson, Schlichenmeyer, & Stocco, 2012).

Another study sought to determine what was maintaining a ten-year-old with autism’s vocal stereotypy (Liu-Gitz & Banda, 2010). This study implemented a multi-element design in which attention, demand, ignore, and free play were the variables. After the implementing the condition, the researchers counted vocal stereotypy occurrences that followed. The experiment found that vocal stereotypy showed little variation between the conditions, proving automatic reinforcement to be the reinforcement maintaining this SRB. Further, this study tested the RIR intervention in
combination with positive reinforcement in the form of praise to encourage positive vocalizations. The results were successful in that the participant’s SRB decreased from 41% to 10%.

**Promoting.**

The NPDC defines prompting as an intervention that involves specific procedures used to help someone practice a certain skill (Wong et al., 2014). Prompting is typically used along with reinforcement. Interventionists can implement prompts as verbal, gestural, model, physical, or visual. Simultaneous prompting is when the cue and the controlled prompt are presented at the same time. One study explored the effectiveness of simultaneous prompting on a simple command (pointing to numbers). In this study, Akmanoglu & Batu (2004) implemented prompting cards that had a single number written on each (this is a visual and a physical prompt). The trainer would model the numbers by saying their name while pointing to them. The trainer would then give the task direction command (“Which one is three?”) and the participant would point to the correct prompting card. The researchers acknowledged correct responses with verbal praise (positive reinforcement) and ignored incorrect responses. The study found that all of the three participants experienced success with simultaneous prompting. Further, the maintenance training session (conducted at one, two, and four weeks) showed that the first participant maintained 94.6% of the behaviors, the second maintained 85.7%, and the third maintained 100%. Overall, prompting was found to be a success in teaching the appropriate behavior as well as maintaining the newly learned behavior.
Sensory integration therapy.

The NPDC defines sensory integration therapy (SIT) as the process of therapists using different strategies to manipulate sensory stimulation in order to improve certain behaviors (Sniezyk & Zane, 2015). Occupational therapists and other paraprofessionals have implemented this controversial method as a means to counter the overstimulation that can cause the stereotypical behaviors. A study by Sniezyk & Zane (2015) sought to evaluate the effect of different types of sensory methods on stereotypical behaviors. The SIT variables tested included a net swing that applied total body pressure, deep pressure applied by the occupational therapist’s hands, compression using a therapy ball, joint compressions applied by the occupational therapist’s hands, and a technique called the “meatball squeeze” in which the individual lay in fetal position as the occupational therapist applied all-around pressure by squeezing the individual. The study ultimately disproved the success of SIT; the stereotypical behaviors observed during the intervention were not fewer than the stereotypical behaviors observed in the baseline trials.

Because of the large evidence base supporting reinforcement, prompting, and response interruption/redirection, it was expected that the researcher would observe these interventions in the practice of the Summer Social Skills Clinic. This study explored the following questions a) what intervention is used in the clinical setting to replace/reduce SRBs prevalent in a child age 3-5? b) how is this intervention being conducted (number of trainers, setting, procedures, etc.) and c) what impact does the intervention have on the SRB?
Methodology

The goal of this study was to explore stereotypical repetitive behaviors (SRBs) in participants with autism and the impact of interventions on participants’ SRBs. This study employed qualitative methodology in a summer social skills program, specifically instrumental case study (Stake, 1995). The case involved observation of trainers implementing interventions with participants aged 4-6 enrolled in the Summer Social Skills Program. This case was selected because it allowed the researcher to observe the impact of SRBs on developing social skill behavior, how interventions are applied in practice to SRBs, and the impact of those interventions on shaping/reducing the SRBs.

The group the researcher chose to observe was a group of participants ages 4-6, which is a slightly different age range than the 3-5 year range identified in the review of the literature. Participants included individuals, ages 4-6, attending the Summer Social Skills Program put on each summer by The University of Southern Mississippi School Psychology Service Center and Southern Miss Autism Research and Training (SMART) Lab. Consent to participate in this study was included in parent’s consent to additional work at the clinic.

Case Study

The method of research was case study (Stake, 1995). According to Stake, case study is chosen as a means of research in order to observe both commonalities and distinct patterns within a particular construct. Therefore, it is useful for exploratory questions that can generally be answered through observation. Though case study is a singular concept, many subsections are involved in each case. This study looked at the subsections of type of intervention, SRB per individual participant, implementation of
intervention procedures, and the SRB’s effect on sociability. In order to effectively produce the written case study, the researcher transfers what he/she learned from the study and provides data for readers to draw their own conclusion. According to Stake, data collection should focus on the nature of the case, the setting, the participants/behaviors, and the history on the subjects of the study. Stake also states that data should be recorded systematically, consistently, and with great detail (Stake, 1995).

The researcher employed instrumental case study for this study as a means to gain insight on a subject by studying a single case (Stake, 1995). This is a secondary means of case study, meaning the researcher is observing in a supporting role to better understand something else. This form of case study observes the setting, events, and participants in depth by recording every relevant detail. The researcher chooses instrumental case study when the research is being done for the purpose of contributing knowledge and data to a subject rather than conducting research for personal interest. In the context of this study, the case study was instrumental because it was observing interventions applied to teach social skills to determine if there was an additional impact on SRBs. This was done in order to gain a better understanding of the subject and contribute knowledge that can be compared to other cases. This study looked for patterns in intervention implementation and SRBs and drew conclusions from the findings.

Setting

The Summer Social Skills Clinic took place on the campus of The University of Southern Mississippi in Owings-McQuagge Hall. The clinic covered nine weeks; it met every Tuesday and Thursday from 1:00 to 3:00. The clinic began on June 2 and
progressed through nine weeks to July 30. The researcher observed every session except for the very last session (Thursday, July 30).

Group one held all sessions in the SMART lab of the building, a room named for its computer, television, and cameras on the ceiling (these particular cameras were not used for the clinic sessions). The room itself was approximately 15 by 20 feet with off-white sheetrock walls and flat fluorescent lights on the ceiling. There were two doors on the same wall with a light switch next to each door. The wall opposite of this wall was a blank wall with nothing on it; these two walls were longer that the other two. One of the shorter walls had a computer table and an Apple computer sitting on it. A built-in tall bookshelf sat next to this table. The final wall had a Tupperware bucket that serves as the toy bucket for the clinic. A television was hanging off of this wall, and directly under the television is a bench with locked cabinets. The floor was a multicolor carpet. A card table sat in the middle of the room with six metal and plastic chairs positioned around it.

For the purpose of the sessions, the card table that sat in the middle of the room was folded up and placed on its side in front of the computer table. This blocked off any accessibility to the computer and under the computer table. All of the chairs were stacked up and placed to the left of the computer table, further blocking accessibility. A video camera on a tripod was brought in each session in order to film certain participants for another study being done. For each session, toys were spread out on the carpet for “free play.” These toys included the following: Spongebob “Ants in the Pants” game, plastic colorful blocks, “Don’t Break the Ice,” a bucket of cars, plastic animals, and pieces of roads that fit together. Two weeks into the clinic, a puzzle, crayons, and a coloring book were added to the toys.
Participants

The clinic divided participants into different groups based on the age of the participant and the focus of the study targeted in each group. For the purpose of this study, the researcher chose to observe a group of children ages 4-6 both with ASD and without a diagnosis. This was the youngest group at the summer social skills clinic. From this group of eight children, the researcher chose the participants for this case study based on the stereotypies exemplified during the observations. The researcher chose not to look at the participants’ case files initially so as to eliminate any bias that may have been formed regarding the diagnosis.

During the first two weeks of the clinic, the researcher took general observations in which the observer focused equally on each participant. These observations sought to note general behaviors, any emerging patterns, and interventionist interaction with the group participants. On the third week, the researcher narrowed down the participants from eight to four based on participants that showed potential stereotypies or perseverations. Focusing on these four individuals for the next week allowed the researcher to determine whether defined stereotypies or perseverations were present during each session. Perseverations are defined as attempts at communication for individuals with autism, but are not meant by the individual as speech that desires a response (Arora, 2012). On the fourth week, the researcher narrowed down to two participants for this study. These two participants showed verbal and behavioral perseverations, whereas the eliminated participants had not shown perseverations consistently during each observed session.
The two participants exhibited behaviors that were relative to those identified in the literature, and were, therefore, chosen for the study. Although a formal FBA was not conducted on either participant for the purpose of this study, the perseverative behaviors (verbal and physical) fit the definition in the literature of a stereotypy. Caleb (all names kept anonymous) was a five-year-old male that had demonstrated a stereotypical behavioral pattern that was classified by the researcher as a stereotypy. Mary was a five-year-old female who perseverated on numerous phrases and exemplified a fixation on names. Both of these participants exhibited behaviors that were relative to those identified in the literature, and were, therefore, chosen for the study. The other two participants that had been considered did not meet the criteria because they did not exhibit a consistent, repeated pattern of speech or behavior.

Others involved in the clinic included the head of the clinic, Dr. Raoul (pseudonyms used), Erik, Christine, Meg and Carlotta. Dr. Raoul is a professor of psychology at The University of Southern Mississippi. He was the head of the Summer Social Skills Clinic for the year of 2015. He did not participant in the sessions with group one, but compiled the data, analyzed the data, and facilitated the entire clinic. Dr. Raoul selected Erik as the lead interventionist for group one. Erik is a graduate student for the School of Psychology at the University of Southern Mississippi. Erik was in charge of prepping the group of interventionists for each session, facilitating each group one session, and collecting the data within the group. Christine was an interventionist for the clinic who is also a graduate student for the School of Psychology at The University of Southern Mississippi. She had worked with the Superheroes Social Skills Clinic before, so she provided Erik with ideas and behavioral strategies. Meg was a graduate of The
University of Southern Mississippi who was applying for the Applied Behavioral Analysis graduate study at the time of the clinic. This was her first experience with research. Carlotta was studying psychology at the graduate level at The University of Southern Mississippi; she was working on a study with another lead of the clinic and would come in to video the sessions and provide behavioral support. Overall, the case study focused on two participants involved in social skills intervention and five staff members implementing the interventions.

Clinic Routines

The researcher contacted the head of the Summer Social Skills Clinic to request to observe the weekly sessions. Dr. Raoul, the head of the Summer Social Skills Clinic, invited the researcher to observe Group One of the clinic: the youngest group. Dr. Raoul held two training sessions in which all participating staff were briefed on the procedures. The researcher was included in these training sessions. The first session provided each individual with an overview of the studies being done at the clinic and the different groups that were expected. The second session was divided into specific groups (e.g., Group One, Group Two, etc.). Each group was given a lead person; Group One’s lead person was Erik. This training provided each staff member with a sample data collection sheet, the procedures for each of the different phases of the skills, a sample fidelity checklist, and general information regarding the use of the Summer Social Skills Clinic.

Researcher’s Role

This study was the product of an honors college thesis; the researcher had not participated in any research prior to this study. The researcher was in the final year of obtaining an undergraduate degree in Special Education. The researcher had taken
Special Education classes on disabilities, behavior, and management. The researcher had taken Honors College classes on conducting research and writing an undergraduate thesis.

Going into the study, the researcher expected the interventionists to have clear procedures and policies. After viewing the initial program meetings, the structure of the sessions was clear from the beginning. The researcher expected the participants to have more severe behaviors than were actually exhibited. Hand flapping, rocking back and forth, and touching things multiple times were all behaviors that the researcher anticipated when beginning research. The expectation was that each participant would not only be lacking speech skills, but would also exhibit behavioral deficits. Coming from a Special Education background, the researcher was particularly interested in working with interventionists in the field of psychology. Their means of interfering with and intervening upon behavior was of interest.

**Data Collection Procedures**

**Data collection procedures observations.**

During clinic sessions, the researcher sat on the carpet of the room with the participants and interventionists recording observations using pen and paper. The researcher would respond to the participant if directly addressed, but would not initiate conversation with the participants or the interventionists. The researcher had two roles in the clinic: taking observation notes and filling out a fidelity checklist at the end of each session. The researcher took notes the entire session, cleaned up toys when necessary and moved around as the group changed activities. Three or more adults were always in the room with the participants, so the researcher was able to take observations without the
responsibility of responding to behavioral situations. At the end of each session, the researcher filled out a fidelity checklist to turn into the research team, assist in clean up, and set up the room again. The fidelity checklist included interventionist behaviors that the researcher observed when taking notes. These behaviors included things like playing the Superheroes video, handing out power charges, etc. The researcher and one other interventionist completed a fidelity checklist after the participants left at each session.

If there were not enough interventionists to probe all of the participants, the researcher would record probe responses while another interventionist probed the participant. Two interventionists probed each participant. In these instances, the researcher would record the participant response twice: once on the clinic data collection sheet and once in the researcher’s data collection notebook. The researcher was always able to sit in a spot of the room where she could hear and see everything going on.

In order to be unobtrusive, the researcher used a traditional (pen and paper) data notebook for observation notes. The researcher also used a traditional data notebook for notes on interventionists’ qualifications, case study files of participants, and the interviews with the clinic director and lead interventionist. During the first two weeks of the clinic, the researcher took notes in the notebook by labeling the observations by date, session, and times as each observation was noted. During week three, an alternate format was developed as the researcher developed a better organizational structure for the observations; specific time intervals and the researcher’s expectations for each session were needed in the format. The time was recorded every five minutes to label the continuous observations. The researcher also began adding pre summaries and post summaries to the content; the researcher found that there needed to be documentation of
the expectations, thoughts, and anticipations for each clinic session. The researcher would write each pre summary prior to 1:00 on that day. Pre summaries included expectations for the session, questions regarding methods and participants, and behaviors that would be the target of the researcher’s focus. The researcher would write the post summaries after 3:00 on the day of that session. Post summaries included aspects of the session that interested the researcher, questions the researcher formed during the session, answers to the questions formed in the pre summaries, and emerging themes within the clinic.

Appendix A features a proposed data collection sheet that was created prior to the clinic. Though all of these components were still recorded each session, the format of the sheet was found unsuitable for data collection once the clinic began. First, the observations needed to be noted by time more often than every thirty minutes (the researcher found five minutes to be most effective). Too many observations occurred within those thirty minutes to group them together. Secondly, the table format did not allow enough space to record every detail for the emerging themes. The researcher found it most efficient to bring the same spiral bound notebook each session and record the observations following the format of pre summary, observations, post-summary.

After week three, the researcher focused the observations primarily on Caleb and Mary. Caleb began each session by coming in the room and immediately finding a toy. Caleb often kept to himself and fixated on a toy during each session. When another participant would try to interact with either Caleb or the toy, he would scream, hit, throw things, call for his mom, or try to run out of the room. This behavioral routine would also occur if an interventionist would probe Caleb when he was interested in a toy or activity. Caleb did not often socialize with other participants, rather he would seek the attention of
Erik. Caleb also developed the behavior of laughing at himself and the interventionists when he would be told not to do something. Caleb met the researcher’s criteria because the behaviors he exhibited after coming in contact with an aversive stimulus showed a stereotypical pattern.

Mary began each session by walking in the room and saying “hi” to every person. Mary’s attention was always more focused on the people in the room more than the toys and activities. Mary repeated names and phrases throughout every session. She would typically only engage in an activity (especially coloring) if an interventionist prompted her to. Mary would spend the sessions asking to fix the interventionists’ hair, walking around the room trying to scare others by saying “rawr”, or talking to the interventionists. Mary met the researcher’s criteria because she repeated the same subjects and phrases each session. Her verbal SRBs took the form of those developed from the probes and those that existed outside of the probes.

Beginning week two, the researcher recorded Caleb’s behaviors anytime he began to scream, hit or throw, and then jump up and leave the room. On some instances, the researcher recorded his probe responses and interactions to ensure that no verbal stereotypy existed. Finally, the researcher recorded each time an interventionist spoke to the group or interacted with Caleb or Mary. The pre summaries also account for anything the interventionists told the group before the session began. Finally, everything that Mary said was recorded in notes.

To understand the case of social skills interventions and how they may impact SRBs in children ages 4-6 with ASD enrolled in a summer social skills clinic, the researcher drew from all of the following:
1. The researcher studied the history of SRBs and common interventions used to shape or replace these behaviors. This is illustrated in “A Review of the Literature.”

2. During week one on June 2 and June 4, the researcher observed the physical setting of the social skills clinic. The researcher included a detailed description of the physical classroom/play settings, individuals involved, participants, and the tools/materials used.

3. In weeks two through nine, the researcher observed the implantation of the interventions twice a week (Tuesdays and Thursdays). These observations included different participants and interventionists. The observations sought to:
   a. Determine if the intervention was implemented as written in the procedures.
   b. Document any observed SRB exhibited by the participants.
   c. Record any instance where the SRB interfered with the intervention.
   d. Record any instance where the SRB was the target of the intervention.
   e. Document the observed impact of the intervention on the SRB.

4. Using thematic coding, the researcher organized and analyzed all of the documented observations in order to answer the previously stated questions.

5. Finally, a structured interview was conducted with the director of the social skills clinic and the lead interventionist for Group One. Appendix B illustrates the interview questions. This interview explored:
   a. The director and lead interventionist’s determination of whether or not interventions were considered effective for each participant.
b. The director and lead interventionist’s determination of whether or not interventions were implemented correctly according to the procedures.

c. The director and lead interventionist’s perception of the impact of the intervention on the SRB.

Throughout the summer, the researcher would have weekly meetings with the thesis advisor, Dr. Alisa Lowrey, to discuss emerging themes, observation format, and observation content. The summer meetings were on Mondays at 3:00: May 27, June 8, June 15, June 22, June 29, July 6, July 13, July 20, July 27, and August 3. After the clinic had ended, the meetings continued into the fall semester. These meetings were set to evaluate progress, edit the study, and submit to the Honors College. These meetings were on every Tuesday at 2:30: September 1, September 8, September 15, September 29, October 6, October 20, and November 3. The thesis advisor helped the researcher analyze the observations through the development of the data analysis procedures. Specifically, the thesis advisor helped the researcher develop a coding system and then helped develop themes from the codes.

**Data collection procedures interviews.**

Following observations, interviews were conducted with Dr. Raoul and Erik, the director of the Summer Social Skills Clinic and the lead interventionist for Group One. The researcher wanted to allow enough time for the interviewees to analyze the data after the clinic before conducting the interviews. The researcher came up with the interview questions after looking at the emerging themes and the pre and post summaries from the observations. After coming up with a list of 12 questions, the advisor helped edit the list and condense it to nine questions. During the interviews, the researcher asked the
questions off of the predetermined list. As the interviewee responded, the researcher typed the responses verbatim into a Word document using a laptop. If a follow up question was asked, this was typed into the interview document as well. Dr. Raoul and Erik were asked the same nine questions, which are referenced in Table 2 of Appendix B. Both interviews took place in the Owings-McQuagge building at the University of Southern Mississippi campus in Dr. Raoul’s psychology clinic. The researcher and the interviewee were the only two present for both of the interviews.

The first interview conducted was Dr. Raoul’s interview, which took place on August 26, 2015. Dr. Raoul primarily used the data that he and the interventionists collected to answer the questions. Several follow up questions were included in his interview regarding the specific types of surveys that were sent home to Mary’s parents before and after the clinic. These surveys along with the actual data from the summer social skills clinic were frequently referenced during the interview. Other questions that were asked included Dr. Raoul being asked to describe the type of intervention of the Superheroes program and what the interventionist fidelity data looked like. These are questions that only Dr. Raoul could answer as the head of the clinic, so these questions were not included in Erik’s interview.

Erik was interviewed on September 1, 2015. Erik was chosen for the interview because he was the group leader for group one, the 4-6 year old group. The researcher was interested in obtaining his insight on success of the clinic through the perspective of someone that was in the room each session. His interview answers were very brief, at one or two words for three of the questions. Erik had not yet seen the data, so he relied on his observations of group one specifically.
After both of the interviews were completed, the researcher emailed the document to both Dr. Raoul and Erik for them to view. They were told that they could add information to their response if the researcher did not adequately record the intended response. Neither interviewee requested that their answers be clarified or added to.

Data Analysis

Data analysis observations.

To analyze the data, the researcher coded all of the observation notes according to theme. The researcher highlighted hard copies of the observations by hand. Prior to the beginning of the study, data coding and anticipated themes were proposed (Table 2 in Appendix C). The researcher developed anticipated themes from the review of the literature. Those themes were fidelity of the implementation of the intervention, observation of SRB, observation of an SRB, observation of an SRB interrupting the intervention, documentation of an SRB being targeted for intervention, and impact of the intervention on the SRB were all identified as likely themes that would emerge within the summer clinic. The purpose of identifying anticipated themes was to provide a direction for the observation notes. These themes outlined a structure for the researcher to think through when observing different behaviors in the clinic. Though some of the proposed themes were relative to the themes established after data analysis, three themes emerged after data analysis. The emergent themes were directed more at particular behaviors and participants and are presented in the First coding.

The researcher began the highlighting by deciding which behaviors were most prominent in the clinic and assigning each group of behaviors a highlighter color. The coding procedure is described in more detail under First Coding and Second Coding. To
increase trustworthiness, 30% of the researcher’s notes were also coded for themes by a secondary coder. Once notes were color-coded, highlighted selections were grouped together in a word document for the research findings. The researcher then analyzed themes for commonalities and outliers. Those findings are presented in results.

First coding.

During the first coding, the researcher sorted through the predetermined themes and either identified as themes or eliminated. The researcher also determined emergent themes based on the observations. The most prevalent behaviors of the clinic became themes. The most apparent theme was Mary’s speech perseverations, which were numerous and high in frequency. To better describe the perseverations, the researcher created two specific categories out of Mary’s speech perseverations: those that were a direct result of a probe (highlighted pink) and those that existed outside of the probes (highlighted orange). These two categories are the first and second themes of the study. An example of a perseveration resulting from the probe (pink) would be if the interventionist asked Mary “What do you like to do for fun?” which is the probe for skill two, and she replied “playing outside.” A non-example of this theme would be Mary walking around the room asking if other participants are playing outside. An example of a perseveration existing outside of the probe (orange) would be Mary saying “rawr!” repeatedly to the interventionists. A non-example of this theme would be if an interventionist probed Mary to play with another participant and she replied with “rawr!”

The researcher identified a third theme: the identifiable implementation of any behavioral intervention, which was highlighted green in the observations. This theme included any instance in which an interventionist redirected, prompted, positively
reinforced, negatively reinforced, or blocked a behavior. An example of this would be an interventionist saying “good asking” to a participant after they appropriately expressed a want or need. A non-example of this would be an interventionist greeting the participants as they walk in the clinic. Typically, the interventionists’ behavioral directions were seen after Caleb exhibited a challenging behavior. For this reason, Caleb’s challenging behavior pattern of screaming, throwing/hitting, jumping up, and trying to run out of the room was highlighted in yellow and included within this theme of “behavioral intervention.” An example of this would be Caleb yelling at a fellow participant while playing Don’t Break the Ice, throwing an ice cube game piece, standing up, running to the door and trying to run out of the clinic. A non-example would be Caleb screaming while sitting on the carpet playing with a puzzle.

Regarding the third theme, the researcher had previously included any instance where an interventionist deviated from the scripted probe. Instead of one theme for both “Caleb’s behaviors” and the “behavioral interventions”, the theme was separated into “Caleb’s behaviors” and “interventionist facilitation of the clinic and interventions.” Upon coding the observations, however, the researcher discovered that only two instances of this deviation existed, so it was removed as a criterion for the theme. Once this criterion was removed, the entire theme related to the behavioral interventions that subsisted within the clinic. This caused the two separate themes to become relative to each other, so they were grouped into the one theme of “behavioral interventions.” This accounts for why Caleb’s behaviors are coded yellow whereas the intervention implementation is coded green.
The three themes noted were those identified upon the first round of coding the observation notes; they are listed in Table 3 of Appendix C. The predetermined themes that were eliminated were implementation of intervention procedures and the SRB’s effect on sociability. The implementation of intervention procedures was eliminated when the researcher reviewed the observation notes and determined that the interventionists consistently followed the set procedures. The SRB’s effect on sociability was eliminated because the researcher did not find the social aspect relevant to the study. If an SRB was present, the researcher became more interested in what was being done to intercede the SRB than how it was affecting the participant’s sociability at the clinic.

During this first analysis, the researcher began keeping a list of examples of each of the themes, particularly Mary’s verbal perseverations. Each time a response was highlighted, the researcher verified that it was written down in the notebook within the appropriate theme. This process revealed that Mary had far fewer perseverations resulting directly from a probe and many perseverations existing outside of a probe. Based on this finding, the researcher performed a second coding in which Mary’s perseverations existing outside of a probe were broken down into two sub-themes regarding the time that these perseverations developed.

Second coding.

The researcher defined perseverations that developed at the clinic as any perseveration that began after the first three weeks of the clinic. This time frame was decided upon for two reasons. The first is that Mary was only present for three of the six sessions from week one to week three. The second reason is that the first perseveration noted that directly related to the clinic (“can I tap you on the shoulder?”) was first seen on
June 23 in week four. These perseverations were previously highlighted orange, so they were underlined grey during the second coding. An example would be Mary saying “rawr!” or asking if she can tap others in the room. A non-example would be Mary telling herself “good job,” as this was seen before the fourth week.

The researcher defined perseverations that developed before the clinic as any perseveration noted before week four or any perseveration focused on a subject not at the clinic. An example of this would be Mary’s perseverance of repeating names, which was developed within the very first session that Mary was present. Another example would be when Mary says she’s “crying on the bus.” Though this perseverance was not seen until the later sessions, the subject matter has nothing to do with the clinic sessions. A non-example of this would be Mary’s asking the interventionists if she can go home after school.

Table 4 of Appendix E lists all of the specific perseverative phrases that were included within the two themes of Mary’s perseverations: perseverations directly resulting from the probes and perseverations existing outside of the probes. The researcher did not use exact quotes on all of the perseverations. The reason for this is that Mary uses different variations of these perseverations. An example of this is the perseverance of Mary asking to tap people on the shoulder. During the week five session on July 2, Mary asks, “Can I tap Ms. Jamie on the shoulder?” An hour later she turns to Jamie and asks, “May I tap on the shoulder?” Though Mary exhibited different wording with the two questions, she is still perseverating on the same topic.
Data analysis interviews.

After both of the interviews were conducted, the researcher printed two hard copies of each interview in order to code them. On the first coding, the researcher highlighted the similarities between Dr. Raoul’s responses and Erik’s responses. If the responses provided were identical in meaning, that portion of the response was highlighted yellow for both of the interviewee’s responses. If there was a direct contrast in the meaning of the response, that portion was highlighted green. A sample of this is in Appendix D. On the second coding of the interviews, the researcher used the second printed hard copy. The researcher went through both the responses and the questions to the interviews and highlighted based on the three themes identified for the observation notes. Any reference to Mary’s perseverations directly resulting from probes was highlighted pink, any reference to Mary’s perseverations existing outside of the probe was highlighted orange, and any reference to behavioral interventions was highlighted green.

Themes.

The following themes were identified: Mary’s probe perseverations, Mary’s general perseverations, and behavioral interventions. The researcher identified these themes through coding the observations and the interviews. The researcher then listed all specific examples of within these themes during the second coding. Next, the researcher reread the observations and tallied the number of times that each specific example took place in the clinic. Though all of the identified behaviors were found in the observations more than once, not all of the behaviors were considered a perseveration. The researcher defined what would be considered a perseveration for the study by finding the mean of
the frequency of the behaviors for each theme. If a behavior occurred at a frequency below that of the mean, it was not considered a prevalent behavior.

One problem with this method is that some behaviors began during the first week of the clinic while others were not seen until the later weeks of the clinic. The researcher deduced that this error is minimal because of the way the themes are organized. The probe perseverations that Mary developed occurred immediately upon being probed in week one. The theme of perseverations developed outside of the probes is already divided based on when they developed, which acknowledges the increased frequency of those behaviors that developed before the clinic. The final theme of behavioral interventions had no factor acting on it that would prevent the behaviors from occurring consistently from week one to week nine.

The results are presented in terms of theme. The researcher counted the number of times that each theme appeared in order to determine which theme was most prominent in the observations. Secondly, the researcher compiled Word documents for each of the themes and subthemes. These documents hold each time the theme was seen in observation, mentioned in a pre-summary or post summary, or noted in an interview. The researcher copied and pasted these instances into the appropriate document for the appropriate theme. After the results had been compiled in this way, the researcher portrayed the results in the study by describing them theme-by-theme.

**Triangulation.**

This case included data that allows for triangulation (Stake, 1995) in the following ways: a literature review based on the historical treatment and EBP intervention with stereotypy in young children; a document review of interventionists’
qualifications; a document review of participants’ case files; direct observation to answer specific questions; and a conclusive interview with the clinic director to explore his perceptions of the success of the interventions, reduced SRBs, implementation procedures, etc. Interviewing the clinic director and the lead interventionist of group one allowed for increased trustworthiness of the findings; the researcher was able to compare her findings against those stated conclusively by the director and the lead interventionist of group one. The researcher was able to ask about her specific findings (themes) and note whether Erik and Dr. Raoul saw the same themes in their role of the clinic.

**Ethical Considerations**

Research permissions were granted through the Institutional Review Board of The University of Southern Mississippi (April 7, 2015). The principal researcher of the Summer Social Skills Clinic, Dr. Raoul, completed a human subjects research application, and the researcher of this study was recognized as an addendum to this IRB form. Prior to this process, the researcher completed the Collaborative Institutional Training Initiative (CITI) tutorials. The researcher completed both the “Common Course” and the “Research Involving Human Subjects” tutorials. See Table 5 of Appendix F for the CITI certificates and the IRB approval form.

**Results**

**Mary’s Probe Perseverations**

Mary’s probe perseverations were identified as a theme because Mary’s development of perseverations directly from the probes exemplifies a verbal stereotypy formed within the clinic. Mary immediately developed responses that she perseverated on
when being asked the probes. Mary developed distinct perseverations for three of the four probes relating to three of the four skills taught at the clinic: “Tell me about your day,” “What do you like to do for fun?” and “Go ask ____ for a toy.” These same responses were then repeated throughout the entire clinic when Mary would be asked the probed questions. It is important to note that the researcher included only those responses that immediately followed a prompt within this theme. For example, “playing outside” is a response Mary perseverated on for the probe “What do you like to do for fun?” The response “playing outside” only applies to this theme if Mary responds with this after just being asked the probe. It does not apply if she uses “playing outside” in conversations outside of the probe. The researcher will state how many times each perseveration was noted in the observations as each is being discussed.

The first perseveration that Mary developed was in response to the probe that was associated with the skill “responding to questions”; the probe that the interventionist would ask Mary for this skill was “what do you like to do for fun?” From week three, which is the second session for which Mary was present at the clinic, Mary responded with “playing outside.” The interventionist found that Mary responded with this phrase 34 times out of the recorded 44 times she was given the probe. The ten times that Mary responds with something other than “playing outside” is when the skill is being targeted with the use of visual cue cards in the LAG-2 phase. With the cards aiding her trained responses, Mary answers with the responses that are being trained at the clinic.

The second perseveration that Mary developed was in response to the probe “tell me about your day” of the skill “maintaining a conversation.” Mary developed this response her very first time at the clinic during week one. There are three variations of
Mary’s response to this probe: “have fun playing outside,” “did you have fun?”, or a combination of both. An example of the latter is “Did you have fun playing outside?” After tallying Mary’s responses to this probe, the researcher found that Mary responded with one of these 21 out of the 35 recorded times she was probed on this skill. Three of the 37 times, Mary did not provide a relevant response or any response at all. 11 of the 34 times, Mary responded with the trained responses as a result of the visual cue cards of the LAG-2 phase.

The third and last perseveration that Mary developed as a result of the probed questions was as a result of the probe “go ask _____ for a toy.” To this probe, Mary developed the perseveration of “can you have a toy?” Mary responded with “can you have a toy?” seven of the 34 times that she was probed for this skill. The difference in this skill is that Mary developed the perseveration within the first week, but no longer used the perseveration after the skill was targeted in week three. The three responses trained for this skill was saying the person’s name, tapping them on the shoulder, or saying “excuse me” before asking for a toy. Mary immediately started using the person’s name when she would request a toy. She did this 28 of the 37 times that she was probed for this skill. Mary never once returned to saying, “can you have a toy” after the interventionists trained her to use one of the three appropriate responses.

Since there were so few perseverations that formed directly from the probe and since this theme was of primary focus in this study, all of the perseverations were discussed. However, the mean frequency for this theme is 20.33, which means that the behavior would have to be observed 20.33 times for it to be considered a prevalent perseveration. The only perseveration that occurred more than this was “playing outside”
in response to the probe “what do you like to do for fun?” This was obviously the probe perseveration that Mary perseverated on most with little variation in her responses.

The main pattern that was noted with this theme is Mary forming an initial perseveration to the probes and then varying her response when trained with the cue cards in the LAG-2 phase. Mary’s response to “what do you like to do for fun” was varied only ten of the 44 times she was asked this question. All ten of these occurred within the session that the interventionists trained her with the responses of “watch TV, hangout with friends, and play outside.” On June 25, the interventionists began training the skill without the cue cards; Mary responded with “coloring” three times. On June 30, the cue cards were added to the training; Mary responded once with “coloring,” three times with “watch TV,” and three times with “hanging out with friends.” The next session, July 2, Mary was probed for the very same skill and returned to her perseverated response of “playing outside.” This one example follows the rough pattern that is evident through this theme; Mary varies her response with the cue cards but immediately returns to her perseverated response upon their removal.

**Mary’s Perseverations Outside of the Probes**

**Perseverations developed before the clinic.**

Mary’s different perseverations outside of the probes are discussed with the amount of times that they were noted in the clinic observations. The mean frequency for the perseverations developed before the clinic was 23.89, meaning that the perseveration must have been observed this many time for it to have been considered a prevalent perseveration at the clinic. Under this definition, “sharing,” repeating names, and commenting on people’s hair and eyes are the only perseverations that developed before
the clinic that are considered prevalent. All of the perseverations that were observed are noted in Table 4 of Appendix E.

The first perseveration that Mary exhibited in the clinic was repeating people’s names and naming people to address them, which was observed 81 times. June 4, the first time Mary participated in the clinic, she was walking around “repeating everyone’s names” by 1:30. On June 16, she entered the room by repeating the interventionist’s names over and over. The only pattern observed with this behavior is that she usually began each session by repeating names. Mary would repeat the names very slowly by dragging out each syllable in a sing-song voice. Mary also came to the clinic saying “I’m sharing” or asking if she could share; this perseveration was observed 24 times. An example of this is one June 16 Mary was sitting on the carpet watching TV and said, “I’m watching cartoons. I’m sharing.” The perseveration of sharing was often said out of context, such as it was in this example. It may have occurred as a result of prior intervention or training. Finally, Mary perseverated on people’s hair and eyes 52 times. This perseveration occurred during free play typically. On June 16, Mary said “Ms. Madison has long hair.” On June 18, Mary said “Ms. Christine has a ponytail. Ms. Meg has short hair.” Another form that was often observed is seen on June 30 when Mary says, “May I fix Ms. Meg’s hair?” Mary would play with the interventionists’ hair almost every session.

**Perseverations developed at the clinic.**

The mean of the frequencies of the perseverations developed at the clinic is 14.89. Though all of the perseverations are exhibited in Table 4, only two of these perseverations occurred more than 14.89 times and are therefore considered prevalent
perseverations. The first of these is Mary asking if she can go home. On June 30 Mary says, “May I go home? Can I go home after school?” Mary began the clinic not saying this phrase, but began saying it multiple times per session by week five. Meg would always answer Mary’s questions with a response similar to “after we cleanup” (June 30). However, on week six Meg answered the questions by showing Mary her watch and telling her that she could go home when the big hand gets to the 12. Within the next three weeks, Mary perseverated on “when the big hand gets to the 12?” 12 times when asking if she could go home. The combination of these two perseverations shows how quickly Mary was able to pick up on a phrase and perseverate on it. The other pattern associated with this perseveration is that it usually occurred towards the end of each session.

The second perseveration that was formed at the clinic and is considered prevalent is Mary saying “rawr!” or asking to play scare, which occurred 37 times. The pattern with this theme is how quickly it developed. The first time the behavior was observed was on July 2 during week six when Mary opened the door in the middle of the session and said “rawr!” Just within the next three weeks, the phrase was noted 36 more times. A pattern associated with this perseveration is the reinforcement that the interventionists provided it. This is exemplified on July 9, when Mary runs up to Erik and says “rawr!” Erik immediately says “boo” and starts playing with Mary, commenting that they are playing “scare.” This perseveration potentially shows how much Mary increases a phrase when it is positively reinforced.

Behavioral Interventions

As the researcher tallied the frequency of the interventionist behaviors, several distinct intervention practices became evident. These practices were recorded, then tallied
based on the frequency of which they occurred. The mean was then calculated for the seven behavioral intervention practices that were observed, and the mean is 7.86. This mean defined redirection, “good asking,” blocking a behavior, and positive reinforcement as the prevalent intervention behaviors. The interventionists redirected an undesirable behavior 14 times within the clinic. An example of this is on June 9 when one interventionist redirects a participant to the carpet after he bangs toys on the wall. The interventionists told a participant “good asking” 12 times within the clinic. An example of this is on June 18 when Caleb asked for help and Erik responded, “yes, Caleb, good asking.” The interventionists blocked an undesirable behavior (always with Caleb) ten times within the clinic. An example of this was on June 9: “Caleb screams for Erik to get away from the door as John blocks it.” The interventionists provided positive reinforcement 11 times within the clinic. An example of this is Meg praising Caleb on June 18 for “sitting still and staying quiet” during the videos.

A few interventionist behaviors were not considered significant due to their low frequency. One of these is prompting, which was only noted three times in the observations. It is important to note that even though prompting behavior by means of the interventionists was only noted in three instances, the clinic itself implemented prompting through the visual cue cards in the LAG-2 phase of each of the four skills. Another behavioral strategy that had a frequency of three occurrences was pulling a student aside. The final strategy was ignoring a behavior, which was only documented three times.

Since Caleb’s behavioral pattern was separate from the interventionists’ behavioral management. Caleb’s behavioral pattern was documented 12 times. This pattern must have included him yelling, trying to run out of the room, and
hitting/throwing in order for it to be counted under this subtheme. An example of this is on June 9 when Caleb climbs on the benches and chairs, is redirected by an interventionist, “starts screaming that he wants his brother and sister,” and then “tries to run out of the door.”

**Interviews**

The results of the interviews did not address specific SRBs. Rather, the interview results provided a more overall look at the success of the clinic. Though Dr. Raoul’s answers reflected that he was able to see both the behavioral pattern Caleb exhibited and the verbal perseverations Mary exhibited, his focus was directed towards the data of the overall clinic. In terms of the success of the clinic, Dr. Raoul’s answers reflect that the clinic was successful. By focusing on the data, he told the researcher that the data reflect success in the acquisition of the skills taught and the teaching of three responses for each skill.

**Discussion**

Several linkages were found between the research done prior to this study and the results of this study; the findings from this study that apply to those studies will be discussed in detail. The researcher also found results that were not anticipated, and therefore not previously discussed in literature. These findings will be linked to studies that were not discussed in the literature review. The discussion will begin with linkages that were previously mentioned, which includes the themes of Mary’s perseveration of “rawr” outside of the probes, the intervening behavior of the interventionists through prompting, and the interventionist’s response to Caleb’s behaviors. Sensory integration
therapy was the only intervention that was discussed in the literature review that was not seen in the practice of the summer social skills clinic.

**Links to the Field**

The beginning of this study defined focused intervention practices (FIPs) as interventions that focus on a particular skill. All of the interventions observed at the Summer Social Skills Clinic were FIPs that were implemented to increase social skills in participants with autism. These interventions also had an impact on the stereotypical and repetitive behaviors (SRBs) that were observed in Mary and Caleb.

**Response interruption/redirection.**

Interventionists implement response interruption/redirection (RIR) in order to interrupt the response from the reinforcer that follows it (Wong et al., 2014). By this definition, RIR was observed at the Summer Social Skills Clinic through what the researcher defined as the interventionists redirecting Caleb, blocking Caleb’s behaviors, and pulling Caleb aside. In one study examined in the literature review, RIR first increased the SRB and then decreased it to almost complete elimination upon extending the time of the redirection. The RIR procedure was effective for two of the three participants, but it resulted in aggression in one of the participants (Rodriquez et al., 2012).

The present study reflected these same results. In the example of June 9, one participant was banging a toy on the wall, and an interventionist redirected him to the floor. RIR was effective in this instance; the participant stopped banging the toy on the wall and transitioned to the floor without protest. However, when an interventionist used RIR during one of Caleb’s behavioral patterns, he did not comply as easily and became
more aggressive. The same session (June 9), Caleb was upset that his brother had left the room. The interventionists blocked Caleb twice and redirected him six times, resulting in Caleb’s behavior escalating from crying and screaming to hitting Meg with his nametag. This shows that RIR works for some participants more effectively than it does for others and that aggression is a possible outcome when implementing this intervention. This finding is important because aggressive behavior is threatening to both the individual and those around that individual. Interventionists must be aware that RIR is found to result in aggressive behavior in some individuals so that an alternate intervention can immediately replace RIR should the individual exhibit aggressive behavior.

**Positive reinforcement.**

At the beginning of the study, the researcher gave priority to studies that tested the effects of reinforcement on SRBs. The researcher identified two studies in which automatic reinforcement was found to be the reinforcer maintaining the stereotypical repetitive behavior (SRB) (Wilke et al., 2012, Rodriguez, Thompson, Schlichenmeyer, & Stocco, 2012). One of these studies conducted a behavioral function survey on 53 participants, 9 of which exhibited a verbal stereotypy. The study resulted in automatic reinforcement being the factor that maintained the behavior. In terms of vocal stereotypies in particular, automatic, multiple, and tangible reinforcements were found to maintain the SRB in at least one occasion. Attention was not found to maintain any of the vocal stereotypies (Wilke et al., 2012).

These findings are inconclusive with those found in the present study. Mary perseverated on “rawr” more frequently than any other perseveration that she formed at the clinic. This perseveration was reinforced through the attention and verbal responses
of Erik. The second most perseverated response that Mary formed at the clinic was asking if she could go home, which Meg reinforced through responding with when Mary could go home. These two findings within the theme of perseverations formed outside of the probes at the clinic show that the verbal stereotypies were strongest and most frequent when maintained by positive reinforcement. This contrasts with the findings of Wilke in that these stereotypies were not maintained by automatic reinforcement, but attention. In fact, none of the vocal stereotypies studied by Wilke et al. were maintained by an attention component (2012).

The contrast of the findings of this study and the study discussed are important because it highlights the differences in maintaining reinforcers for each individual. As defined in the literature review, behavior can serve a different function for different individuals. Interventionists should first conduct a functional behavior assessment (FBA) to determine what function the SRB serves for the individual being studied so that the intervention can be most effective for them. These two studies suggest that the type of maintaining reinforcer cannot be assumed for an individual based on a previous study; an FBA is necessary when using reinforcement as an intervention (Scheuermann & Hall, 2012).

**Prompting.**

The interventionists used prompting at the Summer Social Skills Clinic primarily through the use of visual cue cards for the responses of each skill intervened upon. Similarly, a study discussed in the literature review used cue cards and simultaneous prompting to teach three participants with autism to say the numeral on each of the cue cards. The trainer would sit down with the participant, show them the cue card, prompt
them through task direction (“show me three”), wait for a response within four seconds, and verbally praise correct responses (Akmanoglu & Batu, 2004). The procedure at the Summer Social Skills Clinic paralleled this. The interventionist would pull the participant aside, probe the participant while holding up the three blank cue cards, wait five seconds for a response, and reinforce correct responses with praise and a token reinforcer. Both of the studies involved the interventionists training the participants’ responses cue cards prior to probing the participant.

Both similarities and differences exist between the results of Mary’s success with the prompting intervention and the success found in the study by Akmanoglu and Batu (2004). Akmanoglu and Baku found success with this prompting procedure during the training of the participants saying the numerals. Similarly, Mary had great success with the prompting involving cue cards as she was being trained for each of the four skills. As depicted in the results, the only time she gave a varied response for the probe “what do you like to do for fun” was when the prompting cue cards were presented to the probes. However, the Akmanoglu and Batu study also had success in maintaining the trained behavior over time; the first participant maintained the 94.6% of the behaviors, the second participant maintained 85.7% of the behaviors, and the third maintained 100% of the behaviors (2004). Contrastingly, Mary reverted back to her original stereotypical response of “playing outside” immediately upon the removal of the cue cards. This finding is important because it suggests that the cue cards seem to be effective for the training of the skill, but they will not necessarily maintain the behavior over time. One factor that could contribute to this is the age of the participants, as Mary was only five
and the participants in the Akmanoglu and Batu study ranged from six to seventeen years (2004).

**Perseverations.**

In the review of the literature, the researcher did not anticipate the need to distinguish between stereotypical behaviors and perseverations. The stereotypies that Mary exhibited are more characteristic verbal perseverations, which are words, phrases, or topics that the individual repeats, often out of context (Arora, 2012). Perseverations can be described as “non-person oriented speech,” as they are an attempt at communication for individuals with autism, but are not meant by the individual as speech that desires a response (Arora, 2012). Three types of verbal perseverations can be identified: phrasal (repetition of phrases), sentential (repetition of sentences), and topical (fixating on a topic). In the case of Mary, phrasal and sentential verbal perseverations constitute all of the perseverations observed in the clinic; Mary did not exemplify perseverance on a topic on which she was fixated.

Arora’s article identifies two different interventions that are used to reduce verbal perseverations (2012). The first of these is telling the individual to stop saying the phrase or sentence. The use of this intervention was not seen in the clinic. The second intervention identified in Arora’s study is ignoring the perseveration. The researcher did observe this as an interventionist response to Mary’s perseverations at the Summer Social Skills clinic. For example, when Mary would say “good job” to herself when doing something, the interventionists would ignore this since it was out of context; she would not be doing an activity that elicited a “good job.” However, the observations do not show the perseveration decreasing as a result of the interventionists ignoring the
perseveration. In fact, the only change of frequency occurred as the perseverations increased when the perseveration was positively reinforced through attention and response (“rawr,” “can I go home,” saying names, etc.).

This finding is important because it highlights the need for an intervention that successfully reduces verbal perseverations. As mentioned in the introduction, SRBs (including perseverations) are a defining factor of autism (American Psychiatric Association, 2013). Perseverations can interrupt social acceptance, daily functioning, and learning. Researchers should identify a focused intervention for the replacement and reduction of verbal perseverations in order that programs such as the Summer Social Skills Clinic can effectively reduce them in participants.

**Implications for Future Research**

Further research would be needed to determine if RIR is an effective intervention with the majority of individuals with an SRB, or if it causes aggression in more individuals with an SRB. This study found that it was effective for one participant but onset aggression in another. This makes it difficult to say that it is effective for the overwhelming majority. Future studies should implement RIR at the onset of the SRB and observe its effect on the SRB over time to determine whether it is an effective intervention for replacing SRBs.

Researchers should further study reinforcement to determine what kind of reinforcers typically maintain SRBs for individuals with autism. This study found positive reinforcement to maintain and even increase the SRBs exhibited by one participant, which is not consistent with the literature. Future studies should determine whether a general reinforcer can be identified for most individuals with SRBs or if each
individual displays behaviors maintained by very different reinforcers. If the latter is the case, interventionists should first begin with an FBA before each and every intervention. A replacement behavior must serve the same function as the SRB for the individual, so interventionists identifying this function is vital for an effective intervention.

Researchers would need to further study prompting to determine if it is effective for maintaining the replacement behavior (or in the case of this study the replacement speech). The researcher would implement a study much like this one and then collect data after the clinic had ended. This would help the field by proving whether or not prompting is an effective intervention for teaching behaviors that are maintained over time or whether it is only effective for replacing behaviors in the presence of the intervention.

Future research into the interventions implemented to reduce verbal and behavioral perseverations should involve having set interventions in place with specific procedures set. This study relied heavily on interventions that were observed as the perseverations came up in the setting; there were no formal interventions in place for reducing perseverative speech or behavior. Because of this, the interventions could not adequately be evaluated for effectiveness. This study focused on observing the events of a summer social skills clinic, but specific studies would need to be done regarding single intervention implementation to determine which is most effective for each type of perseveration.

Another opportunity for future research exists in the nature of perseverations. Mary came to the clinic with ten observed perseverations and formed nine perseverations at the clinic. Investigating the causes of Mary’s perseverations and how they function for her may have helped develop an intervention to reduce them. Similarly, future studies
should conduct a formal functional behavior assessment to identify the behaviors that will be present ahead of time. The researchers should then identify replacement behaviors that serve the same function as the SRB and implement the replacement of the SRB. Doing this would have helped the interventionists develop an intervention to reduce Caleb’s behavioral pattern of trying to run out of the clinic room.

**Limitations**

There are several limitations to this study. The first limitation is that, like most qualitative study, the findings of this study are not intended to be generalized (Brantlinger, E., Jimenez, J., Pugach, M., & Richardson, V., 2005). This case is specific to the time, place, context, and participants involved. While the findings may apply to other, similar cases, an exact generalization should not be expected. It should also be noted that the participants in Group One were aged 4-6 years instead of the 3-5-age range identified in the review of the literature.

The second limitation is that the researcher was not able to observe the clinic from outside the room. By sitting in the same room as the interventionists and participants, the researcher was approached by participants, involved in recording the probes, and a part of the intervention by being another person in the small room. Had the researcher observed the clinic from an outside location, the researcher would have been less involved in the process and would have had to rely solely on direct observations of the events.

A third limitation is that there were no procedures in place for reducing the perseverations that existed. The interventionists dealt with the perseverations using their individual judgment, as there was not a set policy of whether they should ignore or respond to the perseverations. Similarly, there was not a behavioral plan in place for
challenging behaviors such as the ones exhibited by Caleb. The interventionists tried
different strategies to managing behavior each time a challenging behavior arose, so it is
difficult to evaluate the effectiveness of different interventions when they were not used consistently throughout the clinic.

Finally, a fourth limitation is the amount of sessions at the clinic. If the clinic had met three or four times a week, the researcher would have been able to observe speech and behavioral patterns that were developing in the participants. Since the clinic only met twice a week, the researcher was not able to observe whether the different perseverations (Mary) and behavioral patterns (Caleb) multiplied or reduced. It also would have been beneficial to see whether Mary continued developing new perseverations on words or phrases.

**Conclusion**

Stereotypical and repetitive behaviors (SRBs) are a characteristic component of autism spectrum disorders (American Psychiatric Association, 2013). SRBs include stereotypies, rituals, compulsions, obsessions, perseverations, and repetitive speech (Watt, Wetherby, Barber, & Morgan, 2008). SRBs can cause an individual with autism to experience difficulty in carrying out everyday behaviors and activities. Effective interventions for SRBs are necessary to implement in order for individuals with autism carry out daily functional behaviors. This case study observed both behavioral and verbal SRBs in two participants in a summer social skills clinic for individuals with autism. Several intervening practices were identified and evaluated for their effectiveness in reducing the occurrence of the observed SRBs; these interventions include response interruption/redirection, positive reinforcement, and prompting. Although this study
identified SRBs that developed at the Summer Social Skills Clinic and interventions that occurred at the clinic, additional studies are recommended which focus on more clearly defining the process of shaping perseverations into functional communication by developing pre-planned interventions geared specifically to the SRB of the individual.
References


Individuals with Disabilities Education Act (IDEA), public law 108-446. (2004).


Appendix A

Sample Data Collection Sheet

<table>
<thead>
<tr>
<th>Time</th>
<th>Description of Events:</th>
<th>Comments:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1: Interview Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Briefly describe the purpose of the intervention.</td>
<td></td>
</tr>
<tr>
<td>How successful would you say the overall intervention was in helping the participants master the four social skills?</td>
<td></td>
</tr>
<tr>
<td>How are you gauging that success?</td>
<td></td>
</tr>
<tr>
<td>Looking at specific participants, what ways did the clinic facilitate Mary’s growth socially? In what ways was the intervention not successful with Mary?</td>
<td></td>
</tr>
<tr>
<td>What did you notice in terms of the intervention’s impact on participants’ stereotypical or repetitive speech?</td>
<td></td>
</tr>
<tr>
<td>Do you think Caleb’s behavior had any impact on the success or challenges of implementation of the intervention?</td>
<td></td>
</tr>
<tr>
<td>Do you think Mary’s speech perseverations had any impact on the success or challenges of implementation of the intervention?</td>
<td></td>
</tr>
<tr>
<td>What limitations have you identified in the implementation of the intervention with group one?</td>
<td></td>
</tr>
<tr>
<td>Do you think the use of three responses this year corrected the problem of participants’ development of stereotypical behaviors, particularly in speech patterns?</td>
<td></td>
</tr>
</tbody>
</table>
## Table 2: Proposed Coding System

<table>
<thead>
<tr>
<th>Observation Category</th>
<th>Coded Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>fidelity of the implementation of the intervention</td>
<td>yellow</td>
</tr>
<tr>
<td>observation of SRB</td>
<td>blue</td>
</tr>
<tr>
<td>observation of the SRB interrupting the intervention</td>
<td>green</td>
</tr>
<tr>
<td>documentation of an SRB being targeted for intervention</td>
<td>orange</td>
</tr>
<tr>
<td>impact of the intervention on the SRB</td>
<td>pink</td>
</tr>
<tr>
<td>Theme</td>
<td>Example</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Theme 1 (pink): Mary’s verbal perseverance directly resulting from a probe</td>
<td>“Can I play outside?”&lt;br&gt;“Can you have a toy?”&lt;br&gt;“Playing outside.”</td>
</tr>
<tr>
<td>Theme 2 (orange): Mary’s verbal perseverance existing outside of probe</td>
<td>Can I go home? OR Can I go home after <em><strong><strong>?&lt;br&gt;Can I tap?&lt;br&gt;Go to USM?&lt;br&gt;</strong></strong></em> isn’t coming? _____ sick?&lt;br&gt;Asks to play tickle&lt;br&gt;Says “rawr!” or asks to play scare&lt;br&gt;“Help please.”&lt;br&gt;“When the big hand gets to the 12?”</td>
</tr>
<tr>
<td>Subtheme 1 (grey): Developed at the clinic</td>
<td>Talks about sharing&lt;br&gt;Repeats names. Ex: “Hello, ______.”&lt;br&gt;Talks about playing outside (NOT in context of a probe)&lt;br&gt;Asks to play with/fix hair. Comments on eye color&lt;br&gt;Talks about anyone’s “mama”&lt;br&gt;“I’m crying on the bus.”</td>
</tr>
</tbody>
</table>
Table 3: Coding System (continued)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 2 (orange and purple) continued</td>
<td>Talks about “having fun.” Usually, “I’m having fun with ________.”</td>
</tr>
<tr>
<td></td>
<td>Tells herself “good job”</td>
</tr>
<tr>
<td></td>
<td>“It’s okay?” OR “He’s crying?”</td>
</tr>
<tr>
<td></td>
<td>Talks about relationships. Ex: married or with kids “Mr. John married to Ms. Katie?”</td>
</tr>
<tr>
<td></td>
<td>“I’m talking” OR “I’m laughing at school.”</td>
</tr>
<tr>
<td></td>
<td>“It was an accident?”</td>
</tr>
<tr>
<td>Theme 3 (green and yellow):</td>
<td>Any instance where Caleb yelled and tried to run out of the room</td>
</tr>
<tr>
<td></td>
<td>“Good asking.”</td>
</tr>
<tr>
<td>Redirection</td>
<td></td>
</tr>
<tr>
<td>Blocking</td>
<td></td>
</tr>
<tr>
<td>Positive reinforcement</td>
<td></td>
</tr>
<tr>
<td>Interventionist pulling a participant aside</td>
<td></td>
</tr>
<tr>
<td>Prompting</td>
<td></td>
</tr>
<tr>
<td>Other behavioral management strategy</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

Sample of Coding of Observations

Wiley is sitting in the corner facing the wall with his head in his hands. Mariah walks over to him and crouches down next to him. **“Sad? Wiley—crying?”** —Mariah. John asks Wiley what is wrong. Wiley does not answer.

1:15 — Noah go on vacation bible school?” — Mariah (Noah is wearing a VBS shirt). “Ask him.” — Jamie. “May I share please?” — Mariah. “Of course you can.” — Ashleigh. John goes over the group rules. The participants are not looking at them; they continue playing with the toys.

“Noah’s mom,” — Mariah. “Sssh,” — Jamie to Mariah and pointing to John. “I hangout in the corner.” — Mariah as she walks to the corner where Wiley has just left. **“Hey kids! Help!” — Mariah.**

“Ms. Madison,” — Mariah. “My right here,” — Mariah. Mariah walks up to John and says “rawr” over and over. Gracie then starts saying “rawr” to John. Mariah walks around the room saying “rawr” to everyone. **“Ms. Madison has chapstick?” — Mariah.**

Probe 1 Mariah: “I have fun playing outside.”

Probe 2 Mariah: “Playing outside.”


Probe 4 Mariah: “Mr. John, may I play tickle please?”

Probe 4 Mariah: “Ms. Madison, rawr!”

Probe 4 Mariah: “Can I play tickle please?” Mariah goes around the room asking if she can tap the interventionists. Jamie tells the group not to reinforce it unless she is going to use the tap to ask a question.

“Ms. Madison, may I play tickle with Mr. John?” — Mariah.

Probe 1 Mariah: “I have fun playing outside.”


Probe 2 Mariah: “Playing outside.”

Noah is sticking his tongue out and making a spitting noise and laughing loudly at Jamie. Jamie is ignoring him. Noah increases the frequency of the behavior. He crawls into Jamie’s lap and spits his tongue. Jamie talks to Katie and ignores Noah.

Sample of Coding of Interviews

and behavior to be effective. I don’t think we could say that implementing a LAG schedule for
wants and needs would improve variability on talking about a stereotyped interest or a
stereotyped behavior. In general, our data show that you could implement this schedule of
reinforcement and it would be effective in increasing variability. We achieved what we hope to
achieve.

6. Do you think that Noah’s behavior had any impact on the success or challenges of
implementation of the intervention? Behavior is always a challenge with group interventions.
This was our toughest group of the summer. Gracie had difficult behaviors as well. Those
behaviors can affect intervention. It directs the facilitator interests and energy away from
implementation of the intervention and towards managing the behaviors. Also, these participants
exemplify model behaviors for others. Other participants could have begun imitating behaviors
exemplified by participants like Gracie and Noah. Mostly, time was lost for instruction and
resources because of the behaviors.

7. Do you think Mariah’s speech perseverations had any impact on the success or
challenges of implementation of the intervention? In terms of the data, once we hit the LAG
with cards, we were able to overcome some of the perseverative speech. Some potential
challenges were the rule-based contingency. The cards were likely necessary for Mariah and her
perseverations impacted the rule-based contingency.

8. What limitations have you identified in the implementation of the intervention with
Group 1? Limitations include the length of the program (eight weeks), movement through skills
quickly, and it would have been nice to get Mariah to accuracy before changing skills. Another
limitation is whether the variability is generalized. If Mariah interacted with her mom instead of
a participant, would her skills still be variable in that setting? This may be a next step for
research. It was successful in the clinical setting, but what about elsewhere? What good does it
do if they don’t bring it to daily life?

9. Do you think the use of three responses this year corrected the problem of participants’
development of stereotypical behaviors, particularly in speech patterns? I think it was a
good way of addressing that problem. This is something that had concerned me. Rote use of a
social skill was the problem seen. It was aversive to peers if you use the same social skill over and
over. In social settings, variability is reinforcing to a conversational partner. In our clinic setting,
implementation of a LAG schedule was effective in addressing that. It would nice to see
spontaneous generalization.

Questions/Information to obtain from Dr. Radley:

- What type of intervention is the Superhero program? A behavioral oriented social skills
  program. First, it incorporates role-play, behavioral skills training. Instruction, then
  model, role-play, and then performance feedback. Video models. The behavioral
  literature suggests that exposing an individual to multiple exemplars for each skill for it
to be effective. Lastly, the power cards are a self-monitoring intervention. Keeping track
  of skill use, monitoring progress towards a reward. Literature supports that.
## Appendix E

Table 4: Mary’s perseverations outside of the probes- frequency

<table>
<thead>
<tr>
<th>Perseveration</th>
<th>Frequency</th>
<th>Time of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names</td>
<td>81</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Commenting on hair or eyes</td>
<td>53</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Sharing</td>
<td>25</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Mama</td>
<td>11</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Having fun</td>
<td>11</td>
<td>Before clinic</td>
</tr>
<tr>
<td>It’s ok? I’m crying</td>
<td>11</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Playing outside</td>
<td>10</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Good job</td>
<td>9</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Married/kids</td>
<td>6</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Talking/laughing at school</td>
<td>3</td>
<td>Before clinic</td>
</tr>
<tr>
<td>Rawr!/scare</td>
<td>37</td>
<td>At clinic</td>
</tr>
<tr>
<td>Home</td>
<td>33</td>
<td>At clinic</td>
</tr>
<tr>
<td>When the big hand gets to the 12?</td>
<td>12</td>
<td>At clinic</td>
</tr>
<tr>
<td>Tap</td>
<td>11</td>
<td>At clinic</td>
</tr>
<tr>
<td>After ______?</td>
<td>10</td>
<td>At clinic</td>
</tr>
<tr>
<td>Tickle</td>
<td>9</td>
<td>At clinic</td>
</tr>
<tr>
<td>______ isn’t here/not coming?</td>
<td>8</td>
<td>At clinic</td>
</tr>
<tr>
<td>Help please</td>
<td>8</td>
<td>At clinic</td>
</tr>
<tr>
<td>Go to USM</td>
<td>6</td>
<td>At clinic</td>
</tr>
</tbody>
</table>
Appendix F
Participant Consent

Parental Permission Document

BACKGROUND
Your child______________________________ is being asked to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Ask if there is anything that is not clear or if you would like more information. The Principal Investigator, Dr. Radley, is available to answer any questions or concerns you may have prior to you giving your permission for your child to participate. Take time to decide whether you will allow your child to take part in the study.

The purpose of this research study is to evaluate the effectiveness of a skills training program designed for children diagnosed with autism spectrum disorders (ASD). Research has shown that many social skills interventions currently used are marginally effective. Because many children with autism spectrum disorders experience social difficulties, it is essential to find interventions that work to increase and develop children’s social abilities and competencies. This social skills program utilized in the current study is unique in that it combines several interventions known to be effective with children with high-incidence disabilities, such as video-modeling, inclusion of same-aged peers without disabilities, and self-management techniques. There are also generalization strategies such as a social story homework component in the format of a comic book and a "Power Card" that is marked by the student when the child displays the targeted social skill outside of the group context. The presentation style of the program is intended to be of high interest and motivating to the students. Essentially, animated “superhero” characters introduce, teach the steps to, demonstrate, and provide a rationale for why each social skill is important via video instruction. It is crucial to investigate whether or not this program works, as the results could lead to important practical implications of social skills training for children with ASD.

The research will be conducted by Dr. Keith Radley, who is an assistant professor of school psychology at the University of Southern Mississippi.

STUDY PROCEDURE
If you and your child agree to participate in this research, you will be asked to complete several rating scales and checklists. These scales and questionnaires will help us understand your child’s current social abilities, and provide a confirmation of ASD diagnosis. These scales will take approximately 30 minutes to complete. You will be asked to complete these checklists prior to intervention and following conclusion of the intervention program.
If you allow your child to participate in this study, your child will participate in a social skills group—Superhero Social Skills—twice per week. The entire program will last for approximately nine weeks. Each session will last approximately two hours. During each session, your child will be taught the steps to performing various social skills, such as joining in a group, maintaining a conversation, and problem solving. All the lessons in Superhero Social Skills follow a general format of: receiving instruction on a skill, watching a video of children demonstrating the skill, practicing the skill, and playing a social skill related game. During instructional time, children will have the opportunity to earn rewards for following group rules. Your child will be provided with a homework assignment at the end of each lesson. Homework assignments consist of reading a social skills comic book.

Upon completion of the Superhero Social Skills program, parents of children with ASD will be asked to complete another series of checklists and surveys evaluating your child’s social abilities. These checklists and surveys are relatively simple and short, and will assist in empirical evaluation of the Superhero Social Skills program. It is believed that Superhero Social Skills will be beneficial in the acquisition and demonstration of socially appropriate behaviors.

RISKS
The risks of this study are minimal. There is a risk that your child may not enjoy participating in the social skills lessons and may become uncomfortable while practicing the skills being learned. If your child feels upset in any way as a result of their participation, you may tell Dr. Radley, who can help to alleviate any distress.

In addition to the risks listed above, your child may experience previously unknown or unforeseen risk.

BENEFITS
We cannot promise any direct benefit to your child for taking part in this study. However, possible benefits from participation in the social skills training program include acquisition and mastery of new social skills, increased demonstration of socially appropriate behaviors, as well as the development of new friendships. The results of the questionnaires may also provide useful information to you. We also hope the information we get from this study may help develop a greater understanding of which social skills treatments are most effective for children.

ALTERNATIVE PROCEDURES
If you do not want your child to participate in this study, you will continue to have access to services provided by the School Psychology Service Center. Your child’s participation will not prevent you from receiving additional help and/or treatments.

CONFIDENTIALITY
Personal information obtained about your child will be kept strictly confidential. Each child that participates will be assigned a number, which will be used on study materials instead of their name. The hard copies of the study materials will be stored in a locked filing cabinet located in Dr. Radley’s private office. Dr. Radley is the only person that has the key and access to the filing cabinet. Electronic data will be stored on Dr. Radley’s office computer, which is password protected. Only Dr. Radley and the members of the research team will have access to this information. The results of this study may be presented at professional conferences and/or published in a professional journal. If this occurs, your child’s personal information will be protected.

Although information shared by children during social skills groups is considered confidential and will not be shared with persons not associated with the current project, it is important to note exceptions to confidentiality. Should a child disclose intentions to harm oneself or another person, or report neglect, physical, or sexual abuse, the researchers are legally required to report this information to the authorities responsible (e.g., Child Protective Services) for ensuring safety.

PERSON TO CONTACT
If you have questions, complaints, or concerns about the research or related matters, or if you feel your child has been harmed as a result of participation in the study, please contact Keith Radley, either by phone or by e-mail.

Keith Radley (Principal Investigator)
(801) 860-6894
keith.radley@usm.edu

INSTITUTIONAL REVIEW BOARD
This project has been reviewed by the Human Subjects Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406 - 0001, (601) 266-6820.

VOLUNTARY PARTICIPATION
It is up to you to decide whether to allow your child to take part in this study. Participation is strictly voluntary. Refusal to allow your child to participate or the decision to withdraw your child from this research will involve no penalty or loss of benefits to which your child is otherwise entitled. This will not affect the services your child is provided by the School Psychology Service Center. You may choose to withdraw your child at any time without providing a reason.

COMPENSATION TO PARTICIPANTS
As noted previously in the sections above, your child may be given small rewards for following the group rules and for his or her participation during group time. The rewards will be different and may vary in cost. Your child will not know what
the reward is beforehand. Examples may include small toys or edibles. Any reward that you or your child is not comfortable with will not be used.

CONSENT
By signing this consent form, I confirm I have read the information in this parental permission form and have had the opportunity to ask questions. I will be given a signed copy of this parental permission form. I voluntarily agree to allow my child to take part in this study.

________________________
Child’s Name

________________________
Parent/Guardian’s Name

________________________
Parent/Guardian’s Signature Date

________________________
Relationship to Child

________________________
Name of Researcher or Staff

________________________
Signature of Researcher or Staff Date
Appendix G

Institutional Review Board Approval

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 15040603
PROJECT TITLE: Promoting Behavioral Variability in Children with ASD using Superheroes Social Skills
PROJECT TYPE: New Project
RESEARCHER(S): Keith Radley, Ph.D.
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Psychology
FUNDING AGENCY/SPONSOR: Institute of Education Sciences
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 04/07/2015 to 04/06/2016

Lawrence A. Hosman, Ph.D.
Institutional Review Board