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Differences in the effects of social stories in children with autism and Asperger's syndrome

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DIFFERENCES IN THE EFFECTS OF SOCIAL STORIES IN CHILDREN WITH

AUTISM AND ASPERGER'S SYNDROME

by
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ABSTRACT

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DIFFERENCES IN THE EFFECTS OF SOCIAL STORIES IN CHILDREN WITH
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Dr. Roberta Dihoff and Dr. John Klanderman
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The differences in effects of a Social Story intervention were measured between children

with Autism and children with Asperger's Syndrome. Social initiation was the dependent

variable that was measured during an ABA reversal research design. The overall effect of

the Social Story intervention of the whole group was analyzed by a one sample t-test. A t-

test of two independent samples was used to evaluate whether or not a significant

difference existed between the Autism group and the Asperger's Syndrome group in all

three conditions. Results indicated that there was no significant difference in social

initiation for the whole group or between groups in all three conditions.

Acknowledgements

This thesis experience has increased my awareness in research methods and social interventions used on children with autism and Asperger's Syndrome. I would like to thank past researchers for contributed literature which provided me with a deep understanding of the concepts of social stories and the characteristics of autism and Asperger's Syndrome. I am also grateful for the participating school for providing the resources and students for this experience. Finally, I would like to thank the two supervisors, Dr. Roberta Dihoff and Dr. John Klanderman for their guidance and support in this learning experience.

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Chapter One: Focus of Study

Why Is this Study Needed?

In the education field, there was recently an increase in the number of students diagnosed on the autistic spectrum disorder (Ali & Frederickson, 2006). The Individuals with Disabilities Education Act of 2004 does not recognize subtypes of autism, like Asperger's Syndrome (Mandlawitz, 2007). Therefore, educational classification of the autism spectrum disorder is broad which makes it difficult to identify interventions that are applicable these individuals.

There is no medical test for autism. This disorder becomes evident before the age of three. Observation in levels of behavioral, developmental, and communication are used for evaluation. Some striking social and communication characteristics are difficulty relating to events, people, and objects, lack of interaction with other children, appearing unaware of people, treating people as inanimate objects, avoiding eye contact, inability to accept affection, and repetition of others' words. Even though these characteristics appear to remain consistent among resources, the symptoms and characterstics vary among individuals, which are why autism is considered a spectrum disorder (Nielsen, 2002).

Individuals with Asperger's Syndrome functions highest in cognitive abilities and the lowest on social and communication skills on the autism spectrum disorder. The characteristics of Asperger's Syndrome related to socialization and communication are the inability to interact with peers, inexistence of appreciation of social cues, no interest to interact with peers, inappropriate social and emotional behavior, delayed speech and

language development, superficially perfect expressive language, formal pedantic language, limited comprehension and prevalent misinterpretation of literal-implied meanings, inappropriate expression, stiff gaze, and limited facial expression (Nielsen, 2002).

Robert Sears and Albert Bandura contributed greatly to the research on the social learning theory (Grusec, 1992). The social learning theory states that much human learning occurs in a social environment (Schunk, 2004). Both these researchers were interested in the process of development and social change and its influence on behavior (Grusec, 1992). Their research has left some current professionals with a theory of learning that relies on socialization. Researchers can apply ideas from the social learning theory for children with disorders that effect socialization. Jackel states that social skills and communication skills are necessary for high functioning students (Jackel, 1996). Professionals should understand the need for social skills for academic success when intervening with children with social deficits.

The effects social deficits have on children's development can be severe (1983, as cited in Delano & Snell, 2006). These deficits are likely to develop into behavior problems (1992, as cited in Delano & Snell, 2006). Gray and Garland created social stories to assist these individuals with recognizing acceptable social skills. This intervention also assisted children in understanding social cues and identifying acceptable responses. Gray and Garand feel that social stories have provided positive results when applied to children with social deficits (Gray & Garland, 1993). Researchers such as Delano and Snell, examine the use of social stories and become aware of several limitations to the research available. These authors suggest that most research evaluates

social stories as a larger treatment package and that there is a need for research which examines social stories for the purpose of increasing pro-social behaviors alone (Delano & Snell, 2006). In this study, the content and purpose of the social story focused only on pro-social behaviors, and not the use of social stories as behavioral tools.

Purpose

This study was expected to determine how affective social stories are to children with autism compared to children with Asperger's Syndrome. The ability for children with these disorders to generalize this intervention outside the classroom will also be determined. Knowledge on how successful the social story intervention is to the two types of social deficits will led school psychologist to a better understanding of the intervention. Appropriate intervention application can be made based on the success of these interventions to each classification of disorders.

The ability for an intervention to generalize overtime signifies its validity (Leedy, & Ormrod, 2005). Generalization measures are necessary to determine the quality of the intervention. It's important for a child to be able to apply social stories outside the classroom to strengthen peer relationships. The ability for students to apply social skills outside the class might allow students to generalize social skills throughout time.

Hypothesis and Research Questions

The first research hypothesis stated that there would be a significant difference in the effects of social stories on children with autism and Asperger's Syndrome. The first null hypothesis was that there would be no significant difference in the effects of social stories on children with autism and Asperger's Syndrome. The second research

hypothesis stated that there would be a significant difference in the effects of social stories in children with autism compared to children with Asperger's Syndrome. The second null hypothesis was that there would be no significant difference in the response to social stories from children with autism compared to children with Asperger's Syndrome. The alpha level used to determine the probability of chance is 0.05.

Operationally Defined Terms

The Diagnostic and Statistical Manual of Mental Disorders (DSM –IV) – is used by mental health professionals to classify individuals with mental disorders (Psyweb, n.d).

Individuals with Disability Education Act - This is a federal law that determines how state and local governments regulate educational needs of students with disabilities (Mandlawitz, 2007).

Autism-The Individuals with Disability Education Act defines autism as a developmental disability which affects verbal and nonverbal communication, social interaction, and the children's performance (Nielsen, 2002).

Asperger's Syndrome - Asperger's Syndrome is one spectrum of autism. Jackel defines Asperger's syndrome as a pervasive development disorder within high functioning area of autism spectrum (Jackel, 1996). Nielsen defines Asperger's Syndrome as including the lack of general interest, use of nonverbal behavior, and impaired social interactions and activities (Nielsen, 2002).

Social Stories – Short personality stories that serve as a teaching instrument on how to manage behavior during a social situation which appears confusing. These stories describe when the situation occurs, where it takes place, who is participating, and what behavior is expected. Social stories are usually written by teachers, speech therapist, and

parents (2006, as cited in Ali & Frederickson, 2006).

Validity Generalization – findings that are valid across a wide range of situations (Aiken & Groth-Marnat, 2006).

Limitations

There are a few limitations relating to the population of this study. This study uses participants from the same geographic area, southern New Jersey. Each state has their own way of applying the federal laws of education. The quantity and quality of intervention designs might hold similar expectations in other public schools. Another striking limitation that was predicted of this study was the ability of this study to be used when mainstreaming individuals who received this intervention to the regular classroom. Participants in this study were retrieved from a special needs school, whose whole population only includes children with educational disorders. Therefore, socializing with peers with similar disorders might not have the same expected results of socializing children with different or non-existing educational disorders. It might not be appropriate to generalize these findings to all private or public schools nationwide. Caution should be made when applying the findings of this research to other situations. The type of probability sampling used was purposive sampling. Leedy and Ormrod explain that the use of non-probability sampling does not enable all members of the population to be represented (Leedy, & Ormrod, 2005). The use of no probability sampling does lower the external validity of the study.

The reliability of the measurements used to analyze the social story intervention is not high. There is a lack of inter-observer reliability. Due to the lack of resources, only

one individual will collect data on the effects of the intervention for all six subjects at the same time. Interobserver reliability was taken to compare the quality of data collection.

There was an assumption that children received the same quality of intervention and social situation appeared at the same rate. Since this intervention was only conducted on individuals who were diagnosed and the social story were only conducted by professionals who the school appoints, there was little control over the elements of the study.

Summary

The following chapters reveal the sequence of this research. The second chapter reviews the literature used to design and analyze this study. The contributions of a literature review add professional quality to this design and were necessary to review. In the third chapter, the design of this study was fully described. All the elements of the methodology applied to this study is provided in detail. A full analysis of the results of the study was discussed in chapter four. Finally, chapter five dictated a summary of this research.

Chapter Two. Literature Review

What is known About Socialization?

Socialization skills is an ingredient of learning. Lynch and others explain that children in the classroom are expected to participate in a large amount of social activities (Lynch, Spencer, Simpson, 2008). Without social skills it can be expected that a child will have difficulties in school.

Social withdraw from others can cause rejection from peers (1983, as cited in Delano, & Snell, 2006). When children are socially withdrawn they are more likely to develop behavioral problems than those who are not socially withdrawn (1992, as cited in Delano, & Snell, 2006).

Social interaction deficits were categorized into three categories by Wing. One category, social recognition, is the lack of social interest in others. Limitations in social communication is another category which suggests there is a deficit in expressing one's self and having a limited understanding of body language. Social imagination and understanding deficits occur in understanding thoughts or feelings of others, or the ability to engage in imaginative play is the third area of difficulty. Wing explains that social interaction is harmed in these areas (1988, as cited in Agosta, Graetz, Mastropieri, & Scruggs, 2004).

A child might exhibit challenging behaviors as a form of communication if they have delayed social and language skills (Delano & Snell, 2006). Undesirable behaviors can interrupt learning. Peers might become more aware of the behavioral differences in

children attempting to communicate and view them as different. Gut and Safran explain that children with learning disabilities or more subtle differences are more likely than children with multiple or severe disabilities to be rejected by peers. They explain that peers quickly realize that children with severe disabilities are different from themselves and accept the child (Gut, & Safran, 2002).

Coleman and Lindsay define social skills as the cognitive functions, nonverbal, and verbal skills that allow individuals to interact with others (1992, as cited in Gut, & Safran, 2002). They explain that conflict resolution, sharing, turn-taking, problem avoidance, adaptation to routines, initiation of activities, making choices, understanding facial expressions and gestures, and emotional labeling and recognition are necessary to succeed in the general education settings (Gut, & Safran, 2002). Individuals without social skills might receive an intervention which addresses one or more of these target areas.

What is known About Autism and Asperger's Syndrome?

Autism Spectrum Disorder (ASD) is considered to be an umbrella term. The term includes those with Asperger's syndrome, atypical autism, pervasive development disorder, and childhood disintegrative disorder (2001, as cited in Crozier & Sileo, 2005). Individuals with ASD are strong visual learners (1995, as cited in Crozier & Sileo, 2005). Individuals with ASD have sensory sensitivities. The sensory sensitivities can exist as sensitivities that are hypersensitivity, hyposensitivity, or mixed threshold levels of sensitivity (Adams, Gouvousis, VanLue, & Waldron, 2004).

According to the American Psychiatric Association, Asperger Syndrome (AS) and autism differ in their diagnosis. Children with AS contain social impairment and repetitive and patterned behavior. Autistic disorders include those of Asperger Syndrome with the addition of language, cognitive, or other developmental delays (American Psychiatric Association, 2000). Both disorders contain social deficits, but only ASD includes language, cognitive, and other delays.

Misdiagnosis of children with Asperger syndrome is common with other disorders too. Children with AS are commonly mistakes to have attention deficit hyperactivity disorder (ADHD) and obsessive-compulsive disorder (OSD). When distinguishing between the two, professionals should be aware that children with ADHD are unable to focus and children with Asperger sydrome are in their own internal world. When determining whether an individual has OSD or AS, individuals should observe whether the child is focused on stereotyped behavior or limited topics that are of interest (AS), or the child is focused on a fear or prevention of something (OSD) (2005, as cited in Gibbons, et al, 2008). Misclassification of a disorder can effect the quality of the educational intervention a child will receive.

Greenway explains that the classification of AS is controversial among researchers. This authors explains that some researchers use the term AS because it's viewed as a separate clinical entity to autism. Some classify AS as a subgroup of autism and do not make a distinction between the two (Greenway, 2000). Wing explains that Asperger did not specify criteria that should be used when diagnosing Asperger Syndrome (1991, as cited in Greenway, 2000). Greenway states that there is difficulty to draw research on AS because there is no rules on the boundaries of autism, AS, and other

social and communication disorders (Greenway, 2000). Without a specific classification there is no clear distinction between the disorders that educational specialist can use when creating an intervention.

Children with Asperger Syndrome have problems understanding the hidden curriculum. Myles and Simpson explain that the hidden curriculum is the skills that are not directly instructed, but are assumed to be understood. These researchers explain that the hidden curriculum has strong effects on social functioning. They suggest that individuals should understand teacher expectations, teacher-pleasing behaviors, which students to play with and which to avoid, behaviors that are acceptable and increase attention, and which behaviors are not acceptable and promote negative attention (Myles & Simpson, 2001). These researchers explain that it is necessary for children with AS to learn the hidden curriculum because it will assist them of avoiding detention and making friends in school (1998, as cited in Myles & Simpson, 2001). Inadequate or inappropriate social behavior can occur in children with Asperger syndrome. Children with AS might receive interventions which address social autopsies (1994, as cited in Tse, Strulovitch, Tagalakis, Meng, Fombonne, 2007).

Children with AS have limitations in understanding the beliefs of others, shifting attention, giving others attention, and determining what is relevant and irrelevant stimuli (Rogers & Myles, 2001). Gibbons and others explain that children with AS have difficulty with creative writing assignments and poor problem-solving skills (Gibbons, & Goins, 2008). They also have difficulty generalizing ideas, and have a small range of interests (2001, as cited in Gibbons, & Goins, 2008). It might be a problem for children with AS to apply these techniques when socialization with other children.

Friendships among highly functioning autistic individuals were examined by

Bauminger and others. A group off 44 children with high-functioning autism spectrum

disorder and 38 typically developing children were examined regarding their friendship

qualities and interactions. They specifically measured friendship characteristics,

friendship manifestations through behaviors, verbalizations, affects when interacting with

a close friend, elements of friends, and perceived friendship qualities. Through

observations, friendship self-report measures of the target child and the friend, and

maternal interviews, these researchers found that there are noticeable differences in the

type of friendships between children with highly functioning autism and typically

developing children. Typically developing children had greater frequency of meetings

with friends, less time unoccupied during play, lower frequency of parallel play, higher

frequency of coordinated play more social conversation during construction activities,

and less ridged conversational style. In addition, these researchers found the highly

functioning autistic group viewed their friendships as less close, helpful, and more

intimate than typically functioning children (Bauminger, Solomon, Aviezer, Heung,

Gazit, Brown, Rogers, 2008).

What is known About Social Skills Training?

Social skills training are a commonly used intervention strategy among children

with Asperger Syndrome or high functioning autistic children. Research by Fombonne

and others used a social skill training with an emphasis on role play. The results indicated

that the social skill training was a success among verbal highly functioning autistic

adolescents (Tse et al., 2007). One focus of research in social skill training is its success

in nonverbal communication of children with Asperger Syndrome. Research by Barnhill

and others created an intervention which targeted paralanguage, identifying, and responding to the facial expressions of others. Role-playing, modeling, and reinforcement through feedback was applied in this intervention. The results indicated that these subjects were more able to read the nonverbal communication of others and they developed positive relations with other children in the study (Barnhill, Cook, Tebbenkamp, Myles, 2002). Role play is just one of many types of social skills training.

Significant Research Personalities in Social Stories

Social Stories is an intervention created by Gray and Garand and was described in their article in 1993. These stories are short and written to meet the individual needs of children. The story describes an activity and the acceptable behaviors related with the activity (Gray, & Garand, 1993). Gray stresses that social stories should by products of a detailed assessment of the child including their limitations and strengths (1995, as cited in Ali & Frederickson, 2006).

How Key Concepts are Defined and Measured

Gray and Garand stress the use of descriptive, perspective, affirmative, and directive sentences. The Social Story ratio of these sentences are suggested to include 2-5 descriptive, perspective, and/or affirmative sentences for each directive sentence (1995, as cited in Crozier & Tincani, 2007). Gut and Safran explain that the ratio is necessary to assist individuals in understanding social context and how individuals feel and how to create awareness of empathy (Gut, & Safran, 2002). Descriptive sentences explain factual information in the story. Thoughts and feelings of individuals are explained through perspective sentences. An affirmative sentence reassures the reader. Instructions on what

the reader is expected to do is described through directive sentences (1995, as cited in Crozier, & Tincani, 2007). Recently, Gray added two additional sentence types, control and cooperative sentences. Control sentences use analogies to describe an event. Cooperative sentences explain who can aid the reader in a certain situation (2000, as cited in Crozier, & Tincani, 2007). Ali and Frederickson suggest that partial and additional sentences can be used. Partial sentences allow the child to make guesses about the next step of a situation, response of another, or their own response. A blank space will replace the word so the individual can complete the sentence (Ali & Frederickson, 2006).

There are no rules on how social stories are used (1993, as cited in Lynch et al., 2008). Lynch and others explain that they typically contain 5 to 10 sentences (Lynch, et al., 2008). Social Stories are usually written in the first person with present or future tense verbs. Terms such as "usually" are acceptable since it allows some flexibility of interpretations, which tend to be ridged in children with autism and therefore will not cause too much disruption if the exact situation is not replicated with the exact same detail. The terms "always" and "every" are encouraged to be avoided in social stories because unexpected events occur and the social story might not always mirror every event. It's also noted that its okay to make assumptions of the opinions and feelings of other individuals involved in the story, but not the reader. Distractions should be avoided and the reader should sit behind the student when reading to them (1994, 2000, as cited in Ivey, Heflin, & Alberto, 2004).

There are six steps used when using social stories. First, a target behavior should be identified, the level of risk the behavior is to anyone should be considered, and how irritating the behavior is, whether or not the behavior is isolated, if the behavior is likely

to be associated with a fast response to intervention, if it's the first behavior in an escalating chain, and whether or not the behavior is the most difficult to change the behavior that the child displays. The second step is to conduct a functional assessment. The frequency or duration of the target behavior can be measured over several days (Crozier, Sileo, & 2005). Lynch and others stress that there should be an analysis of the parts of the daily routine in which the target behavior would occur in so the social story can be incorporated at an appropriate time (Lynch, et al., 2008). Next, a plan should be created to include social stories. The creation should be made by an IEP team and created under the guidelines of Gray and Garand (1993). The fifth step is to use the social story with the child under a regular schedule. When using the social story, the story should be stored in a place accessible to the child. Finally, data should be collected when implementing the social story and after the intervention is complete (Crozier, & Sileo, 2005). Removing the social story is a process that educational specialist should understand. Lynch and others explain that fading the social story is a natural process that occurs as the child learners the intended purpose (Lynch, et al., 2008). These guidelines are clearly defined and there is flexibility in creating a social story to meet the individual needs of the child.

An individualized treatment plan is a major key concept of social stories. Kuttler and Myles found through their research that social stories are beneficial to attain individual goals of a child. They explain the ability for this intervention to be individualized is what contributes to the success of social stories (Kuttler, & Myles, 1998).

Crozier and Sileo suggest the decision to use social stories should be made by the team which creates the individualized education program. (Crozier, & Sileo, 2005). Social stories are an intervention that can be easily taught to the teacher or assistant. Quilty conducted a study which measured the whether or not paraprofessionals can be trained on how to write and apply social stories to students with ASD. They used three paraprofessionals and three students as subjects. The paraprofessionals were asked to choice a specific target behavior of the students and conduct a functional behavioral assessment for why the behavior was caused. The paraprofessionals received information on how to implement the story they created. The results indicated that the paraprofessionals were adequately trained on how to write and utilize social stories and that the children positively responded to the intervention (Quilty, 2007).

Social stories have been implemented for a variety of purposes. Research has investigated a lot of these areas. However, research has not fully investigated specific areas which are necessary if educational specialists would like to apply these techniques in the child's individualized education plan.

The purpose of decreasing challenging behaviors with the use of social stories is prevalent among researchers. Social stories are commonly used to decrease inappropriate responses to common events among children. Agosta and others (2004) and Kuoch and Miranda (2003) successful decreased challenging behaviors of participants with the use of social stories (Crozier, & Tincani, 2007).

Some research investigates decreasing inappropriate behaviors and some investigate increasing desirable social behaviors. Soenksen and Aleper used peers in a

social story intervention whose purpose was to increase appropriate attention seeking behaviors, which proved to be successful. However this intervention included a child diagnosed with hyperlexia, not autism or Asperger's syndrome (Soenksen & Alper, 2006). One study, conducted by Norris and Dattilo, used a couple social stories to increase initiations and responses to peers. They found a decrease in unacceptable behaviors, but also found in increase in all social interactions. This research used more than one social story which might have contributed to the complexity in the purpose and the ability for the student understanding the social stories purpose (1999, as cited in Scattone, Tingstrom, & Wilczynski, 2006). Scattone and others attempted to increase the social interaction of individuals with ASD with the social story intervention as the only intervention conducted. The results indicated that the social story was very successful for one participant, moderately successful for one subject, and not at all successful for one student. Because there were not other interventions being implemented at the same time, readers can confidently assume that the intervention only caused the increase in the social skills. The researchers were able to easily determine the limitations of the study. They felt that more clarity of the social story was needed for one participant and several social response options in the social story most likely made it too confusing for the student (Scattone, et al., 2006).

Children with autism have characteristics of relying on routines, preoccupation with parts of objects, and a consistence on sameness. When there is a manipulation of an anticipated routine, children with autism show mild distress or severe responses (American Psychiatric Association 2000). Gray and Garand explain that social stories can be used to develop flexibility with routine (1993, as cited in Ivey, et. al, 2004). The study

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by Alberto, Heflin and Ivey measured the affects of social stories being used before a novel event to encourage the child's use of independent appropriate behavior during the actual event. The parents of these individuals were trained on the concepts of social stories and were asked to read the story to the children. The children all showed increases in participating in novel events. The increases ranged from 15% to 30% of the baseline measures. However, the events are no longer considered novel once the individual is introduced to the event. The researchers used four activities per a category of novel events and used a counterbalanced design to assist control for the experiences. The events were novel to the speech and language therapy setting, but not new to the child in general, which could have affected the results of the study (Ivey, et al, 2004). It is very difficult to attain baseline data on how social stories affect child with autism in a novel event which limits the research available. Novel events have been investigated, but further investigation is required to control for the lack of baseline comparison.

Myles and Simpson evaluated interventions that can be used to understand the hidden curriculum. These researchers explain that there are several approaches to assist professionals on either teaching the instruction or process of interpretation of the hidden curriculum to children with AS. Instruction of the hidden curriculum can be taught through scope and sequence, direct instruction, acting lessons, self-esteem building, and social stories. These authors feel that social stories provide guidance and direction to enhance self-awareness, self-calming, and self-management when responding to the social situation. Other techniques such as cartooning, social autopsies, and the Situation, Options, Consequences, Choices, Strategies, Simulation strategy (SOCCSS) are effective in teaching interpretation. Cartooning is another visual strategy similar to social stories,

which contains visual symbols that explain processing of social events (Myles, &
Simpson, 2001). Comic Strips conversations is technique that was created by Gray.
Myles and Simpson feel Gray's techniques are evaluated to be successful attempts for
individuals with Asperger Syndrome to interpret and process social events (1995, as cited
in Myles, & Simpson, 2001). Comic strips can be used by educators in order to teach
understanding. Rogers and Myles implemented a comic strip strategy on an adolescent
with AS to assist the child in understanding the social interactions that occur during
lunchtime. The subject identified the problem he was having during the lunch period with
his friends. The teacher created a comic strip to describe the meaning behind the
conversations that typically occurs at lunch. The child positively responded to the comic
strip over the social story he used in a prior intervention. The individual asked for comic
strip stories to explain other confusing social interactions this student had in the future
(Rogers & Myles, 2001). Comic strips might be a great alternative to social stories for
children in their adolescent years.

Another key concept in social story research is verbal prompts. Verbal prompts
were discovered to increase the effects of social stories. Research by Crozier and Tincani,
2005) showed that there is a greater decrease in challenging behaviors with the addition
of prompts (Crozier, & Tincani, 2007).

Inclusion is another key concept that has been investigated in social stories.
Odom, McConnell, and Chandler stresses that Social Stories can be used for both child-
specific and peer-mediated interventions. The researchers assigned individuals with
disabilities in five different conditions to receive social skills training. In three of the

conditions, the subjects were placed with children with disabilities and children without disabilities. Two of the conditions contained children with disabilities only. The use of peers in the intervention is essential because children without disabilities can assist the subject in benefiting from social training when its intended to assist the child to socialize with non-disable peers for inclusion purposes (Odom, McConnell, McEvoy, Peterson, Ostrosky, Chandler, Spicuzza, Skellenger, Creighton, & Favazza, 1999). Including children without disabilities in the social stories might show similar promising effects when attempting to mainstream the child in the regular classroom.

Social stories are capable of generalizing in the home and other school settings because both Gray (1995) and Miller (1993) state that social stories can be implemented in these areas to foster generalization and inclusion (Soenksen & Alper, 2006). There is some research which investigates the use of social stories in the home environment. Research by Ganz and other examined the effects of whether social stories can be implemented in the home environment (Lorimer, Simpson, Myles, & Ganz,, 2002). More extensive research is required in the application of social stories outside the classroom.

One key concept about social stories is whether the relations between researchers and the teacher that affects the results of the social story intervention. Agosta and others conducted a research on the relations between university personnel and the teacher of the classroom while creating and implementing a social story intervention (Agosta, et al., 2004). The researchers worked together in defining the target behavior and creating the social story. The results indicated that the subject positively responded to the social story and the undesirable behavior decreased. The teacher was instructed on how the

implement the story and collect data on a defined behavior. The results showed that the teacher had a positive experience. The researcher and teacher feel that the partnership in this intervention was successful (Agosta, et al., 2004). Even thought this study had a positive experience, many other researchers and teacher/subjects might not. This study only measured one partnership which happened to be positive. By not finding the same results in several more researches, there is no way of telling how the teacher/researcher relationship effects the results. However, it is helpful to note that social stories can be effective if trained to the teacher in a setting were a positive relationship exists between the researcher and teacher.

Methods or Problems Identified by Others and Its Impact on Research

The limits of social stories are commonly agreed upon. Research by Kuttler and Myles applied social stories as a visual intervention in combination with directions, choices, a rationale to transition and behavioral management to decrease temper tantrums. These authors feel that the use multiple treatments was necessary for the success of social stories (Kuttler, & Myles, 1998). One research which contained multiple treatments in the social story alone was conducted by Agosta and others. This research attempted to include a tangible reinforcement system in the social story intervention. The target behavior was screaming. Together the teacher and researcher created a social story and measured the subject's screaming behavior in a 15 second interval. The subject received reinforcement, which was a happy face and a praise for his willingness to participate in the study every 5 minutes. This was ABCA design because the researcher and teacher decided to alter the intervention due to the subject's distraction with the

tangible reinforcement. Even thought the intervention showed positive results, it was obvious that other forms of intervention are not recommended when providing research because the effects on the target behavior can be unclear, if not damaging (Agosta, et al., 2004). Barry and Burlew conducted a study with the attempts to increase acceptable play behaviors in children with autism. Even though the results appeared promising, the individuals were receiving multiple treatments at the same time of the social stories (2004, as cited in Crozier & Tincani, 2007). Other researchers feel that applying social stories in combination with other interventions is beneficial. Kincaid and others suggest that social stories should not be the sole intervention used for a child with autism because there is not enough research that supports it works well alone. They explain that other forms of interventions, such as prompts and reinforcement, should be used at the same time (Sansosti, Powell-Smith, & Kincaid, 2004).

Sansosti and others investigated the limitations of the literature on social stories and discovered six areas of importance. They found that there needs to be an increasing experimental control, evaluation of essential components of social stories, focus issues related to procedural fidelity, treatment integrity, social validity, program for generalization and maintenance, evaluation of the effects of social stories on children who are mainstreamed , and conduction of comparison effects of participant's outcome behavior with the behavior of typical peers (Sansosti, et al., 2004).

Delano and Snell feel that there are some other limitations in the research of social stories. They feel that there is little research on social stories involving middle and high school students. They also see that there is a lack of research including

measurements of maintenance. A longer intervention period is something that these researchers feel might be worth investigating in future research. Initiation requests and attention-seeking behaviors are two target skills that Delano and Snell feel social stories did not help students in addressing. These researchers feel that they are two behaviors that are necessary for successful social relationship and researchers need to investigate how to appropriately include them in social stories initiation requests and attention-seeking behaviors (Delano & Snell, 2006).

Even though research by Lorimer and others investigated social stories used in the home environment (Lorimer, et al., 2002), there are still limitations the amount of research conducted in this area. Adams and others suggest that there are two other limitations in social stories. There is not enough research which evaluates the parental involvement in social stories or how it is used in the home environment (1998, 1995, as cited in Adams et al., 2004).

Age is another questionable variable of social stories. Scattone and others feel that age might have affected the results of their study. One participate who was eight years old did not respond as well as another student who was 13 years old. These researchers feel that adolescence might encourage the student to learning social interaction skills more than individuals who are younger (Scattone, Tingstrom, & Wilczynski, 2006).

Gray suggests that social stories are more appropriate for children with Asperger Syndrome because these individuals have better language skills (1994, as cited in Greenway, 2000). Research by Rowe measured an intervention of social stories on a child with Asperger Syndrome. The research provided positive results. Rowe feels that

social stories acted as a schema about a social communication (1999, as cited in Greenway, 2000). Greenway explains that there is little research on children with Asperger syndrome in the schools because they are not identified frequently in mainstream schools. This author stresses the need for more scientific rigueur. Greenway explains that research needs to include more pre- and post-tests and the use of control groups (Greenway, 2000).

Data Sources Researchers Used in the Past

A data source that is commonly used when creating research is the use of cognitive assessment in order to control for the child's limitations which might affect the study. One essential finding from the study by Scattone and others might suggest that cognitive abilities have an affect on the ability to respond to social stories. Two of the three participants showed increases in desirable social behavior. The one individual who did not response had a mental processing composite of 67 on the Kaufman Assessment Battery for Children. (Scattone, Tingstrom, & Wilczynski, 2006).

Social validity is commonly measured in the research of social stories. Scattone and others used the Intervention Rating Profile which is a 15- item scale to measure teachers' acceptability of the interventions (1985, as cited in Scattone, et al., 2006). Social validity measures can act as another evaluation of the intervention being used in social stories.

Another data source which is essential in the application of social stories is generalization measures. Generalization was measured in a study by Adams and others.

This study measured a subject's ability to generalize the results of a social story intervention used in the home environment to the school environment. The research measured undesirable behaviors of a child during homework time at home. The social story discussed crying, falling, hitting, and screaming during homework time. These target behaviors all decreased with the implementation of the intervention. Through qualitative measures, the authors found that the teacher reported a decrease in frustration behaviors overall. The teacher reported a decrease in one of the target behaviors that was exhibited in school prior to the intervention, crying. The teacher reported an overall effect of the subjects response to frustrating events and seeking assistance on confusing tasks appropriately. These researchers mentioned that it is difficult to avoid the limitation of multiple therapist effects when the intervention is applied in the home environment with two parents. (Adams, et al., 2004).

Methodology for Research on Social Stories

There are different approaches that researchers take when measuring the effects of social stories. The research methodology varies in social stories. Ali and Frederickson found that there are three types of studies used in social stories research. They explain that single participant studies using single case designs, multiple participate studies using single case designs, and a group evaluation consist of the research designs on this intervention. Frederickson explains that single case designs are less time-consuming and costly than group designs. Single case designs are easy to implement, monitor, and evaluate (2002, as cited in Ali & Frederickson, 2006). Single case designs that are used in this type of research are descriptive case studies and single case experiments. Single case

experiments contain repeated measures in each phase of the experiment and contain

manipulation of the intervention. Descriptive case studies measures specific accounts,

such change over time or response to intervention through structures measuring

approaches (Ali & Frederickson, 2006).

Ali and Frederickson explain that there is a limitation to AB designs. They stress

that these designs do not provide evidence on whether or not the intervention is

responsible for the change in behavior between the A and B phase. Ali and Frederickson

suggest that the ABAB design provides ethical concerns. Children can experience distress

when there is a disruption in their education, which children with autism experience

frequently during shifting of educational experiences. In addition, ABAB designs are

difficult because when learning has already occurred, its difficult to return to baseline

(Ali & Frederickson, 2006).

One type of multiple phase design was used by Crozier and Tincani. They used a

ABAB reversal design on two preschool children. Another child received an ABCACBC

multi-component reversal design because the first intervention of the social stories. A

target behavior was selected for each participant by the teacher. The target behaviors had

to pertain to the following criteria: behaviors that interfered with the learning or

socialization of the student, and behaviors that were not being addressed through another

intervention. During the baseline, the behaviors of the participant were observed. The

intervention was implemented before the target activity occurred. The social story was

read and the child preceded to the observation session where the target activity occurred.

However, for one participant, who received the ABCACBC design the second

intervention phase, verbal prompts occurred during the observation stage. This study also measured for maintenance and embedding. These researchers evaluated these concepts by eliminating the intervention and observing the target activity (Crozier & Tincani, 2007). The experimental designs used in this study enhanced internal validity (2005, as cited in Crozier & Tincani, 2007). Comprehension questions were applied to determine that the student was cognitively able to accept the treatment. In addition, this researchers found proficient treatment integrity and inter-observer agreement. The results of this study showed inconsistent findings between participants. One participant was found to show an increase in the desired behavior without maintenance overtime. Another participant showed an increase of the target behavior at low levels, but this increase maintained overtime. There was a significant increase and maintenance of the desired behavior of the third participant. This study applied some valuable tools that other researchers can build upon. They feel that some children need modification in the social setting in order to make the desired behavior more encouraging, which is possible through a multiple phase design. They applied Sansosti and others evaluation (2004) on the use of a design which returns to baseline after removal of the social story. Crozier and Tincani feel that a continuous implementation of social stories is needed in order to attain and maintain effects. However, there was a limitation to this design. Applying prompts to encourage social behaviors advertised in the social stories was viewed as an extraneous variable. The researchers were unable to accurately determine if the change of the desired behavior was due to the prompt or the social story (Crozier & Tincani, 2007).

The methodology of the research by Scattone and others enabled the reader to understand more about the effects of social stories. There was a multiple baseline design

and the researchers calculated the variability of the data collected during baseline. This allowed the reader to understand how much variability could be expected during the intervention and contribute to an analyses of the intervention. They also conducted a percentage of non-overlapping data (PND). The PND is used to measure the appropriate social interactions between phases by dividing the amount of data points in the intervention that did not overlap with the data point in the baseline period by the total number of point in the intervention phase. When the PND is higher than 90% there is considered an effective outcome. When there is a PND between 70% and 90% there is a fair outcome. If there is a PND between 50% and 70%, there is a questionable outcome. Anything less than a 50% PND is not reliable. Generally, these researchers found an effective outcome (Scattone, et al., 2006).

The intervention by Adams and others used an ABAB research design when attempting to decrease four target behaviors during homework time in the home environment. The four target behaviors; crying, falling, hitting, and screaming were all measured during the first stage without the implementation of the social stories. The second stage applied the social story which discussed all target behaviors and was read by the parent. The second baseline measured the target behaviors during the third stage and the social story was not implemented. Finally, the social story was used again and the target behaviors were measured. Crying behaviors decreased 48% from the first baseline to the second phase of intervention. Another target behavior, screaming, decreased 61% from the first baseline and the second intervention. The falling behavior decreased 74% from the first baseline and the second intervention. Hitting decreased 60% throughout the intervention. These researchers feel that an ABAB design was effective in determining

that the decrease in all target behaviors was due to the intervention. They felt that an AB design would not have shown that the decrease in frustration behaviors were only due to the intervention as well as it did with the ABAB design (Adams, et al., 2004).

Ali and Frederickson feel that descriptive case study designs provide weaker evidence base for practice than single case experimental designs. Multiple participant studies have been used on social stories. Social stories in these designs are used when two or more participants are used and each intervention is tailored on specific target behaviors (Ali, & Frederickson, 2006). One example is the AB design used by Scattone and others. These researchers applying a social story to treat a target behavior for each child. The intervention was implemented across three different series in order to make each child serve as a control for the other child. This design was chosen so that the limitation of whether or not other factors contributed to the change in behavior between phase A and B was limited. Two of the three subjects answer from the same class so the staggered approach to the intervention limited the effect of extraneous variables. However, the third individual attended a different school and was 8 years older than the other two participants. All the individuals did positively respond to the intervention and the target behaviors were decreased (Scattone, Wilczynski, Edwards, & Rabian, 2002).

Ali and Frederickson explain that there is limited research using group evaluation (Ali, & Frederickson, 2006). Research by Smith and others evaluates a group using social stories. The program contained 15 children with autism and 3 children with other disorders which used social stories. Social stories were individualized to meet target behaviors. Students were provided discuss their experience after the experience with

social stories. Teachers and the students rated their response to the intervention (Smith, 2001). However, Sansosti and others explain that this limit's the study because the only type of evaluation of the intervention was provided by those responsible for implementing it, which causes bias (Sansosti, et al., 2004).

A study by Thiemann and Goldstein (2001) measured visual effects from social stories, picture cue cards, etc. on children with autism with the a multiple baseline design across two or three skills. The children were presented with video feedback on specific social skills. The target skills were securing attention, initiating comments, initiating requests, and making contingent responses. Visual supports increased the social behaviors and two of the subjects showed generalization treatment effects to the general education classroom (Delano, & Snell, 2006).

Delano & Snell attempted to replicate the methodology of Thiemann and Goldstein's (2001) research with measurements of generalization across people and settings. These researchers measured individuals with autism and their application of social skills with children with disabilities, and peers without disabilities. These researchers used a multiple-probe-across participants design to eliminate other the social stories effects. Social skills were examined and four story options were presented. The children had to complete the comprehension questions for each story. The results of the assessments allowed the researchers to appropriately match the students to a story. Together, the children with autism and their paired non-disabled peer brainstormed target skills to a social situation. The students' response was used to create the social story. Dependent measures where clearly defined by the researcher for measurement. The

duration of appropriate social engagement with peer, inappropriate social engagement with peer, absence of social engagements with measures was described and measured. The frequency of seeking attention, initiating comments, initiating request, and contingent responses were defined for the data collector and measured accordingly. The researchers used a social comparison assessment to determine the social validity of treatment effects. The researcher compared the baseline data of the target student with that of six typically developing peers. Convert probes were also measured for 20% of the intervention sessions. The researchers measured maintenance, which is another questionable component of the social story intervention. The criteria for fading was that the individual had to receive at least 15 sessions and that the social engagement was 40% greater than it was during the baseline sessions. The results indicated that there were maintenance of the target behavior after the fading of the social story, however there was variability across sessions. The individuals received a generalization evaluation. The students' interaction in the general classroom without the presentation of the social story was measured. Two of the participants applied the social skills to the general classroom when the social story was not read. However, the only participant that did not generalize the social skills also did not respond as well to the intervention as the two individuals which did generalize the skills to the general classroom (Delano & Snell, 2006). By measuring specific target skills, these researchers were able to determine what social skills students easily learn through social stories, and what skills they do not demonstrate even after the intervention. These researchers found that comments and contingent responses were the majority of social behaviors the individuals displayed. They did not demonstrate a lot of initiation requests and attention-seeking behaviors. Because the

researchers measured a variety of target skills, they were able to determine what future research in social stories needs to improve on (Delano, & Snell, 2006).

The research by Barry and Burlew used an ABCD research design. The purpose of this study was to use a social story to encourage the subjects to participate appropriately in free-play time. Two individuals diagnosed with severe autism received an intervention that considered of four phases. The first phase was a baseline phase. The second phase focused the child in making choices and appropriately playing with the toys. The next phase focused play with peers. Finally, the final phase removed the instruction of the social story, but not the social story itself. Prompts were given during all phases and measured. The amount of time the child played appropriately was also measured. The children were provided free time after each session. The results indicated that the intervention was a success. The number of prompts decreased and the amount of time of appropriate play increased. The ABCD design enabled the researchers use a task analysis by breaking down the components of the desired skills (Barry & Burlew, 2004). Research varies in which design was implemented. However, researchers should consider which design would be easy and ethical to use by professionals in the school.

Current Status of Research and Use of Social Stories

Currently social stories are being implemented commonly among different school settings. A study by Stahmer, Collings, and Palinkas found that 23% of programs interviewed used Social Stories in their intervention programs (2005, as cited in Crozier, & Tincani, 2007). Researchers should consider expanding the research on social stories in questionable areas such as, age, the purpose of increasing or decreasing behavior,

generalization, and maintenance. Researchers should also consider the diagnostic correlation between the success of social stories and AS versus ASD.

Summary

A collective view of social stories is attained through the review of literature on the intervention. Social stories are individualized interventions that are influenced by multiple variables. Research on social stories proves it to be an effective intervention under certain conditions. Distinguishing classification of AS and ASD in schools is uncommon. The ability of determining interventions which favor one group over another might encourage more practitioners to use this form of classification.

Chapter 3: Design

Sample

All the subjects were recruited from the same special services public school in southern New Jersey. A form of non-probability sampling, purposive sampling, was used for this study. The director of clinical services and behavioral specialist at the school chose the subjects based on the subjects' need for a socialization intervention and to ensure that the sample adequately represented a group of individuals that will be cognitively capable of responding to the demands of the intervention.

There were a total of six participants used for the study. The subjects used in this research ranged from nine to eleven years old. All the participants that were used for the study were male. Four participants have been professionally diagnosed with autism and two participants have been diagnosed with mild autism and by the teacher and behaviorist's belief, Asperger's Syndrome. All the participants were verbally functioning students. The real names of the children were altered to protect their privacy. Pseudonyms names were given to the students for the purpose of this study.

Nick was an 11 year old boy who showed interest in socializing, but did not make the effort. His teacher reported that Nick sits next to other children, but does not talk to them. She explained that Nick sometimes "gets in his own world". Nick enjoyed watching movies and food. He was diagnosed with autism, but he did not receive an evaluation for the past least three years at the time of the study. Therefore, there were no accurate measures of his cognitive or social functioning.

David was believed to be a little more social than the other participants by the teacher. He enjoyed video games and was proud of being a big brother. David was

believed to have Asperger's Syndrome by some teachers and specialist in the school. He was diagnosed with attention-deficit/hyperactivity disorder (ADHD). The teacher explained that David talked a lot to adults, but did not talk to other children. His full scale IQ for the Wechsler Intelligence Scale for Children -Fourth Edition was 96. He was eleven years old at the time of this study.

Shawn was classified as autistic. At the time of this research he was eleven years old. His teacher reported Shawn was happy most of the time. She suggested that Shawn will talk to others, if they talk to him first. Shawn liked recess and music. He has not had an evaluation in the past three years at the time of this study, which suggests that were are no useful social or cognitive measures to make analysis from.

Ryan was a ten year boy who enjoyed computer programs and sports, such as basketball and baseball. He was diagnosed with high functioning autism. Cognitive measures suggest that he was below average, in the 12th percentile. Ryan's teacher explained that he had severe anxiety separating from his mother. Ryan also had anxiety in daily changes. He strongly disliked loud noises, which results in his use of headphones at times. His teacher suggested that the school specialists believe he had Aperger's Syndrome, although no professional diagnosis has been made.

Another student who was diagnosed with autism is Jack. He was nine years old at the time of the study and evaluations suggest a low range of autism. Jack's full scale IQ for the Wechsler Intelligence Scale for Children -Fourth Edition was 85. He was in his first year at school at the time of this research because he was homeschooled up to the year of this study. Jack enjoys movies and books.

Brian was a ten year old student who had autism. His teacher suggested that Brian had low social skills. She also claimed that he had to be called "Brian" and hates to be called any nicknames. Drawing and playing on the computer were Brian's favorite hobbies. Brian's evaluation suggested a communication impairment and moderate to severe autism. The results of the Wechsler Individual Achievement Test indicate that Brain scored the highest in numerical operation, 72, and the lowest in reading comprehension, 57.

Design

The research followed a pretest-posttest design. The ABA reversal research design was applied in order to determine the effects of the treatment overtime and within groups. The independent variable was the social story and the dependent variable was social initiation. The dependent variable was measured by the frequency of social contacts that the student makes during a time where socialization was likely to occur in the school setting, lunch time. The social contacts included new conversation with other students. Social contacts with teachers were not measured. Baseline data was gathered for three consecutive days by the teacher. The intervention occurred for 15 sessions. Baseline data was gathered for three consecutive days following the intervention. The baseline measures were gathered to determine if the intervention effects generalized over time.

Measures

Social initiation was measured throughout the study. The data collection form was created by the researcher. The data collection form measured the frequency of social initiation of the subjects with their peers. Social initiation included starting a new conversation with a new peer or starting a new topic with the same peer. Social initiation

did not include contact with teachers. Measurements were made in intervals of two minutes for a total of ten minutes. The teacher collected the data for this research. The researcher also collected data about 30% of the time to measure for inter-rater reliability. The inter-rater reliability measures were at 68.57 %.

Procedure

Approval was given to the author to conduct the research by the IRB of both the participating school and the university supervising the study. The director of clinical services and behavioral specialist chose the participants for the study. Social stories were created by the researcher according to the individual needs of the subjects. Individual information was gathered from the participants' personal records, observations, and information provided by teachers and other school specialists.

The teacher implemented the social story intervention. The teacher read the story with the subjects during the first few minutes of lunch. The student was seated next to the teacher during the reading. Immediately following the story, the subjects had opportunity to exercise the target behavior, social initiation. Data was measured within five minutes after reading the social story. The intervention was implemented for 15 days by the teacher in the school. The student had access to the social story during free time throughout the intervention.

The social stories that were used differed for each individual subject. All the social stories were six pages long. The story contained simply pictures to ensure the focus was on the content of the story. Each page was 8.5"x 10" placed in a clear paper cover and was in a white three-ring binder.

Hypothesis

The first experimental hypothesis stated that social stories significantly increase social initiation of individuals with autism and Asperger's Syndrome. The null hypothesis was that there will be no significant difference in social initiation after the intervention. The second experimental hypothesis was that there will be a significant difference in the effects of social stories between the group of individuals that have autism and the group of subjects who have Asperger Syndrome. The second null hypothesis was that there will be no significant difference between the two groups. The null hypotheses were rejected at the 95 percent confidence level.

Analysis Design

The software program, SPSS, was used to analyze all of the descriptive and inferential statistics of the results for this study. A one sample t-test was used to determine whether or not there was a difference in social initiation for the total population after the intervention. The alpha level used to measure probability was 0.05. A t-test of two independent samples was used to evaluate whether or not there is a significant difference between the autism group and the Asperger's Syndrome group after the social story intervention. The alpha level used to measure probability was 0.05.

Summary

This chapter provided the reader with an understanding of the methodology involved for the research. The two experimental hypotheses were stated and statistical analyses which were used to test on the effects of social stories were explained. The

SPSS program was used to accept or reject the null hypothesis. The next chapter

describes the results of the study.

Chapter Four: Results

Introduction and Hypotheses Evaluated

This study measured the effects of social stories on children with Asperger's Syndrome and Autism. The purpose of this research was to examine whether or not social stories have different effects on children with Asperger's Syndrome and Autism. Four subjects diagnosed with autism and two participants believed to have Asperger's Syndrome were used to represent those classified populations. An ABA reversal research design was used and measures were collected in each condition. Results of this study were intended to reveal intervention implications for the two groups.

The SPSS software program was used to interpret results. A one sample t-test was used to determine whether or not there was a difference in social initiation for the total population after the intervention. A t-test of two independent samples was used to evaluate whether or not there is a significant difference between the autism group and the Asperger's Syndrome group in all three conditions. An alpha level of .05 was used for all statistical tests.

Two hypotheses were tested in this study. The first experimental hypothesis stated that social stories significantly increase social initiation of individuals with autism and Asperger's Syndrome. The second experimental hypothesis was that there will be a significant difference in the effects of social stories between the group of individuals that have autism and the group of subjects who have Asperger Syndrome.
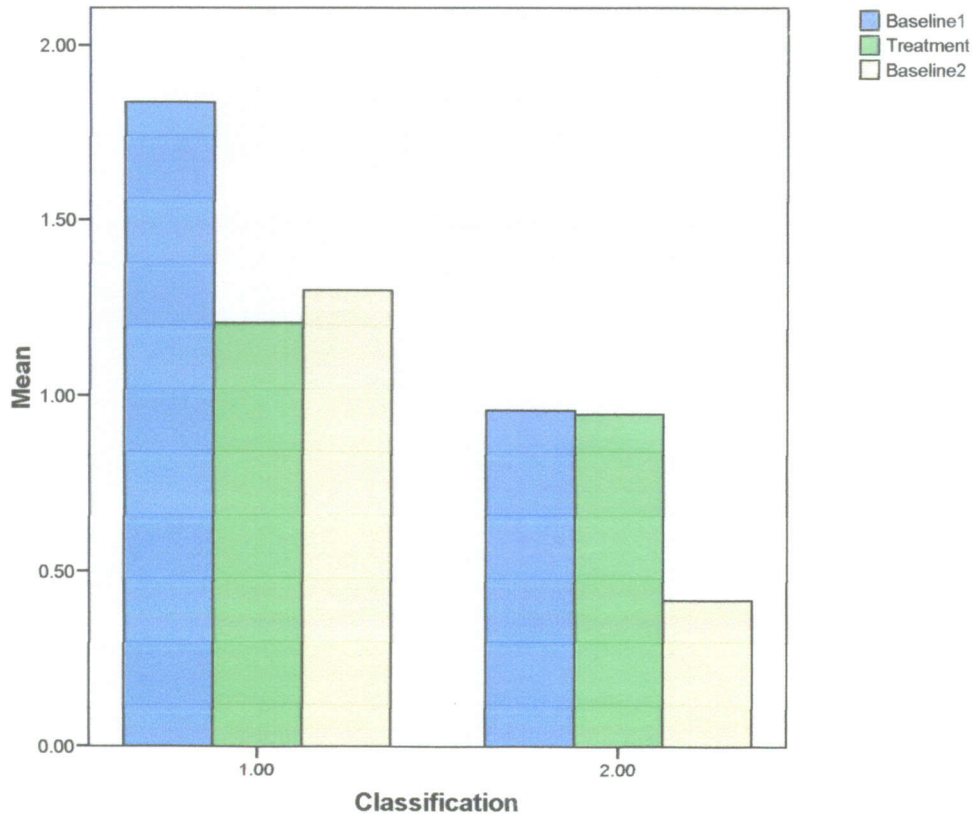
Results

The first experimental hypothesis stated that social stories significantly increase social initiation of individuals with autism and Asperger's Syndrome. The null

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hypothesis was that there will be no significant difference in social initiation after the intervention. A Paired Samples t-test was used to test the hypothesis. Results indicate that there was no significance between baseline and treatment (t(5)= 0.691, p> .05). A Paired Samples t-test was used to determine the difference in social initiation between treatment and the removal of treatment. Results indicate that there was no significance between treatment and the removal of treatment in social initiation (t(5)= 0.753, p> .05).

The second experimental hypothesis was that there will be a significant difference in the effects of social stories between the group of individuals that have autism and the group of subjects who have Asperger Syndrome. The independent sample t-test suggested that there was no significance between the two groups during baseline (t(4)= 1.223, p> .05). The test also implied that there was not a significance between groups during treatment (t(4)= 0.257, p> .05). Results suggested that no significant difference existed between groups during the second baseline (t(4)= 0.873, p> .05). The results are displayed on 4.1.

Graph 4.1 Difference in Social Initiation Between Autism Group and Asperger's Group

Summary

The results of the experimental hypotheses were stated. Both experimental

hypothesizes were not proven to hold true. No significant difference was observed in

social initiation due to the social story intervention. The first null hypothesis was

accepted at the 95 percent confidence level. There was no significant difference in the

effects of social stories between the group of individuals that have autism and the group

of subjects who have Asperger Syndrome. The second null hypothesis was accepted at

the 95 percent confidence level. The next chapter will examine the extraneous variables,

limitations of the study, and suggestions for future research.

Chapter Five: Discussion and Implications

Introduction

This study measure the effects of a social story intervention in children with autism and children with Asperger's Syndrome through an ABA reversal design. The differences in effects between the two groups were examined. The target behavior that was focused on was social initiation. The experimental hypothesis was that there would be a significant difference in social initiation due to the social story intervention in both the Asperger's Syndrome group and the autism group and was tested by a one sample t-test. The other experimental hypothesis was that there would be a significant difference in the effect social stories had on social initiation between the AS and ASD group and was analyzed through a t-test of two independent samples.

Interpretation of Finding

The results of this study were not favorable for both groups. There did not exist a significant difference between baseline and treatment. All of the social stories were created to individual meet the needs of each child. The stories referenced topics of interest that each student was expected use when intiiationg a conversation. These results did not mirror Kuttler and Myles suggestions that the ability for this intervention to be individualized is what contributes to the success of social stories (Kuttler, & Myles, 1998). These findings also did not confirm Gray and Garand's research findings that social stories have provide positive results when applied to children with social deficits (Gray & Garland, 1993).

The findings of this intervention did not imply that any significant effect generalized overtime. Gray (1995) and Miller (1993) suggest that social stories are capable of generalizing across settings (Soenksen & Alper, 2006). However, this study did not find that the stories' effects on social initiation generalize across time, therefore would not be capable of generalizing across settings.

There was no significant in the effects of social stories between the AS and ASD group across all three conditions. Table 4.1 displays the little difference that existed between both groups in all settings. The findings were not congruent with Rowe's research, which suggested that children with AS strongly respond to social stories (1999, as cited in Greenway, 2000). Gray even suggested that they are more appropriate for children with AS (1994, as cited in Greenway, 2000). However, this study does not support the literature which exists.

Limitations

There are several variables which were assumed to contribute to the failure of this study. Some factors were out the researcher's control and others were unexpected. These limitations have the ability to educate future researchers on how to improve the likelihood of a successful intervention.

The participant selection was chosen by the teachers and behaviorist of the school. This investigator had no control over which students would be selected. Due to the lack of responses by the parents, only two children with Asperger's Syndrome were selected and the other four were what made up the autism group. The two individuals who had AS were not professionally diagnosed with AS. As Greenway suggests, AS is not used to classify students within the school (Greenway, 2002). There is a good chance

that the desire to fulfill the group influenced a mis-categorization of any or both of the subjects in the group. Regardless, the sample size was too small to make an accurate analysis.

The social stories were administered by the teachers of the students. Therefore, the time to read the stories was limited and under the convenience of the teacher and possibility of a social situation. The stories were read one-on-one with the teacher and student, but in a loud lunchroom with many other students around. Research suggests that for the best results, distractions should be avoided and the reader should sit behind the student when reading to them (1994, 2000, as cited in Ivey, Heflin, & Alberto, 2004).

Ali and Frederickson explain that students might experience distress when there environment is altered (Ali, & Frederickson, 2006). The presence of book during lunchtime, a student's break from academic tasks, could have limited the effects of social stories. The students did enjoy reading along, but did not discuss or look at the book when it was done being read.

Sansosti and others explain that prompts and reinforcement improve the effects of social stories (Sansosti, et al., 2004). This intervention did not use prompts or reinforcement when the child initiated socialization. The teachers and investigator both agreed that they would have increase the likelihood of future social initiations.

The inter-observer reliability measures were not high. The data collectors only agreed 68.57% of the time. The teachers were adequately trained on how to measure

which behaviors constitute as social initiations. However, the loud lunchroom and difficulties of observing all six subjects at one time limited the quality of data collection.

Future Research

Future studies can apply the information found on the limitations of this study to replicate a more successful study. A larger sample size is necessary to draw acceptable conclusions. Even though Asperger's Syndrome is still not used to classify students in educational settings, it is necessary to determine the significance in differences between both groups. A more controlled setting would contribute to more adequate measures and an effective implementation of the intervention.

Conclusion

The purpose of this study was to take a closer look into the population that social stories serve. This study did not provide essential information on whether or not the effects of social stories differ between children with Asperger's Syndrome or those with autism. Due to the small sample size and extraneous variables, a total affect of social stories was not concluded.

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