

Are Social Stories an Effective Intervention Method for Children Diagnosed with Autism  
Spectrum Disorders and Related Developmental Disorders?

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Honors Thesis

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November 11, 2015

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### **Abstract**

The prevalence of Autism Spectrum Disorder (ASD) is growing at a steady rate. With the growth of diagnoses, successful intervention methods are needed. This literature review examines the effectiveness of the social story intervention method for children with ASD. It is important to consider all of the possible factors that go into the social story process. For example, the social story method may vary according to the setting of implementation, the implementer, the age and diagnosis of each participant, and the structure of the specific social story. The existing research shows that the social story method is an effective intervention for most children with ASD no matter the varying characteristics that the social story holds. Therefore, both special education and general curriculum teachers should be made aware of this process and use it more frequently in their classrooms. Pre-service teachers need to be taught how to create and implement a social story before going into the field of education.

*Keywords:* ASD, social story, intervention, evidence-based, meta-analysis

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## Are Social Stories an Effective Intervention Method for Children Diagnosed with Autism Spectrum Disorders and Related Developmental Disorders?

The purpose of this research is to evaluate an early intervention method for young children diagnosed with Autism Spectrum Disorder (ASD). Autism Spectrum Disorder refers to a lifelong neurodevelopmental disability affecting a child's social interactions and communication skills. "Once considered a low-prevalence disorder, ASD is currently one of the most common forms of developmental disability" (Boyd et al, 2010, p.75). The Centers for Disease Control and Prevention (CDC, 2014) claims that one in every 68 children is diagnosed with ASD, which is a 100% increase in prevalence in just one decade. Males appear to be 5 times more likely to be diagnosed with ASD than females (Baio, 2014). The research and interest in ASD is growing with the increasing diagnosed number of cases. This study will seek to understand the effectiveness of an evidence-based intervention method: social stories. Social stories are short stories or illustrations written to explain and elaborate on a simple social norm (Cosgrave, 2013). This study explores whether or not these social stories are successful in improving the communication and social interaction skills of young children on the autism spectrum.

### **History of Autism- Moving to New Diagnosis of Autism Spectrum Disorder**

In the early 1900s, Eugen Bleuler, a Swiss psychiatrist, coined the term "autism" (Weintraub, 2013). This word comes from the Greek word "autos," meaning "self," and ultimately signifies "an isolated self." In 1911, Bleuler started using this term to signify a specific group of symptoms of individuals who had schizophrenia. Later in 1940, the term "autism" had spread to medical researchers in the United States to refer to a group of children who demonstrated difficulty in social and emotional domains. Therefore, the terms 'autism' and

‘schizophrenia’ remained connected in research until the late 1960s when medical professionals redefined the understanding and the term of ‘autism.’

Kanner (1968) observed 11 specific cases of children having some sort of common disturbance in the early 1900s. Each child, 8 boys and 3 girls, had their own individual differences or degrees of disturbance. However, “the outstanding, pathognomonic, fundamental disorder” that stood out in each case was the children’s “inability to relate themselves in the ordinary way to people and situations from the beginning of life” (Kanner, 1968, p. 242). Their parents referred to these children as “self-sufficient,” “happiest when left alone,” “perfectly oblivious to everything around them,” and “failing to develop the usual amount of social awareness.” These characteristics vary from schizophrenia, because in these cases the children are not departing from a formerly existing relationship. Instead, they seem to have been born with an extreme feeling of aloneness that shuts out any stimulus coming to them from the outside world. The onset of schizophrenia can appear in a child after multiple years of average development, while children with autism show evidence of this extreme seclusion from the very beginning of life (Kanner, 1968, p. 248).

Autism Spectrum Disorder, under the Individuals with Disabilities Education Act (IDEA), is classified as “a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child’s educational performance” (Fenell, 2013, p. 1). Characteristics or symptoms that are associated with ASD are engagement in repetitive activities, resistance to environmental and daily changes, and uncommon responses to sensory experiences. The National Dissemination Center for Children with Disabilities (NICHCY, an acronym derived from its original name: National Information Center for Handicapped Children and Youth) explains that a particular

child's common traits determine their exact diagnosis, and the three major categories to investigate are social interaction, behavior, and communication.

The DSM-5, Diagnostic and Statistical Manual of Mental Disorders- Fifth Edition (2013), now defines autism as Autism Spectrum Disorder (ASD). ASD is referred to as a broad term describing a wide variety of complex brain developmental disorders. Previously, under the DSM-IV, these spectrum disorders included four subtypes: Autistic Disorder, Childhood Disintegrative Disorder, Pervasive Developmental Disorders-*Not Otherwise Specified* (PDD-NOS), and Asperger's Disorder. Recently, under the DSM-5, many of these autism disorders have been modified and merged into one large umbrella diagnosis of ASD. Autism Spectrum Disorders are now associated with certain intellectual disabilities, along with difficulties in social communication and repetitive patterns of behavior. This expanded diagnostic criterion could most likely lead to a significant rise in autism prevalence (Autism Speaks, 2013). However, the DSM-5 has not been in use for long enough to determine a significant change; there is ongoing research keeping track of how the prevalence of ASD is changing (Autism Speaks, 2015).

The root of ASD appears in a person's very early brain development, but the initial signs of ASD are difficult to detect until a child is at least 2 or 3 years old (Autism Speaks, 2013). The human brain grows to approximately 80 percent of its adult size in the first three years of life and 90 percent by the first five years of life (Zero To Three, 2014). The earlier the diagnosis can occur in a child, the more effective and efficient the intervention will be in regard to outcomes later in life (Autism Speaks, 2013). With new early screening practices and effective diagnostic tools, clinicians and psychologists now have a better opportunity for identifying and diagnosing children with ASD in the first 2 years of life (Boyd et al, 2010).

Today, researchers often use the Modified Checklist for Autism in Toddlers, or M-CHAT, as a screening tool to determine whether or not a child should be assessed for the possibility of ASD. There are multiple different checklists and screening techniques similar to the M-CHAT that focus on the screening of ASD early in a child's early life (Autism Speaks, 2013). The most widely used formal assessment used for the diagnosis of ASD is the Autism Diagnostic Observation Schedule, second edition (ADOS-2). This tool is "a semi-structured, standardized assessment of communication, social interaction, play, and restricted and repetitive behaviors" for all ages (Lord et al., p. 1, 2012). The major increase in ASD prevalence over the past 50 years has been accredited to the heightened awareness and improved diagnostic research, the broadening definitions of the disorder, and an actual increase in the incidence (Ali & Frederickson, 2006). The growing numbers of children with ASD creates increasing pressure on schools and researchers to engage in successful intervention methods for these children.

Children diagnosed with ASD may have trouble developing their self-care skills. For example, brushing teeth, washing hands, and getting dressed may not come naturally to most children with ASD. Simple social skills like sharing, asking for help, and saying 'thank you' also may need to be taught to these children (The National Autistic Society, 2015). They may not understand how to act or behave in certain situations. For example, changes to a routine like the absence of a teacher, moving houses, and thunderstorms may result in stress and confusion. Children with ASD may also experience a number of behavioral difficulties including what to do when they are angry, how to cope with changes in the environment, and how to manage certain obsessions (The National Autistic Society, 2015). Children with ASD may also suffer from many



educational barriers, such as difficulty following directions, disinterest in the material, disruptive behavioral problems, and hindered ability to communicate and ask questions (Fenell, 2013).

The early diagnosis and early intervention methods of ASD are necessary because they have the power to lessen the challenging symptoms noted above for young children living with ASD. In one study, parents noticed symptoms of ASD in their children at very young ages (Matson, Rieske, & Tureck, 2011). Seventy-six percent of these parents suspected the onset of ASD before their child was 3 years old, and eighty-three percent of parents noticed that their child had symptoms before the age 2 (Matson et al., 2011). The problem remains that once the parents notice concerns they may not seek professional help until several months or even years later. This has triggered the importance of routine visits to the pediatrician. Pediatricians must be particularly conscious of specific developmental delays or symptoms of ASD in all infants and toddlers (Matson et al, 2011). It is not surprising that the “early identification of autism results in improvements in core symptoms of the disorder, as well as reductions in challenging behaviors, and improving advances in developmental milestones” (Matson et al, 2011, p. 1326). Certain strategies and approaches are implemented at the youngest ages possible to improve the lives of people with ASD.

The vast research of possible treatments for autism started with the original use of medications such as Lysergic acid diethylamide (LSD), electric shock, and behavioral change techniques (Weintraub, 2013). These behavioral change techniques included applied behavioral analysis (ABA), which involved adults instructing and guiding children with ASD throughout their lives (Weintraub, 2013). Finally in the 1990s, researchers discovered the success of behavioral and language therapy intervention along with highly controlled learning environments for children with autism (Weintraub, 2013). These treatments include speech-language therapies,

augmentative and alternative communication (AAC) methods, sensory integration (SI) therapies, and physical and occupational therapies (Autism Speaks, 2013). During this time period of intervention research, “social stories were developed in order to support individuals with autism to better cope with social situations” (Ali & Frederickson, 2006, p. 355). Social stories are one of the major approaches or intervention methods that focus on teaching detailed social skills to young children with ASD (The National Autistic Society, 2015).

### **Definition of a Social Story**

A social story depicts a certain situation or common skill in regard to obvious social cues, perspectives, and everyday responses. In 1991, Carol Gray, the director of the Gray Center for Social Learning and Understanding, formulated this intervention method in order to improve the social skills of people with ASD. The social concepts are described in a specifically defined style of writing or illustrations, usually written from a child’s perspective (Spencer et al, 2008). These stories are set up in order to “respect the attention span and learning style of young children with ASD” (Gray, 2002, p. 18). Therefore, social stories, first written by Gray and published by *Future Horizons*, have grown to become more commonly used in both general education classrooms and social and language therapy sessions (The National Autistic Society, 2015). Social stories are one of the easier intervention methods to implement in schools. All that the specialist, teacher, or parent is required to do is read the social story and engage the child throughout the simplicity of the story. Social stories are especially helpful for children with ASD, but they can also be used for any children having difficulties understanding or following social norms. The most important aspect to remember when writing a social story is to make it simple and consider all of the child’s possible perspectives (The National Autistic Society, 2015).

**Purpose of a Social Story**

Most children with ASD are impressive visual learners (The National Autistic Society, 2015). This makes the social story method more beneficial because the stories are formally written out and illustrated in front of the child (The National Autistic Society, 2015). Social stories benefit a child with ASD's understanding of a seemingly confusing or difficult situation by presenting the social information in a literal, concrete, and visual way.

Social stories also assist with the sequencing and executive functioning, which improves the planning and organization of simple activities for children with ASD (The National Autistic Society, 2015). Offering information about what could happen in any given social situation to children with ASD can increase structure in their life and thus reduce social and emotional anxiety. Ultimately, social stories are implemented to develop self-care skills, social skills, academic abilities, and self-esteem for young children with developmental delays (The National Autistic Society, 2015). Social stories can also be used to help people understand the perspective of a child with autism, including why these children may respond and behave in certain ways (The National Autistic Society, 2015).

**Guidelines for Writing a Social Story**

According to *The National Autistic Society* (2015), Gray has developed strict guidelines for constructing a social story. The overall steps of writing a social story are picturing the goal, gathering the information, tailoring the text, and teaching with the title. A social story can be written by almost anyone: parents, teachers, counselors, or therapists. When the author is first setting up a social story, he or she must consider the overall social story's purpose and what a child might need to understand in order to reach the established goal. Then, all specific

information about the child needs to be taken into account, including age, interests, attention span, level of ability, etc. (The National Autistic Society, 2015).

There are seven different sentence types used in social stories, and these sentences should appear in a particular order or combination known as the “social story ratio.” This format consists of no more than one directive or control sentence, and then two to five of the remaining sentence types: descriptive, perspective, affirmative, co-operative, and partial sentences are used. The directive or control sentence offers many different ideas of acceptable behavior for the child with autism. The key is to stay positive throughout the story, and present all “information from an accurate and objective perspective” (The National Autistic Society, p. 1, 2015). Finally, the author must pick a title that accurately reflects the overall purpose of the social story. It is usually a question or statement that communicates the most important concept of the story (The National Autistic Society, 2015).

Multiple research studies have been performed to test the importance of Gray’s sentence structure. One study found that a social story containing Gray’s specific sentence ratio has the “potential to become a powerful, research-based instructional strategy” (Tarnai, 2012, p. 74). Another study argues that there may be other components of social stories that have just as much effect on children with ASD, like reinforcements or explicit teaching (Reynhout & Carter, 2006). Other factors may include the settings of social story implementation, who implemented the story, or whether or not it was age-appropriate for the child.

### **Importance of the Research**

This research on using social stories provides both teachers and parents with the knowledge of a possible intervention method that could successfully improve the social skills of their children with specific developmental disorders, such as ASD (The National Autistic

Society, 2015). As noted earlier, children with ASD have trouble recognizing other people's perspectives and feelings; these children lack what is referred to as the "theory of mind" (Cosgrave, 2015). Social norms and face-to-face communications are difficult and confusing for these children, because they do not have a theory of mind. Social stories work to reduce this social confusion by explaining social situations in the perspective of what another person might be thinking and why this other person behaves in a specific way (Cosgrove, 2015). The social stories are created to put a certain purpose or goal into a fun, relatable story for the children with ASD to read, look at, and imitate. These elaborate, illustrated stories are easier for children with ASD to trigger when necessary, rather than remembering what their parent or teacher had once told them to do (The National Autistic Society, 2015).

It is important to recognize whether or not this intervention method actually improves these children's social interactions, because the social stories were designed to help children with ASD understand social norms. This study will evaluate and analyze research using social stories for children with ASD ages 2-15 years old to determine the outcomes that social stories create in regard to easing their social situations. It is also important to discover the most beneficial environments, structure, and age to introduce these social stories to children with ASD. Numerous studies on this topic will be analyzed to determine the overall impact that social stories might have on children with ASD. Research findings also illustrated that the social stories were not as effective as other intervention methods (Kassardijan et al., 2014; Amin & Oweini, 2013; Reynhout & Carter, 2011). Other research shows that these social stories are only successful when paired with another activity, similar to reinforcement (Iskander & Rosales, 2013). This research study will include social stories that took place in both clinical and school

settings by both teachers and specialists (Iskander & Rosales, 2013). It is important to figure out the best setting in which to introduce a social story to a specific child.

### **Survey of the Literature**

Many recent research studies have been conducted to observe the effectiveness of social stories on educating young children with ASD. The studies vary in that some research combined the social story method with different intervention methods and some research focused on the different ways of implementing a social story, for instance the setting of implementation and the technology used. Most of the articles reviewed were research studies or meta-analyses of previous research studies. All of the studies reviewed involve student participants, ages 2 to 15 years old, that have been diagnosed with a disorder related to or on the autism spectrum.

#### **Combined Research Studies**

Iskander and Rosales (2013) examined the effectiveness of social stories when combined with a differential reinforcement procedure (DRO). These researchers focused on two elementary school males, ages 8 and 11, who had been diagnosed with both a pervasive developmental disorder-not otherwise specified (PDD-NOS) and an attention deficit hyperactivity disorder (ADHD). This study was categorized as “Research in Autism Spectrum Disorders,” meaning that both of these disorders were similar to or described as being on the spectrum in 2013. Iskander and Rosales (2013) implemented a multiple-baseline design across the two boys’ target inappropriate behaviors. These behaviors consisted of interrupting others and performing off-task conduct. Both social stories were written with Gray’s model and specific to each child’s problem behaviors. The initial social story was first read to the children by itself, and then the social story was repeated and paired with a differential reinforcement procedure (DRO). The DRO procedure added specific social approvals during the reading of the social story, like “you’re doing a great job staying on task!” After each social story was complete, the child answered a series of comprehension questions for the researcher to observe. These social story

sessions were conducted 2 to 4 times a day and 2 to 4 days per week in a quiet corner of each participant's elementary school classroom. At the conclusion of the social story training, there were visible decreases in all of the boys' inappropriate behaviors; therefore, the social story treatment or intervention had affected the children. The children's inappropriate target behaviors tended to decrease more rapidly when there was some reinforcement added within the reading of the social story. Therefore, the pairing of the social stories with the DRO procedure seemed to be more beneficial than the original social story implemented by itself (Iskander & Rosales, 2013). This study also called for further research on social stories (Iskander & Rosales, 2013).

Amin and Oweini (2013) also studied the effectiveness of social stories combined with other intervention methods for improving the social skills of young children with ASD. This combined method involved reading personalized social stories and undergoing peer mediated intervention methods for a seven-year old, first grade boy with ASD. This experiment was performed in an inclusive setting, a regular first grade classroom. A personalized social story was read to this young boy once a week. The social stories were designed with Gray's specific sentence structure and recommendations. After the social story was read to the boy each week, his teacher would group him with three typically developing students for a group project. These group projects required verbal communication, collaboration, joint problem solving, and joint attention to the specific task. This constant implementation of social stories and of peer-mediated intervention took place for a period of eight weeks. To determine the results, the researcher compared teacher ratings from the Conditional Probability Record and conducted informal interviews with the teachers and mother of this child before and after the eight-week intervention program. The researcher also spent two weeks before and after this eight-week intervention period observing and documenting the child's behavior both in the classroom and on the



playground. Based on the positive results, suggestions were offered for future research of combined intervention in school and clinical settings (Amin & Oweini, 2013). In this case, the social stories combined with peer-mediated interventions proved to develop more of the targeted social skills for the first-grade boy after just 10 weeks (Amin & Oweini, 2013).

Kassardijan et al. (2014) also conducted a combined study with more than one intervention method. These researchers compared the teaching interaction method to the social story method, both implemented in a group setting. The three participants were 5 years old and had been separately diagnosed with ASD. The researchers taught each of these students one social skill with the teaching interaction procedure, one social skill with the social story method, and one social skill with no intervention procedure (Kassardijan et al, 2014). The teacher interaction procedure involved didactic questions, teacher demonstrations, and role-play, while the social story procedure consisted of reading the visual story and answering comprehension questions. The social skill that was assigned to a no intervention condition was just taught by modeling and observing whether the child would catch on to the skill intuitively. The child's answers, performance probes, and responses to the intervention showed that the teaching interaction procedure was more effective than the social stories in regard to all three participants (Kassardijan et al., 2014). This study was a replication and expansion of Leaf's original study in 2012. The differences were that in this more recent 2014 study, all three participants were exactly 5 years old and had been diagnosed with ASD under the Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition Revised (DSM-IV R). The specific groups for which the intervention was implemented also included other children with ASD, other children typically developing, and the three participants with ASD (Kassardijan et al., 2014).

### **Setting of Intervention**

Spencer et al (2008) performed a different research study design that also examined social stories taking place in the specific school and clinical settings. The main purpose of this research was to assist elementary school teachers in encouraging positive behaviors and promoting learning for children with moderate to severe ASD. The social stories in this study were implemented as part of the child's Individualized Educational Program in their inclusive classroom. This research also examined the effectiveness of a generic social story for benefiting all of the elementary students. For example, there was a social story named "Library Day" for all of the 2<sup>nd</sup> grade students to read and learn from when taking a trip to the school library (Spencer et al., 2008). This research claimed that social stories are "a tool that can be used by teachers to encourage positive social behaviors by creating discussion in an accessible format" (Spencer et al., p. 1, 2008). This study also suggests that social stories can be beneficial for, not only, children with ASD, but also, for their typically developing classmates (Spencer et al, 2008).

Hanley-Hochdorfer, Bray, Kehle, and Elinoff (2010) also conducted a research study focusing on social stories that were implemented in a natural school setting. This meant that a teacher introduced the social story to the students in her classroom instead of stories being introduced at home or in a clinical setting. These researchers investigated if the use of social stories could improve pro-social behaviors such as verbal initiations and responses of children with ASD and Asperger's disorder. The participants consisted of three elementary school students and one middle school student. The social stories used in this study followed Gray's specific sentence structure guidelines and worked on improving the children's expressive and receptive language delays (Hanley-Hochdorfer et al., 2010). The results of this study suggested that the efficacy of social stories was still up for debate and in need of further research (Hanley-

Hochdorfer et al., 2010). It was suggested that “practitioners should exercise caution when using social stories alone to increase social and communication behaviors in students with ASD” (Hanley-Hochdorfer et al, 2010, p. 490).

### **Sentence Structure of Social Stories**

The authors of social stories usually write the story coming from the child’s perspective. Authors always write the stories specific to the child they are trying to teach a social convention lesson. Another aspect that might vary among social stories is the story’s sentence structure. Gray, the founder of social stories, created a specific format or sentence ratio that all social stories are recommended to follow (Tarnai, 2012). Tarnai (2012) conducted a study “to investigate if Gray’s recommended sentence ratio is an essential component of social stories” (p. 58). This study included ‘contextual’ social stories, containing Gray’s sentence ratio, and ‘directive’ social stories, omitting Gray’s sentence ratio. These two types of stories were compared in teaching social skills to six school-aged children diagnosed with ASD (Tarnai, 2012). The children in this study ranged in age from 9-11 years old. The three students that read the contextual social stories demonstrated more consistent improvements in their performance levels, while the directive social story readers showed regression in their performances. Additionally, the contextual social stories seemed to encourage responses and reactions. These researchers found that because the contextual social story seemed to be more effective than the directive social story, Gray’s specific sentence structure must be an essential part of a social story (Tarnai, 2012).

### **Technology**

Many recent studies have been investigating the idea of bringing technology into the implementation of a social story. According to Xin and Sutman (2011), “computer technology

can enhance the effect of social stories in teaching social and behavioral skills to children with ASD” (p. 19). These researchers tested this idea in their study using Smart Boards as the primary method of teaching social stories to children with ASD. Two special education teachers used their Smart Boards to display and communicate a social story to two 9-year old students with ASD (Xin & Sutman, 2011). The teachers were able to take pictures and show the self-modeling of the students on the Smart Board. The high-tech social story’s lessons included visuals of individual students self-modeling social skills to encourage their classmates with ASD (Xin & Sutman, 2011). “Social stories, combined with self-modeling and interactive learning processes through the use of the Smart Board, have the potential to increase the engagement of children with ASD” (Xin & Sutman, 2011, p. 24).

Radley, Jenson, Clark, Hood, and Nicholas (2014) conducted a similar experiment by using multimedia social intervention methods to improve the social skills of children with ASD. The researchers introduced a different social skills intervention method, the “Superheroes Social Skills program,” which included multiple evidence-based practices. Teaching these lessons through technology was thought to increase social engagement between the students with ASD (Radley et al., 2014). This specific social skills program, similar to a social story on video, was used for preschool-age children with ASD to increase their time spent engaging with peers during free play periods. “Children with ASD have been found to learn best through visual processes,” which is why these video-based modeling approaches show improvement in the social skills of children with ASD (Radley et al., 2014, p. 23).

### **Meta-Analyses**

There have recently been an increasing number of research studies and reviews written about the intervention method of social stories for children with ASD (Mayton et al, 2013). Reynhout and Carter (2011) conducted a study evaluating some of this social story research. They investigated earlier meta-analyses, including 62 studies focusing on whether social stories were successful for all students with ASD (Reynhout & Carter, 2011). For all of these studies that were examined, there was a special focus on the participants between ages 5 to 9 years old with a diagnosis of ASD. Most of the intervention processes took place in the school or classroom setting, while the others took place in the home or clinic settings. The different settings proved not to be a big factor in the outcome of the intervention methods. The overall conclusion of this meta-analysis was that “social stories appear to have only a small clinical effect on behavior” (Reynhout & Carter, 2011, p. 897). In this research study, it was recommended that teachers and specialists should use multiple intensive interventions along with the social story method that would yield more significant improvements for children with ASD (Reynhout & Carter, 2011).

In 2013, Mayton et al became concerned with the quality and effect sizes of the growing research studies on the effects of social stories. These researchers performed a unique study using evidence-based practices (EBPs). Over a 12-year period, these researchers examined 33 single-subject studies taken from 13 different peer-reviewed journals. They focused on social stories acting as the education and treatment of young children with ASD. Most of these participants in the studies they examined were ages 5-9 years old, all diagnosed with ASD. There was a wide range of study characteristics, including the setting of implementation, the implementer, and the exact reported diagnosis of the participants. These researchers used other

intervention approaches to be able to measure the efficiency of the primarily used social story method (Mayton et al., 2013). All of the findings included positive results on or above standard acceptability with the evidence-based practice indicators (Mayton et al., 2013).

### **Methodology**

There have been many recent articles written and studies performed considering the rising prevalence of children with ASD. Educational researchers seem to be searching to find an effective intervention method that can teach children with ASD simple communication and social skills. This study was designed to analyze different research articles to determine how effective social stories can be on the early intervention of children with ASD. Social stories can be implemented in many different intensive and non-intensive environments, which could have affected the quality of the intervention.

### **Research Design**

This study is a literature review of peer-reviewed journal articles in scholarly databases that discuss the effectiveness of social stories as an intervention method for young children with Autism Spectrum Disorder (ASD). For this survey of the literature, different features of social stories were examined and compared to other early intervention methods. The purpose of this literature review was to determine how influential social stories can be on the social development of young children with ASD. This study also sought to determine the most effective setting, sentence structure, and age to implement the social story. Social stories are demonstrated to provide children with ASD certain social cues and visual representatives that these children need to learn to live by. Social stories can be written in any format and implemented in any setting by any individual. The purpose of this literature review was to pinpoint the most beneficial environment, implementer, and structure of the social stories. The results of this literature review were designed to show if there is a trend that younger children with ASD received better results from the social stories or if certain features of the social story are more beneficial than others during the intervention procedure. The peer-reviewed research articles that are discussed in this

literature review contain participants with ASD ranging from age 2 to 15 years old, and only the most recent articles have been reviewed, published from 2004 to 2014.

### **Data Collection**

**Scope of Literature Review:** Four main databases from the UNC libraries website were used to search for peer-reviewed journal articles dating from 2004-2014. The databases used in this study consisted of Education Full Text (H.W. Wilson), ERIC, PsycINFO, and PsycARTICLES. The majority of the articles reviewed came from Education Full Text or ERIC.

**Search 1.** Search 1 included only one relevant subject heading. In both ERIC and Education Full Text, the term “social stories” was searched. Five informative articles about the effectiveness of social stories were found in this search.

**Search 2:** Search 2 included two relevant subject headings: “social stories” and “ASD” in the Education Full Text, ERIC, and PsycARTICLES database. Seven appropriate articles were found regarding the implementation of social stories in this search.

**Search 3:** Search 3 included two relevant search terms: “Autism” and “IDEA” in Education Full Text, ERIC, and PsycINFO databases. One explanatory article about the background and litigation of ASD was found in this search.

**Search 4:** Search 4 included the search terms: “children with ASD” and “social skills intervention” in Education Full Text and ERIC. This search contained one important article focusing on the early multimedia intervention method to increase the social skills of children with ASD.

**Search 5:** Search 5 included the search terms “early detection and diagnosis” and “autism” in the databases Education Full Text, ERIC, and PsycINFO. One article about the



importance of early detection and diagnosis of autism was found. This article also included a review of available instruments that are used in this diagnosis process.

*Search 6:* Search 6 included the search terms “social stories” and “technology” to find articles about how technology might affect the social story implementation process. These key terms were searched in the databases ERIC and Education Full Text. One article was found regarding Smart Board use in teaching social stories to these students.

*Search 7:* Search 7 included the search terms “autism” and “prevalence” in the databases Education Full Text (H.W. Wilson), ERIC, and PsycINFO. Three studies were found on both the changing diagnosis and prevalence of ASD.

*Search 8:* Search 8 included all of the information that was not taken from a peer-reviewed journal article or from the UNC library database. WebMD, autismspeaks.org, the Special Education Guide, The National Autistic Society, and EducateAutism.com all contain more general information about ASD and social stories.

### **Criteria for Inclusion and Exclusion**

After finding more than 10 articles evaluating this topic, inclusionary and exclusionary criteria had to be developed. It was first decided that only the journal articles published in the last 15 years (from 2000-2015) would be reviewed as relevant to this study. Each of these articles included the implementation of a social story to at least one child with ASD or a similar developmental disorder. The age of these young participants ranged from ages 2 to 15 years old.

The exclusionary criteria included the articles with children that had been diagnosed with different psychiatric disorders. The definition or diagnosis of Autism Spectrum Disorder has changed in the past five years with new research; therefore, most of these older articles include children with ASD that might not be classified as having ASD today. For example, some of these

articles included children that have Asperger's disorder, which is recently no longer the terminology used (DSM-V). The research studies also included children with ADHD and PDD-NOS, which do not fall under the wide autism spectrum. Another example of exclusionary criteria was the setting or environment of implementation and who the implementer was in each case. For most of the research studies, a special education teacher in the school or classroom setting implemented the social story. Some of the other studies could have included a parent, specialist, or mainstream teacher implementing the social story in a home or clinical based setting. Each of these small factors needs to be taken into consideration when looking at the results of the literature.

### **Data Analysis**

When analyzing the data, Appendix B was created to categorize the 13 research studies depending on the types of social story interventions that were used in each study. This table sorts the 13 studies by many factors, including the publication date, number of participants, diagnosis and age of participants, setting of intervention, interventionist, combined intervention methods, Gray's specific sentence structure, the structure of implementation, the target behavior of the social story, effectiveness of the story, measurement of success, technology used, and the time period of the study. For the meta-analyses, most of the characteristics were recorded as "varied," because each meta-analysis reviewed multiple different characteristics of social story methods.

## Results

This literature review identifies the overall themes found among 13 different research articles concerning the effectiveness of the social story intervention method in regard to children with ASD. The trends among these multiple research studies offer ideas of how effective and efficient social stories are for these children. Overall, social stories seem to be somewhat beneficial for all children with ASD no matter their level of diagnosis or the structure of the intervention. The participants' target behaviors in most of these studies decreased, to some degree, as a result of the social story method. All of these studies include somewhat varied intervention methods that could have affected the overall outcomes that the social story had on the participants. Specifically, the dates of the study, the setting of the social story, the interventionist that implemented the social story, the age and diagnosis of the participants receiving the social story, the structure of the social story, the technology involved with the social story, and the multiple combined intervention methods could have impacted the effectiveness of the intervention. However, it was discovered that none of these factors had huge impacts on the effectiveness of the social story method, because eleven of the studies resulted in positive support of social stories. To illustrate this, a detailed table of all of the peer reviewed articles is included that categorizes all of these articles by their specific features (see Appendix B).

### **Overall Effectiveness of Social Stories**

Eleven of the thirteen studies found social stories to be effective to some degree. Five of the thirteen studies discovered gains in the children's overall social communication after implementing the social stories. The remaining six effective studies found improvements in the

specific social interaction skill that the stories were targeting: specific behavioral issues, participation skills, table setting skills, making choices, and explaining a prior event to peers.

For the majority of these studies, the intervention success was measured by taking baseline observations of the participants both before and after the social stories were implemented. In nine of the thirteen studies, the success was measured depending on baseline observations. The researchers took notes on the child's behavior before, during, and after the intervention period of the social story to figure out its effectiveness. Other studies used Social Behavior Assessment Inventory (SBAI) rating scales, questionnaires, and informal teacher and parent interviews to determine the child's progress after the social story was implemented. In each case, the social stories seem to either benefit or not change the child's target behavior. Among the thirteen studies reviewed, social stories never caused negative impacts on the child participants. There are many factors that could affect the social story process, such as the setting, implementer, age and diagnosis of the child, and whether or not the story follows Gray's guidelines. However, in most cases that were studied, the social stories proved to work as a positive intervention method for young children with ASD no matter the variability in implementation context.

It also seems consistent throughout most of the studies that the children genuinely enjoy the social stories. It was apparent that the child participant in Amin and Oweini's (2013) study enjoyed the social story sessions, because it was recorded that "he asked to go to the library on several different occasions," which is where the social story intervention took place (p. 114). Other studies also pointed out that the children seemed more engaged and interested in social story methods.

**Target Behavior**

The social stories' target behaviors varied among the different research studies. In five of the thirteen studies, the social stories that were implemented targeted overall, social interaction and communication skills for the children with ASD. Three of these five studies found the social story method to be effective in teaching the children broad social skills. In Reynhout and Carter's (2009) meta-analysis, over 90% of the social stories were aimed at social interaction skills specific to a certain child. The type of social skill that was targeted varied throughout the research articles reviewed including initiating conversations with peers, sharing with peers, and participating in small group activities. The children tended to respond better to the social story if it was specifically developed for their personal target behavior. All six of the thirteen studies that included social stories targeted at a child's particular behavior, proved to be effective for that specific child. This offers the idea that more personalized social stories might benefit children at a higher rate. Similarly, Reynhout and Carter (2011) found that social stories that target multiple categories of behavior "performed slightly lower than those that targeted a single category" of behavior (p. 890). According to the common traits of ASD, it would make sense that these children might have a hard time focusing on more than one target behavior at a time. The majority of the social stories made for young children with ASD focus on a certain child's interactions with other children. For example, Amin and Oweini (2013) focused on using a social story to remediate the social skills in a first-grader with ASD who is attending a mainstreamed classroom. With the assistance of peer-mediated group work, this social story method was shown to be effective, and this first grader became more outgoing and social throughout the 8-week social story intervention period (Amin & Oweini, 2013).

### **Setting of the Social Story**

The clinical setting of where the social stories were implemented and the effectiveness based on the setting is discussed below. The school setting, whether in a general education classroom or a special education classroom, was the most common place for the implementation of a social story. Six of the nine single-subject studies were implemented in some kind of general education or special education classroom in a school setting; five of these six studies found the social stories to be effective in the school setting.

The other four effective studies were meta-analyses and included studies in varied settings, most within a school-based system and some within the home or clinic. Reynhout and Carter (2011) reviewed over 60 different research studies about the effectiveness of social stories on children with ASD or similar disabilities. These studies were recorded to have taken place in six different settings including: inclusive schools, special classes, special schools, homes, community clinical, and community general. More than half of these reviewed studies took place in the school setting, including inclusive and special education classrooms (Reynhout & Carter, 2011). They found that 44% of their reviewed studies were conducted in a special education school setting with extra support; however, “there was little difference in the efficacy of the intervention whatever the setting” (Reynhout & Carter, 2011, p. 894). However, in Mayton et al’s meta-analysis, the researchers found that “in examining EBP [evidence-based practices] acceptability ratings by implementation setting, studies conducted in schools/classrooms had the highest percentage of acceptable ratings across EBP standards” (Mayton et al, 2013, p. 211). Mayton et al’s meta-analysis results are strengthened with the observation that nine out of the ten school-based intervention studies reviewed here also determined social stories to be an effective method for children in the school setting.

**Implementer of the Social Story**

The effects of social stories might also come more from who the implementer is rather than where the process is taking place. Some studies had the researcher implement the social stories to the participants while others had the child's general or special education teacher reading the social story with the child. In eight of these thirteen case studies, either a trained researcher or a trained teacher administered the social story method. All but one of these professional studies found social stories to be successful. Among the other five research studies, two studies had the children read the social story to themselves. Both of these student-led studies found social stories to be successful; the participants in these studies were strategically chosen based on their reading ability and were ages 5-11 years old. There was always either a researcher or teacher guiding the child along as the he or she read the social story aloud (Tarnai, 2011; Ozdemir, 2008). Surprisingly, the students seemed to respond in an equally positive way whether an unfamiliar researcher or a familiar teacher implemented the social story.

**Age and Diagnosis of Participants**

The participants' ages in all of these studies ranged from children 2 to 15 years old. The majority of the participants studied ranged from ages 5 to 9 years old. Only five of the thirteen studies involved participants who were older than age 9. One of the effective meta-analyses found that the social story method was more effective and beneficial with the children under the age of 9 (Mayton & Menendez, 2013). Every participant involved in these thirteen studies had also been diagnosed with ASD or a related disorder, PDD-NOS or Asperger's syndrome. Similar to the Mayton and Menendez (2013) meta-analysis, the participants in the thirteen studies reviewed here have varying diagnoses of ASD; the "most prevalent diagnostic category was that of high-functioning autism, followed by low-functioning autism, Asperger syndrome, and

pervasive developmental disorder –not otherwise specified (PDD-NOS)” (p. 212). In the majority of these cases, social stories seem to be the most beneficial for children with any level of ASD under the age of nine. However, there was one case study that found the social stories were not effective for a small group of 5 year olds. These negative results could have been due to the unusual facts that the social story was implemented for a whole group of students and read to them by the researcher with no reinforcements or comprehension questions in a private agency setting (Kassardijan & Leaf, 2014).

### **Combined Intervention Methods**

The complexity of ASD calls for not just one, but multiple intervention methods necessary for these young children (Autism Speaks, 2010). Therefore, social stories are often paired with other interventions to increase the effect they can have on children with ASD. Seven of the thirteen studies included some kind of combined intervention method along with the reading of the social story. In addition, the majority of these studies included a reinforcement method, additional modeling, or other types of positive verbal prompting and feedback for the participants. Each of these seven studies found that the social story method combined with an alternative intervention method was very effective and beneficial for children with ASD.

For example, Iskander and Rosales (2012) examined the effectiveness of social stories being paired with a differential reinforcement on disruptive behaviors (DRO). This study was conducted by implementing one social story alone and then another social story paired with the DRO technique on two elementary school children with PDD-NOS and ADHD. It was found that the target disruptive behavior was somewhat decreased after the single social story was implemented, but after the DRO was paired with the story, the target behavior reduced down to much lower levels (Iskander & Rosales, 2013). The differential reinforcement of behavior



included all kinds of social praise during the post observations of the children; the teacher or researcher would say, “nice job staying on task!” or “I like how you waited your turn to speak!” (Iskander & Rosales, 2013, p. 1). Some researchers might not consider this praise and positive feedback as an alternate intervention method, because it seems natural and goes along with the purpose of the social story.

Amin and Oweini (2013) also conducted a study to determine the effectiveness of social stories paired with similar intervention methods. These researchers used a combined intervention method including personalized social stories and peer mediated intervention. The peer-mediated interventions, like peer-modeling or cooperative learning, have been known to improve social abilities and encourage participation among students with ASD in most situations. In this study, the social story sessions were found to have increased the child’s social interactions during the peer-mediated sessions. These social stories were successfully used as a preparation method for the child’s cooperative group work sessions. The peer-mediated, group work sessions gave this child a chance to rehearse what he had learned from the social stories into a natural setting. It was determined that social stories can be effectively used for preparing a child for an event that occurs right after he or she reads a story about that specific event. It is recommended in almost all of these studies that the implementer of the social story should include some reinforcement comments or comprehension questions throughout the social story intervention method (Amin & Oweini, 2013).

### **Gray’s Sentence Structure**

In ten of the thirteen research studies, each social story that was implemented was developed based on Gray’s recommended social story sentence structure. Eight of these ten studies found social stories to be effective for the participants. In the three studies that were

recorded as omitting Gray's sentence structure, the social stories varied with the majority of the stories actually following Gray's specific model. For example, in Reynhout and Carter's (2011) meta-analysis, over 80% of the social stories used in these studies claimed to follow Gray's specific sentence structure.

Tarnai's (2011) single-subject study explores the importance of Gray's recommended sentence ratio as part of a social story. Tarnai investigated this popular component of social stories by implementing and comparing a social story using Gray's sentence ratio and a social story omitting Gray's sentence structure. The "contextual" social stories, which followed Gray's guidelines, resulted in 100% improvement across all six participants in this study. This study was therefore "able to deliver empirical support for using Gray's sentence ratio in social stories" (Tarnai, 2011, p. 74). The "contextual" social stories, which followed Gray's guidelines, resulted in 100% improvement across all six participants in this study. Appendix A offers an example of a social story following Gray's specific sentence structure.

### **Structure and Technology in Social Story Implementation**

The structure and implementation of social stories has been changing with the growing equipment and technology that is becoming available in schools. Five of the eleven effective studies used technology within their social story implementation process. In Mayton and Menendez (2013) meta-analysis, 35% of the studies they reviewed had some kind of video component within the social stories. Chan et al (2011) conducted a multimedia school-based study having the social stories developed using Microsoft PowerPoint. The student participants in this study were instructed to sit at a computer and read through a social story PowerPoint presentation. This method allowed the students to progress through the social story presentation at their own pace, and it, overall, produced mild to moderate improvements among the three 8

year olds with ASD (Chan et al, 2011). Technology is a growing component of social stories, but not enough research has been done with this combined method to have a lasting effect on the intervention. However, it should be noted that of the five studies including technology within the social story intervention, all five studies found social stories to be effective for the participants.

### **Ineffective Studies**

Only two of the thirteen studies found the social story method to be ineffective. However, one of these “ineffective” studies was conducted in a private agency, where the researcher implemented the social story to a whole group of children without using reinforcements, which is an unusual social story process (Kassardijan & Leaf, 2014). In the other “ineffective” study, only 4 children were evaluated with the social story method, and the results differed for each child, therefore, the researchers could not make a valid claim that the social story method was either effective or ineffective for these children with ASD (Hanley-Hochdorfer, 2010).

### **Summary**

Overall, of the eleven studies that found social stories to be effective, the identical commonalities include: the social stories followed Gray’s specific sentence structure, the participants were between ages 2-15 years old, and the participants had previously been diagnosed with ASD or a similar disorder. It is important to keep in mind that other factors like the setting, topic, and implementation of the social stories varied throughout the studies. However, these differing factors did not prove to have huge, overall differences on the outcomes of the studies.

### **Discussion**

In trying to figure out the effectiveness of social stories for children with ASD, thirteen studies were reviewed. Overall, the studies determined that social stories are effective no matter why, where, and how they are implemented. Based on the overall characteristics and conceptions of children with ASD, social stories appear to be an effective and logical intervention method to improve social development. Gray explains social stories as “a visual and auditory means for introducing environmental information in a format that is understandable to an individual with ASD” (Ivey et al, 2004, p. 156). “Children with ASD take note of small details, and learn best when new concepts and skills are presented one step at a time” (Gray, 2002, p. 18). These stories take the time and effort to break down simple social skills and answer questions that a child with ASD may not ask or know to ask (Ivey et al, 2004). Therefore, social stories allow children with ASD to consider and feel comfortable with all of the small details involved in a social skill before putting it all together in a real world situation (Gray, 2002, p. 18).

### **Implications for Practice**

According to these thirteen reviewed research studies, social stories prove to be an overall beneficial intervention method for young children with ASD. One of the most important commonalities among the effective results was that all of the social stories were modeled off of Gray’s specific sentence structure model. Gray created this model in order to generate a consistent research base and make social stories comparable; it was created specifically for children with ASD to be able to read and understand social stories. Tarnai (2011) suggested that “the social-contextual component of Gray’s social story composition guidelines (instrumented through her sentence ratio) is a necessary part of the intervention” (p.71). Therefore, it seems that all teachers, parents, psychologists, and other professionals should create their social stories in

compliance with Gray's specific sentence structure or model (see Appendix A for an example of what this looks like).

Another significant trend for teachers and parents to keep in mind is that seven of the eleven effective studies in this literature review used some kind of reinforcement or additional intervention method. Similarly, Reynhout and Carter's (2011) meta-analysis found that when comparing their studies where additional strategies were implemented with the single-subject studies, the use of these additional reinforcement strategies resulted in higher rates of the child's compliant behavior. Therefore, teachers, parents, psychologists, and other professionals who might be implementing a social story to a child with ASD should use reinforcements and comprehension commentary throughout the reading to receive the full effect.

### **Limitations of the Research**

There are multiple limitations that have to be considered when reviewing these thirteen studies. These limitations include the publication year of the studies, the small sample sizes, the somewhat varied measures of success, external factors and bias, varied target behaviors, and inconsistency among social story methods. All of the peer-reviewed articles were published between the years of 2004 and 2014; nine of the thirteen studies were published before 2013. A lot has changed since 2013 in regard to research and the definition and diagnosis of ASD.

In 2013, psychologists and psychiatrists began using a different set of criteria when evaluating children for developmental disorders. The 5<sup>th</sup> edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) created a new diagnosis separate from ASD called social communication disorder (SCD). This diagnosis includes the children that have social and communication difficulties without the fixated interests and repetitive behaviors typical for children with ASD. The DSM-5 also revised the previous diagnosis criteria by combining the

specific subtypes of autism, like Asperger's syndrome and PDD-NOS, into one umbrella diagnosis of autism spectrum disorders (ASD). Researchers found that 83 percent of the children that were diagnosed with ASD under the DSM-IV would still receive the diagnosis under the DSM-5 criteria; however, the other 17 percent would most likely switch to fall under the new diagnosis of the social communication disorder (Autism Speaks, 2014). In regard to these thirteen research studies, all of the participants who were previously diagnosed with ASD, including the children with Asperger's and PDD-NOS, do not lose their ASD diagnosis. Autism Speaks explains, "if you have a diagnosis for ASD, you have a diagnosis of ASD for your life and should be entitled to appropriate interventions for the rest of your life" (Autism Speaks, 2014, p. 1). Therefore, the social story intervention method could still be applicable for all participants in these studies; however, it is important to keep in mind that some of these children might not qualify for being on the autism spectrum if they were reconsidered under the DSM-5 criteria. The children that would not be classified as having ASD today might not benefit as much from the social stories, which would adversely effect the results of these studies. Even the participants who were involved in the most recent studies still held a diagnosis of ASD under the previous DSM-IV criteria.

Another important factor to keep in mind when analyzing these studies is the small number of participants involved in each study. The sample size ranges from 1-6 children in each single research study. Seven of studies examined only 1-3 students with ASD. These small sample sizes are not equipped to represent the whole population of children with ASD, especially because everyone with ASD is so different. ASD accounts for "a number of children whose condition differs so markedly and uniquely" (Kanner, 1968, p. 217). It is nearly impossible to generalize this population, because every child with ASD thinks and acts differently (Kanner,

1968). There are also many different levels of ASD included among the participants in the studies. For example, in one of the meta-analysis that was studied, the participants' diagnoses varied from high-functioning ASD to a low-functioning, severe ASD (Mayton et al, 2013). It is imperative to keep in mind that a treatment or intervention method that works for one child might not work for another child (Autism Speaks, 2010). Unfortunately, the criteria for inclusion and exclusion for the thirteen reviewed studies did not account for the number of child participants required in each research study.

It is also important to take into consideration the external factors and biases that went into each research study. For example, researcher's bias when implementing the social stories, combined intervention methods, and internal factors that the child participant might be dealing with. Many of these research studies, seven of the thirteen, included combined intervention methods, rather than just the implementation of social stories. Examining studies that used combined intervention methods makes it hard to determine which intervention method actually effected the child's participation and behavior. It is also possible that external or environmental factors could be the cause of a child's change in behavior; it is hard to find proof that the behavioral changes are coming directly from the social story itself (Amin & Oweini, 2013). Another limitation to consider is that among the six effective studies where the researcher implemented the social story, there might have been some internal research bias (Amin & Oweini, 2013). When selecting the thirteen studies to review and analyze, the implementer was not consistent throughout the search. It might have been more beneficial to review only studies where a teacher or professional implemented the social stories instead of the researcher, to avoid research bias.

### **Areas for Further Research**

Not only schools, but also, parents, tutors, researchers, clinicians, counselors, and many other educational professionals could benefit from understanding the effectiveness of a social story for young children with ASD. However, the research is limited on the effectiveness of the social story method for children with ASD. One of the most significant commonalities among the thirteen research studies that were examined in this literature review was that more research is recommended and needed on the topic of social stories for the field of education and psychology.

Considering the results and the limitations from this literature review, researchers should expand their studies on social stories for young children with ASD. One primary factor that should be taken into account for future research is including more child participants in the research studies, so that the studies have a larger sample size and therefore more strength in generalizing the population of children with ASD. Another avenue for future research is figuring out exactly who should implement the social story to the students with ASD. The social stories might be more effective if an experienced teacher is implementing the story rather than a pre-service teacher or a researcher (Kassardijan & Leaf, 2014). More research is needed on whether teacher or professional's experience impacts the overall effectiveness of the social story.

It is also beneficial for parents to learn how to use the social story method with their own children in the comfort of their home environment. The importance of early detection and early intervention for young children with ASD supports the idea that social stories would be beneficial when implemented for infants and toddlers as well as for school-aged children. Two of the eleven studies that found social stories to be effective included participants as young as age 2 (Ali & Frederickson, 2006; Reynhout & Carter, 2009).



It is also important for researchers to investigate the flexibility and timeline of social stories. The time period of future research studies should continue as long as possible, because the social stories might need to be implemented repeatedly for long periods of time to create a lasting impact on the child's behavior. This literature review did not examine the time periods and durations of the multiple studies; however, this would be a beneficial aspect for teachers and other professionals to know about the social story intervention process. Chan et al (2011) speculated that the effects of repeatedly read social stories might create long-term effects on a child's behavior. The social stories in this study were implemented everyday for 35 days straight, and the stories proved to make a lasting effect on all 3 participants' behavior (Chan et al, 2011). Chan et al's study, along with this literature review, probes for additional research examining the length and amount of times social stories need to be implemented in order for the stories to have a lasting impact on children with ASD.

Another avenue for the future research on social stories is to make sure that all the aspects of the study are steady and consistent to block out as much external factors and biases from effecting the child's changing behavior. For example, it is beneficial for each of the social stories to be structured and carried out in the same way in each research study, so that the effects of the social stories can be accurately compared.

### **Conclusion**

The purpose of this literature review was to examine the general effectiveness of social stories, and, specifically, what makes these stories effective for children on the autism spectrum. Overall, the thirteen research studies support social stories as an effective intervention method for young children with ASD, but also, recommend that more research be required to make any definite claims. The eleven successful social story studies found that the most effective

characteristics of a social story consist of including Gray's sentence structure, working with participants with ASD under the age of 9, implementing the story in a school setting, and personalizing the social story in regard to a child's specific behavior. The addition of technology and combined intervention methods along with the social story have also been found to work effectively in most cases, however more research is recommended. The field of education should take all of these beneficial aspects of social stories into account and implement this method in both general and special education classrooms throughout early grades in elementary schools.

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## Appendix A

### Playing Tag (*Social Story Title*)

Recess is a fun time when we can play tag with our friends on the playground. (*descriptive*)

Playing tag means that one friend chases another friend. (*descriptive*)

If it is my turn, I will chase my friend and touch them on their shoulder or back to let them know that is it their turn. (*descriptive*)

My friend will not want to play with me if I hit them. (*Partial*)

When someone tags me, then I will know that it is my turn. (*descriptive*)

Sometimes, I get scared and frightened when a friend is chasing me. (*descriptive*)

I know that the friend chasing me will not hurt me. (*affirmative*)

My friend will have more fun if I just keep running and play the game. (*partial*)

I will try to stay calm and enjoy the game when I am being chased on the playground. (*directive*)

My teacher will be there to help me if I fall down or get hurt. (*co-operative*)