The Impact of the Social Story Intervention on Children with Autism Spectrum Disorder (ASD) in Saudi Arabia

Marwan Alkhudhayri

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THE IMPACT OF THE SOCIAL STORY INTERVENTION ON CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD) IN SAUDI ARABIA

A Dissertation
Submitted to School of Education

Duquesne University

In partial fulfillment of the requirements for the degree of Doctor of Philosophy

By
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August 2023
THE IMPACT OF THE SOCIAL STORY INTERVENTION ON CHILDREN WITH
AUTISM SPECTRUM DISORDER (ASD) IN SAUDI ARABIA

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ABSTRACT

THE IMPACT OF THE SOCIAL STORY INTERVENTION ON CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD) IN SAUDI ARABIA

By

Marwan Alkhudhyri

August 2023

Dissertation supervised by Bridget Green, Ed.D.

Autism Spectrum Disorder (ASD) is on the rise in Saudi Arabia, and the field of Special Education is currently working to expand awareness about ASD as well as evidence-based intervention availability in the country. The Social Stories Intervention has been shown to have positive results in work with children with ASD in other countries, however its effectiveness in Saudi Arabia had not thoroughly been examined. The Social Stories Intervention provides an important tool for practitioners to use with children with ASD in order to help improve their social skills development. The current study utilizes a single-subject design to assess the impact of the Social Stories Intervention on children in Saudi Arabia. Results of the study are similar to other studies focused on the implementation of Social Stories with children with ASD in other countries, and demonstrated social skills acquisition and improvement in all four
participants. This study aims to promote the use of the Social Stories Intervention in Saudi Arabia and to encourage further research in the field of Special Education in Saudi Arabia overall.

*Keywords:* Autism Spectrum Disorder, Social Story, Social Skills, Saudi Arabia
DEDICATION

I would like to thank everyone who has supported me through the process of completing my academic career. I dedicate this dissertation to my parents who have provided their endless encouragement and support, allowing me to pursue my studies abroad. I would also like to thank the other members of my family and my dear friends. I sincerely appreciate all the love and support they have provided over the years.
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Chapter One

Introduction

The number of children with Autism Spectrum Disorder (ASD) across the world is increasing (Dardas & Ahmad, 2014; Vasilopoulou & Nisbet, 2016). Research indicates that the number of children with ASD in the 1980s was 1 in 10,000, while in the 1990s it was 1 in 2,500 (Autism Science Foundation [ASF], 2016). Recent statistics show rapidly increasing numbers; according to the Centers for Disease Control and Prevention (CDC) (2018), the number of children with ASD in the United States was 1 in 59 children.

In Saudi Arabia, there is no accurate data showing the prevalence of ASD (Alnemary et al., 2017). According to the Ministry of Education in Saudi Arabia (2015), there were 1,362 students with ASD who were receiving services under the Ministry of Education and according to Al-Zahrani (2013), there were an estimated 35 in 1,000 children who had ASD in the country. However, the accuracy of these numbers may be questionable (Alotaibi et al., 2016). Alotaibi and colleagues indicate that the cause for inaccurate or insufficient data in Saudi Arabia is partly due to cultural stigma, which generally rejects the notion of disabilities, often causing the non-acceptance and lack of proper diagnoses and service provision.

Autism

The term “autism” was introduced in 1910 by Eugen Bleuler who originally defined autism as the absence of communication between people and their environment (Balakrishnan & Alias, 2017). The definition of ASD has changed regularly since the first description of Kanner in 1943 (Ure et al., 2018). Today, ASD is considered to be a
developmental disorder marked by difficulty with social communication, limited interests, and repetitive behavior (American Psychiatric Association, 2000).

More recently, the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (2013), altered the recognized criteria for autism. Instead of having three individual sets of criteria, which were social, communication, and repetitive behavior, it was changed to encompass only two sets of criteria: the repetitive behavior set and the new combination of the social set with the communication set, which is now called “social communication” (Grattan, 2017). The DSM-V uses ASD, as the proper terminology, although the term autism is still regularly used to describe the same disorder (Grattan, 2017). ASD is diagnosed through a comprehensive evaluation process, which matches the presentations of behavior of the individual to the criteria as it is described by the DSM-V. This diagnosis is performed by a team of qualified medical professionals. Behaviors typical of individuals diagnosed with ASD have the potential to hinder and/or disrupt learning and comprehension across various domains including social, communication, cognitive development, sensory processing, and typical behavior responses (Kuttler, 2017). Indicators of ASD may be observed in individuals as young as one year of age but are not generally acted on until later because of varying stages in typical child development (Kuttler, 2017).

Children with ASD encounter difficulty acquiring social skills; therefore, they need support, such as explicit directions or guidelines, to improve their social skills (Kuttler et al., 1998). Although ASD cannot be cured, it can be treated (Balakrishnan & Alias, 2017). Duncan and Klinger (2010), found that several social skills interventions can be used to improve the social skills of children with ASD. These interventions are
used with children with ASD to help them recognize and interpret social cues and behaviors, which helps to reduce the lack of understanding of social cues (Duncan & Klinger, 2010). These interventions include Social Stories, which is a tool for helping individuals with ASD acquire and utilize communication and social skills (Nelson, 2010), self-monitoring, which encourages students to be conscious of, observe, and record their behaviors (Ganz, 2008), and peer-mediated activities, which teaches typically developing peers strategies for interacting with individuals with ASD learn social skills (Neitzel, 2008).

Social skills can prove to be especially challenging for children with ASD in regards to communicating and comprehending social cues (Kandalaft et al., 2013). Children with ASD may struggle with limited and specific areas of interest, difficulty interacting and communicating with peers, and understanding and utilizing nonverbal communication, such as eye contact, facial expressions, and body language (Turnbull, 2013). It is important for children with ASD to learn social skills in order to become better learners and have productive lives (Toth et al., 2006).

Social interactions can be particularly challenging for children with ASD. Some children with ASD have a lack of social skills, which are needed for developing positive relationships, although the level of difficulty varies from child to child (Brovelli, 2017). Engaging in conversation, and maintaining conversation, can present further difficulty for children with ASD, especially in the event that the conversation does not revolve around their particular interests. This lack of social skills has a profound effect on the child’s likelihood of leading productive, social lives (Brovelli, 2017). When interventions are implemented early on in life, they will have a greater impact on assisting children with
ASD to learn particular social skills that will enable the child to develop social competence.

It has been noted that a principle deficit of social development for children with ASD occurs at preschool age when they are unable to make friends and unable to fit in with their peers (Kandalaft et al., 2013). Activities, like playing and talking to peers, are often difficult for children with ASD who tend to partake in repetitive play for lengthy periods of time (Brovelli, 2017). Teachers point out that the difficulties that children with ASD face in regards to social skills may be a direct result of the lack of social development in areas such as communicating and playing (Brovelli, 2017).

Within the social communication criteria for ASD, learners with ASD often struggle with language, starting from non-verbal language to multifaceted language (Turnbull, 2013). Nearly one-third to one-half of learners do not develop enough language skills via typical expression to meet environmental expectations while around one-quarter of people with ASD use nonverbal language (Turnbull, 2013). Communication among children with ASD is frequently identified via attributes such as interrupting while others are communicating and experiencing difficulty in knowing the right time to speak (Turnbull, 2013). Other attributes include focusing concentration on one topic alone and limiting a topic of communication to fewer interactions (Turnbull, 2013). Children with ASD also display speech patterns where they reverse pronouns and echo or repeat other people’s language (Turnbull, 2013).

ASD has been an important part of research since the 1960s (CDC, 2018). Genetic and neurobiological factors can have an effect on the appearance of ASD; however, neurocognitive functions play a key role in the behavior of the individual with
ASD (Demetriou et al., 2018). Early diagnosis and intervention are essential to the development of the abilities of children with ASD (Demetriou et al., 2018).

**Types of Interventions**

A number of interventions have been developed to help children with ASD. These include, Picture Exchange Communication System (PECS), Treatment and Education of Autistic and Communication related Handicapped Children (TEACCH), Self-monitoring, Peer-mediated intervention, Video Modeling, and Social Stories.

*Picture Exchange Communication System (PECS)*

PECS is an intervention that uses a system of pictures to assist children with difficulties with social-communication (Charlop-Christy et al., 2002). This intervention aims to teach functional communication with pictures, kept in the child’s PECS board, through its utilization of basic behavioral principles and techniques including differential reinforcement, shaping, and transfer of stimulus control via delay (Charlop-Christy et al., 2002; Jusoh & Majid, 2017). Through this intervention, children are taught how to use the board to make sentences with pictures in order to communicate wants and needs. The system focuses on a child’s initiation of requests, response to questions, and making observational comments (Flippin et al., 2010). PECS is used internationally for children with ASD (Flippin et al., 2010). Research has shown that PECS works effectively in increasing and improving social communication and decreasing the problem behavior in children with ASD (Flippin et al., 2010; Jusoh & Majid, 2017).

*Treatment and Education of Autistic and Communication related Handicapped Children (TEACCH)*

TEACCH is a University of North Carolina based autism program, which has added to the evidence-based ASD interventions (Mesibov & Shea, 2010). It uses a
structured teaching approach based directly on the evidence that individuals with ASD have common neuropsychological deficits and strengths (Mesibov & Shea, 2010).

TEACCH recommends four types of structure including physical structure, scheduling, organization of tasks, and the work/activity system. Physical structure refers to using visual identifiers to show an individual where specific activities happen and reducing distraction and overstimulation (Virues-Ortega et al., 2013). Scheduling deals with organizing the events of the day in a way that is easily understood and has meaning to the individual (Boyd et al., 2014; Virues-Ortega et al., 2013). The organization of tasks uses visual cues to show the individual the steps required for completing a task. The work/activity system works to increase the time that an individual is purposefully engaged in an activity by connecting the task to a sequence of activities (Boyd et al., 2014; Virues-Ortega et al., 2013).

**Self-monitoring**

Self-mentoring refers to a group of procedures taught to students to assist them in altering their own behaviors (Cooper et al., 2007). These procedures focus on teaching the student how to observe, assess, and modify personal behavior (Schulze, 2016). Self-identifying and working to change a target behavior through observation of the behavior are integral parts of the procedures (Lee et al., 2007). Self-monitoring has been proven effective with individuals with ASD through improvements of social, academic, and behavioral proficiencies (Holifield et al., 2010; Schulze, 2016).

**Peer-mediated intervention (PMI)**

PMI is a practice, which enhances social skills for children with ASD (Bass & Mulick, 2007; Chang & Locke, 2016). PMI works by using typically developing peers as
models for children with ASD in order to improve social initiations, social responses, and general social interactions (Chang & Locke, 2016; Watkins et al., 2015). The peers learn the methods for engaging students with ASD through conversation and prompting and maintaining topical interactions (Watkins et al., 2015). PMI can be helpful for individuals with ASD because peers are able to model appropriate social behavior, it is easy to find peers within the context of academic settings, and the acquired social skills can be readily practiced with peers (Chang & Locke, 2016). This practice is shown to improve social network inclusion, non-verbal social skills, play skills, reciprocal social-communication skills, and better overall social interaction and improvement in companionship for children with ASD (Chang & Locke, 2016; Watkins et al., 2015).

**Video Modeling**

Video modeling is a way of teaching that uses video recording and provides a visual model of the targeted behavior or skill (Franzone & Klingenberg, 2008). There are different types of video modeling including basic video modeling, video self-modeling, point-of-view video modeling, and video prompting (Ulke-Kurkuoglu, 2015). Video modeling is basically recording someone other than the child engaging in the target behavior or skill. Then, the video is watched by the child (Qi et al., 2018). Video self-modeling is applied to record the child showing the target skill or behavior and is reviewed later by the child. Point-of-view video modeling is when the target behavior or skill is recorded from the view of the child. Video prompting includes breaking down the behavior skills into steps (Ho et al., 2019). Each step is recorded with incorporated pauses during which the child attempts the step before showing the next steps (Franzone & Klingenberg, 2008). Video modeling is important for addressing the many challenges
of students with ASD. According to Ulke-Kurkuoglu (2015), video modeling is very effective especially in teaching and enhancing the social, communication, play, academic, and self-care skills of children with ASD. In recent years, many researchers have conducted and applied video modeling in many different settings with different ages ranging from preschool to high school (Ulke-Kurkuoglu, 2015; Franzone & Klingenberg, 2008; Qi et al., 2018). Video modeling has been successfully implemented to help improve the social skill deficits of children with ASD (Alzyoudi et al., 2015).

**Social Stories**

Social Stories has become a popular method used to enhance the social skills of children with ASD (Balakrishnan & Alias, 2017). This intervention relies on the use of short stories to help children with ASD to interpret and understand the confusion they experience in everyday social situations (Gray, 1997). Social Stories were developed with the goal of explaining social situations to individuals with ASD in which they have a hard time distinguishing pertinent social cues or predictable behaviors and comprehending the results of behaving in different ways (Barry & Burlew, 2005; Gray, 2004).

A Social Story is a brief story that is written to describe a social situation in a specific format to meet the child’s needs, improve skills, or thoughts, which is related to any cues and appropriate social reaction (Scattone, Wilczynski et al., 2002). Scattone and colleagues stated that the focus of Social Stories is to educate children with ASD on how to address their behavior in certain social situations. Social Stories describe the setting that the social situation occurs, and what would happen, who would be there, and why the child needs to behave in a certain manner (Scattone et al., 2002). Social Stories can be easily implemented (Crozier & Tincani, 2007).
Social Stories provide knowledge on what people are doing, thinking or feeling, the series of events, the interpretation of important social situations and their sense, and the scenario such as the what, when, who, and why sides of social situations (Sansosti, 2008). Sansosti et al. (2004), indicated that the goal of Social Stories is two-fold. The first aim of Social Stories is to define social situations, contexts, and the potential behaviors of other people and to provide an appropriate behavioral response that would help the children with ASD to engage. The second aim of Social Stories is to provide a way for these children to understand and respond to difficult social situations. In order to achieve these objectives, professionals, educators, and parents need to take into consideration that development and learning must be appropriate for age, focusing on social skills and on decreasing repetitive behaviors of the children (Johnson & Myers, 2007).

**Influence of Culture**

Culture has a huge influence on choosing an intervention for children with ASD (Ennis-Cole et al., 2013). Researchers must consider cultural influence before applying an intervention for children with ASD (Ennis-Cole et al., 2013; Tincani et al., 2009). Ennis-Cole and colleagues studied the effect of culture on ASD diagnosis and treatment for children with ASD and their families and found that any decisions that were taken by the families of children with ASD were affected by the family’s cultural background. In order to effectively apply certain interventions for children with ASD in Saudi Arabia, those interventions must fit in and be accepted within the overall culture. Social Stories, as an intervention, has never been tested in Saudi Arabia (Alotaibi et al., 2016).
It is well known that all children learn from stories (Rahim & Rahiem, 2012; Retnowati et al., 2018). Parents or caregivers tell their children stories in order to teach a lesson, as well as helping the children to understand the lesson. Specifically, in Saudi Arabia, there are two reasons that Social Stories may work successfully. First, telling stories is part of the culture of Saudi Arabia (Sewll, 2017). Stories are used to teach religious and moral lessons. The area of the world known as the Middle East, and in particular, the Arabian Peninsula, has produced some of the most famous stories and tales for centuries (Sewll, 2017). These stories are as much a part of the instructional tradition of the people of this region as they are part of their identity. Through the art of storytelling, information and cultural norms have been passed down from generation to generation, and continue to influence the people today (Sewll, 2017).

In 2017, Alannahar newspaper published a report about storytelling, which focused on the concept of the Hakawati to show how storytelling is an integral part of Arab instructional culture. Hakawati is a term that comes from the Lebanese word hekaya, meaning story. The Hakawati are storytellers who lived in the villages of ancient Middle Eastern lands (Hamadi, 2017; Nassar, 2006). Common oral tales like the 1001 (Arabian) Nights as well as epic stories of local and national heroes and religious stories would have been told to the people by the Hakawati (Hamadi, 2017; Nassar, 2006). Their art of storytelling prevailed during ancient times and remnants of this cultural activity can still be seen today (Hamadi, 2017; Nassar, 2006).

Secondly, Saudi Arabia is a Muslim country in which the religion of Islam plays an important role in the everyday lives of the people. The Quran, the holy book of Muslims, contains many stories from which the people learn and rely on for guidance in
their lives. The Quran was revealed in the Arabic language: Allah said about the Quran: "We have sent it down as an Arabic Qur'an that you might understand" (Kassis, 2007). This is another indicator that learning from stories may be a best learning style for Arab people (Alshugairi, 2018). For these reasons, Social Stories may work successfully for children with ASD in Saudi Arabia because storytelling is a part of the Saudi culture and beliefs and therefore, it will be more likely to have high social validity and treatment acceptability in the society, which may enhance its utility among children with autism in the region (Carter & Wheeler, 2019).

**Statement of the Problem**

The motivation behind this research is to work towards improving programming within Saudi Arabia when it comes to interventions for individuals with ASD. The number of individuals with ASD in the world, as well as in Saudi Arabia, is increasing (Dardas & Ahmad, 2014). Because the current state of programming is lacking in various areas, and limited interventions are available to children with ASD, it is important to understand how different interventions may be applied in other parts of the world in order to have the best outcomes in different contexts. Currently, there are no studies that have been conducted to test the effectiveness of Social Story in Saudi Arabia, which is a good place to begin to enrich the field of special education in Saudi Arabia (Alotaibiet et al., 2016). In addition, Alotaibiet et al. (2016), conducted a survey in Saudi Arabia about the implications of using Social Stories. Most of the teachers that responded to the survey highly recommended the application of Social Stories in Saudi Arabia. As indicated by Alotaibi et al. (2016), most special education teachers that participated in the study showed excitement about Social Stories with their students but they did not have enough resources to successfully apply it. The result of the survey showed that teachers of
children with ASD in Saudi Arabia were adequately knowledgeable of Social Stories as well as where they could get this intervention (Alotaibi et al., 2016). Developing Social Stories that fit the students’ culture, environment, and needs will help to improve the needs of students with ASD in Saudi Arabia. Also, the success of the intervention will give special education teachers in Saudi Arabia another alternative treatment that they can use for helping with social skills.

The Alotaibie et al. (2016), study demonstrated the need to study the use of Social Stories in Saudi Arabia because it is currently not used in the country and yet educators have shown interest in the intervention. Examining the use of Social Stories within the Saudi cultural context would help to change the way of teaching children with ASD in that part of the world. By testing the application of existing interventions that have been showed effective in places such as the United States, it will provide special education teachers with an additional tool to use in their classrooms. When Social Stories intervention is modified to be understandable and relevant for teachers and students in Saudi Arabia, it can be presented to teachers in a culturally effective way that will make them more likely to easily incorporate it into their teaching (Alotaibi et al., 2016).

It is important to recognize that although many studies indicate positive outcomes for the use of Social Stories, there are gaps in the existing literature. One such gap pertains to the difficulty of determining the overall effectiveness of Social Stories since Social Stories is often implemented in combination with other interventions, such as video modeling (Leaf et al., 2015). In this case, the research is not able to differentiate whether the outcomes of the study are a direct result of the Social Stories intervention, or of the combination of Social Stories along with another intervention (Sansosti & Powell-
Smith, 2008). Another gap is the lack of demonstrative experimental control, which is necessary to demonstrate the impact of Social Stories (Sansosti, et al., 2004). The lack of treatment integrity is another gap in the literature review as some studies were unable to display adequate treatment integrity (Sansosti & Powell-Smith, 2006). These issues need to be addressed in order to adequately evaluate the effectiveness of Social stories for individuals with ASD.

**Significance of the Problem**

There are major barriers in the special education field in Saudi Arabia including the limited interventions available to children with ASD (Sulaimani & Gut, 2019). These barriers coincide with the increasing number of children with ASD in Saudi Arabia (Al-Aoufi, 2011). Al-Aoufi stated that there was not enough access to services and interventions in order to keep up with the growing number of children with ASD in Saudi Arabia. Moreover, most of the interventions used with children with ASD lacked empirical support, which leads to ineffective results, therefore wasting time and money (Alnemary et al., 2017).

Children with ASD encounter difficulty acquiring social skills and they need support, such as explicit direction or guidelines, to improve their social skills (Ke et al., 2018). Duncan and Klinger (2010) found that several outstanding social skills interventions can be used to improve the social skills of children with ASD. These interventions are used with children with ASD to help them recognize and interpret social cues and behaviors, which help to reduce the lack of understanding of social cues (Duncan & Klinger, 2010; Jonsson et al., 2016). These interventions are social stories, scripts, role-plays, self-monitoring, and peer-mediated activities (Duncan & Klinger 2010; Jonsson et al., 2016). This study will focus specifically on Social Stories because
children with ASD experience difficulty in social skills and they need interventions that focus on improving their social skills. Social Stories is one of the most common and easy-to-implement strategies that promises to improve social skills among children with ASD (Karal, & Wolfe, 2018).

Social Stories are usually combined with other interventions. However, these combinations make it difficult to ascribe the treatment outcomes to Social Stories alone. For example, Sansosti and Powell-Smith (2008) paired Social Story with video modeling. This approach was effective, but it was difficult to analyze clearly which part of the intervention was effective because it is hard to isolate the effects of Social Stories from those of video modeling.

Furthermore, an interview with two special education teachers (Almohmadi & Almotayri, personal communication, October 7, 2019) who had been teaching for ten years in the field of special education in Saudi Arabia, revealed that the teachers only focus on organizing the classroom environment by using PECS and TEACCH. However, since children with autism are such a diverse group in terms of their characteristics, it is necessary to explore different types of interventions (Turnbull, 2013). Another challenge that educators face in Saudi Arabia is that parents of children with ASD often prefer biomedical interventions for their children more than non-biomedical interventions because they consider the non-biomedical interventions less effective (Alnemary et al., 2017). This may be so in part because of a lack of different evidence-based interventions such as the Social Stories intervention. Therefore, it is necessary to investigate the effectiveness of this intervention in Saudi Arabia. If Social Stories prove to be effective
in Saudi Arabia, it may be a breakthrough for special education teachers and children with autism in this region.

**Purpose of Study**

The purpose of this study is to test the effectiveness and applicability of Social Stories among children with ASD in Saudi Arabia. Social Stories has demonstrated the potential to be an effective intervention for children with ASD from other parts of the world, such as the US, and testing its effectiveness among students with ASD in Saudi Arabia will provide teachers in this region with additional resources and children with ASD with more effective and evidence-based instructional support.

**Research Questions**

1. Does the use of Social Stories enhance the social skills of children with ASD in Saudi Arabia?
2. Will children with ASD maintain the appropriate social skills obtained through the use of Social Stories?
3. Will children with ASD be able to generalize the appropriate social skills obtained through the use of Social Stories?
4. Is the Social Stories intervention for children with ASD considered socially valid in Saudi Arabia?

**Study Design**

This study will utilize a multiple baseline across participants’ design. The target behavior will be social skills. The multiple baseline across participants design allows the researchers to use one or more A-B designs and the baseline data concurrently (Cooper et al., 2007). The intervention can be implemented on one target behavior in one environment or on one participant at a time (Cooper et al., 2007). The multiple baseline is
considered as the most ethical and appropriate design because the treatment in this design would not be withdrawn and can include different participants, settings, and interventions if it is needed (Cooper et al., 2007). Since the target behaviors are easily observed, this design is suited for the current study. Also, using this design would be helpful to examine the effectiveness of the Social Story across different participants. It helps to examine the influence of the intervention on the participants who show similar needs.

**Definitions of Terms**

1. **Autism Spectrum Disorder (ASD)**

   **Autism Spectrum Disorder (ASD).** The Individual with Disabilities Education Act (IDEA) (2017) in Sec. 300.8 (c) (1) defines autism as “Autism means 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. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.”.

2. **Social Story**

   According to Gray (2004), Social Stories are defined as stories that “describe a situation, skill or concept in terms of relevant social cues, perspectives and common responses in a specifically defined style and format” (Gray, 2004, p. 4).

3. **Picture Exchange Communication System (PECS)**

   PECS is an intervention that uses a system of pictures to assist children with difficulties with social-communication (Charlop-Christy et al., 2002).
4- *Treatment and Education of Autistic and Communication related Handicapped Children (TEACCH)*

TEACCH is a University of North Carolina based autism program, which has added to the ASD interventions evidence base (Mesibov & Shea, 2010). It uses a structured teaching approach based directly on the evidence that individuals with ASD have common neuropsychological deficits and strengths (Mesibov & Shea, 2010).

5- *Self-monitoring*

Self-mentoring refers to a group of procedures taught to students to assist them in altering their own behaviors (Cooper et al., 2007).

6- *Peer-mediated intervention*

Peer-mediated intervention (PMI) is a practice, which enhances social skills for children with ASD (Chang & Locke, 2016; Bass, Mulick, 2007).

7- *Video Modeling*

Video modeling is a way of teaching that uses video recording and provides a visual model of the targeted behavior or skill (Franzone & Klingenberg, 2008).

8- *Hakawati*

*Hakawati* is a term that comes from the Lebanese word *hekaya*, meaning story. The Hakawati are storytellers who lived in the villages of ancient Middle Eastern lands (Hamadi, 2017; Nassar, 2006).
Chapter Two
Literature Review

Overview
The purpose of this chapter is to present the literature review, information about autism in Saudi Arabia, the theoretical explanation for social skills deficit, the theoretical framework for the Social Stories intervention, the structure of Social Stories, research about the Social Stories intervention, and limitations. Children with ASD with social skills deficit need additional support to improve those skills, and one of the available interventions for social skills deficit is the Social Stories intervention. In order to further examine the effectiveness of the Social Stories intervention with children with ASD, it is important to take a deeper look at the framework and structure of the Social Stories intervention as well as the supporting research and potential limitations.

Characteristics of Autism
For some time, educators have been working to determine the effectiveness of strategies intended to enhance the independence of children with ASD (Stahmer et al., 2005). There is no specific cure for children with ASD (Coeckelbergh et al., 2016). Therefore, treatment is focused on the improvement of quality of life and functioning for children with ASD. ASD is a developmental disability that significantly affects children's verbal and non-verbal communication, social interaction, and educational performance and often manifests in children under the age of three (Coeckelbergh et al., 2016). Additionally, communication is a significant social barrier for children with ASD. Deficits in language and communication skills are common among individuals that have been diagnosed with ASD (Muharib et al., 2019). It is estimated that approximately 30% of children with ASD do not acquire a functional level of spoken language (Muharib et al., 2019). Interventions specifically designed to improve upon communication skills,
especially language and speech skills, particularly skills of verbal communication, are a priority for further research (Muhabib et al., 2019).

Social skills present significant challenges in communication and understanding social cues for children with ASD (Kandalaft et al., 2013). They tend to have limited areas of interests (Brovelli, 2017). For example, they usually do not interact with others when the topics are not interesting to them. Also, they have challenges in understanding ongoing conversations (Brovelli, 2017). For instance, some may have difficulty engaging in conversation with others (Brovelli, 2017). They struggle with getting and following verbal and nonverbal communication. For example, it is difficult for them to interpret verbal and nonverbal communication such as keeping eye contact and using or understanding body language or facial expressions (Brovelli, 2017). These skills are very important for improving communication and social skills of children with ASD in order to become better learners and lead productive lives (Toth et al., 2006).

Children with ASD experience a deficiency in the social skills required for shaping and keeping positive relationships (Brovelli, 2017). The ability level of children with ASD to actively seek out and participate in peer interactions will vary. Some children with ASD do not experience as much difficulty with social interactions as others and are better able to interact with peers (Brovelli, 2017). However, the struggle they face is in their capacity to start and keep interactions, particularly communication that does not lead to their desired topic or activity choice. These difficulties in their social interaction impact their ability to become engaged and productive members of their communities and society (Brovelli, 2017). The earlier in life that interventions can be
implemented, the more effective they will be to help children with ASD gain important social skills that support the development of social competence (Brovelli, 2017). One of the major deficits of the development of social milestones for children with ASD in preschool is they neither develop friendships nor are accepted by their peers (Brovelli, 2017). Children with ASD experience difficulty when trying to play and communicate with their peers. They usually have repetitive play for long stretches such as spinning, flicking or lining up their toys. Many educators indicate the challenge in natural language, coping skills, and the number of social engagements may result from a lack of social engagement and play skills (Brovelli, 2017).

**Autism in Saudi Arabia**

The Ministry of Education’s Department of Special Education established the Rules and Regulations of Special Education Programs (RRSEP) in an effort to encourage the implementation of mainstreaming programming in order to include students with disabilities in regular classrooms (Aldabas, 2015). The RRSEP worked to implement particular components such as IEPs, individualized assessments, and specialized evaluation services as a common part of the education system in order to best serve the needs and rights of students with disabilities. (Aldabas, 2015; Alquraini, 2011).

However, In Saudi Arabia, exclusion from the public-school system is still taking place for children with ASD (Almasoud, 2010; Ghulman et al., 2017). According to Almasoud (2010), there are two reasons for this exclusion. First, the knowledge and overall understanding of ASD is still vague in Saudi Arabia. Second, the general education teachers are still not sure how to organize the classroom environments due to their lack of knowledge of changing their teaching style to meet the needs of children
with ASD. Moreover, (Ghulman et al., 2017) state an additional reason that schools are not prepared for mainstream students with ASD is due to the lack of poor training and provisions from the responsible institutions. A majority of public schools in Saudi Arabia tend to refer children with ASD to government run centers dedicated to the instruction of children with severe learning difficulties, without much consideration for individual intellectual ability and personal needs (Ghulman et al., 2017). Children with high functioning autism are likely to go undiagnosed due to educators not having the ability to recognize the signs of their high functioning autism. There are privately run centers focusing on autism, which have the ability to meet the specific needs of children with ASD (Ghulman et al., 2017). These centers are located in major cities and employ professionals in the field who are trained to work with the children throughout their lifetime. The specialists in these centers are able to utilize various approaches and employ different interventions. In both government run and privately run centers, they use TEACCH as the basis of their programming (Ghulman et al., 2017).

**Theoretical Explanation for Social Skills Deficits**

Two theories that are used to explain the deficits in social skills experienced by children with ASD are Theory of Mind (ToM) and Weak Central Coherence.

**Theory of Mind**

ToM states that individuals have the capacity to understand that other people have various thoughts, beliefs, and emotions different from their own (Beh-Pajooh et al., 2011; McCoy & McCoy, 2011). Children with ASD often show ToM deficits through their difficulty with social functioning. This can include poor social orientation, reciprocity, lack of or lowered attention to social cues, difficulty with imitation, lack of social interest, and difficulty with social eye contact, all of which can be recognized
before the age of three years (Bühler et al., 2011). Social Stories assist with social cues and information that may be missing for individuals with ToM deficits (Hutchins & Prelock, 2008). They are also in line with best practice for instruction for individuals with ASD and previous studies have shown that Social Stories help decrease various inappropriate behaviors (Hutchins & Prelock, 2008), and emerging information suggests that Social Stories are a powerful tool for enhancing ToM development (Hutchins & Prelock, 2008).

**Weak Central Coherence Theory**

The Weak Central Coherence Theory states that some individuals are unable to process the details of their interactions to form a bigger picture (Frith & Happé, 1994). This theory has been used to explain the challenge children with ASD have understanding the context of their relationships and interactions with others. They can be overly focused on the details. However, they experience difficulty regarding perceiving and understanding the whole picture or the essence of something (Frith & Happé, 1994). The ability to comprehend language requires a fusion of the skills of understanding literal language as well as context and nonverbal communication (Eberhardt & Nadig, 2018). Therefore, Weak Central Coherence provides a clear explanation for some of the visible communication deficits seen in children with ASD (Eberhardt & Nadig, 2018). In order to overcome the challenges of weak central coherence, in which the individual’s default cognitive style is prone to focus on details and local processing, it is recommended to utilize clear instructions for explaining context (Eberhardt & Nadig, 2018). Studies have shown that the Social Story intervention addresses the deficit of weak central coherence of individuals with ASD (Reynhout & Carter, 2011). Social Stories, which work through
explanation of complicated scenarios by pointing out important details, focus on the difficulties experienced by individuals with ASD that come from weak central coherence (Reynhout & Carter, 2011).

**Theoretical Framework for Social Stories**

In order to fully recognize the evolution of the utilization of Social Stories as an intervention for individuals with ASD, it is necessary to review the theoretical framework behind it. Carol Gray’s original work on Social Stories describes the foundation upon which the concept of a Social Story was derived (Bawazir & Jones, 2017). Gray stated that social stories depend on the increasing realization of social cognition in autism (Bawazir & Jones, 2017). Gray concluded that students with ASD need to learn social behavior based on understanding social cognition (Bawazir & Jones, 2017). When Gray started working on the Social Story intervention, she did not provide real theoretical engagement through substantial details or explanations. She indicated that the ability of Social Stories to teach social situations can be beneficial for children with ASD because Social Stories are a useful tool to help clarify and make manageable various social situations that might otherwise be misunderstood for children with ASD (Bawazir & Jones, 2017).

Gray substantiates her rationale for utilizing Social Stories by recognizing the theories that confirm the cognitive deficit of children with ASD. The theories are ToM and central coherence (Bawazir & Jones, 2017). However, these theories did not sufficiently demonstrate the functional relations between Social Stories and target behavior because the ways in which Social Stories lead to improvements in the behavior and social understanding of children with ASD is not directly considered (Bawazir & Jones, 2017). On the other hand, Reynhout and Carter (2011), stated that cognitive
theories should not be a focus in regard to how Social Stories improve change for
children with ASD. In the opinion of this researcher, the theory does not demonstrate the
functional relations between Social Stories and target behavior and is still not sufficient
and does not answer the question. By applying the Social Story intervention for children
from different cultural backgrounds, researchers may be able to reach an answer for that
question.

**Social Stories**

Children with ASD have a difficult time expressing their feelings to other people
and understanding others’ points of view due to their lack of ToM (Hutchins & Prelock,
2008). Gray and Garand (1993), stated that Social Stories could address and develop
ToM for children with ASD. Social Stories allow children to understand other people's
opinions and feelings (Beh-Pajooh et al., 2011).

Three rationales are behind the development and use of social stories. First, most
children with ASD experience a mental deficit, which impacts their capacity to learn and
comprehend social situations and to express appropriate responses (Gray & Garand,
1993). Gray and Garand determined that not only do children with ASD fail to
understand and respond appropriately to social situations but also that they have difficulty
accessing certain social information. As a result, children with ASD need an approach to
target behavior that provides an accurate understanding of the situation while also
providing the appropriate target behavior (Gray & Garand, 1993).

The second rationale behind Social Stories is the importance of understanding that
children with ASD encounter challenges with questioning skills (Gray & Garand, 1993).
The fundamental explanation of a social situation should contain a specific response to
unanswered and unsatisfactorily asked questions (Gray & Garand, 1993). Children with
ASD do not seem to comprehend that questions may be asked to get information from others (Loukusa & Moilanen, 2009). Based on that, children with ASD need to be taught who, what, when, where, and why questions when parents and professionals are teaching them social behavior (Gray & Garand, 1993). Children with ASD need to be taught how to ask questions and understand that other people have information that may be important to them (Gray & Garand, 1993; Ostryn & Wolfe, 2011).

The third rationale behind social stories is that social information needs to be presented in a format that is clear and easily understood by students with ASD (Gray & Garand, 1993). Using traditional teaching does not work well for children with ASD. They are unable to focus on the information being presented by the teacher and the social cues at the same time (Ploog et al., 2013; Tissot & Evans, 2003). Short Stories provide a more straightforward approach to teaching these children by allowing them to focus on one thing at a time (Gray & Garand, 1993). Because of that, social stories help to reduce the confusion in instructional interactions and give the children with ASD a direct route to the social information (Gray & Garand, 1993).

**The Structure of Social Stories**

Social Stories are designed to meet the individual needs of children with ASD (Scattone et al., 2002). Gray and Garand (1993) stated that Social Stories are built using two to five related sentences and have single words or words with a related picture. Every story contains four sentence types. Each contains a descriptive sentence, which is used to give knowledge about the place or actions. For example, “I usually go to art class on Monday and Wednesday with my classmates.” The directive sentence is used to educate students with ASD about what action they want to perform in a particular setting. For
instance, ‘when I go to my art class, I pay attention to what the teacher says to do in class.’ The perspective sentence is then used to show the feelings, beliefs, or response of others. For example, ‘my teacher likes when I work with my peer’. The control sentence is written by the child with ASD and used to help them to remember the situation when information is employed. For example, ‘when I pay attention to my teacher, I will imagine how to do what the teacher asks me to do’ (Gray, 1995). In addition, Gray (1995) and Gray and Garand (1993) recommended that one directive sentence is used for every two to five descriptive, perspective, or control sentences. The appropriate number of each sentence type is based on the needs of the child. Gray (1995) also states the child’s current experiences should be used in Social Stories to facilitate social information and combine that with reading and writing.

Three mechanisms can be used to implement Social Stories (Gray & Garand 1993). The determination of which mechanism to use depends on the needs and strengths of the child with ASD. First, if the child has the ability to read, teachers, parents or adults read the story twice to the child. Then, the adult sits behind the students and reads the story to the child followed by the child reading it back (Gray & Garand 1993). When the child gets familiarized with the story, the adult lets the student read the story individually once per day (Gray & Garand 1993). Second, if the child cannot read, the adult records the story on a cassette. Using a bell as a sign that the child needs to turn the page. In this case, the students need to learn to utilize the recording and to change the page by using the bell as a hint. The child reads the story once a day (Gray & Garand 1993). Third, Social Stories can be utilized for both children who can read or for children who cannot read. In this case, the Social Stories can be combined with videotape. While the story is
read loudly, the same page that is read aloud appears on the screen. This gives the child a choice to either listen to the story or read it with no sounds. Also, the child can read the story and listen to it at the same time (Gray & Garand, 1993).

Many methods are available to check how well the child understands the story. One way is the child can be given a checklist or questions to answer at the end of the story. Another way is to ask the child to role-play what they would do if the situation happened again (Gray & Garand, 1993). After the child acquired the behavior, the social stories need to be faded. Fading the story relies on the student’s ability. Some students, in order to obtain and maintain new behaviors, need to read the story a few times and review it for a month. Other students need to read the story many times to acquire the behaviors (Gray & Garand 1993). The instructors must observe the students to enhance the best way to fade the Social Stories (Gray & Garand, 1993).

**Research on Social Stories**

A few researchers have used the Social Story intervention by itself (Adams et al., 2004; Scattone et al., 2002; Al zyoudi et al., 2016) and in conjunction with other interventions (Hagiwara & Myles, 1999; Norris & Dattilo, 1999; Crozier & Tincani, 2007) to teach children with ASD social skills. The studies examined the effectiveness of the use of Social Story intervention, alone or in combination with other interventions, to target a variety of social skills, both verbal and nonverbal. Looking at these studies based on whether Social Story intervention was the sole intervention or if it was implemented along with another helps to understand if the effectiveness of this intervention is impacted by the addition of a second component. Social Stories have been used as
interventions to reduce negative behaviors (e.g., Scattone et al., 2002) as well as for increasing positive behaviors (e.g., Barry & Burlew, 2005).

**Reducing Negative Behavior**

Scattone et al. (2002) reviewed the efficacy of social stories to alter disruptive behavior of three children with ASD when introduced into the natural environment of the children. The authors employed multiple baseline across-participants design. The study showed a reduction in disruptive behavior of the children after the introduction of the social stories, however the level of improvement was different for each child. One limitation of the study is that two of the examined students were the same age and in the same class. It is not known if the social story implementation would have yielded different results if the children had been in different classroom environments. Another limitation for this study is a combination of studies: for one of the participants, another intervention aimed at improving on-task behavior was already being implemented when the social stories intervention was introduced. Although it is possible that the intervention aimed at helping with on-task behavior may have had a positive influence on the outcome of the implementation of the social stories intervention, it is not evident that the intervention had a great impact on improving the disruptive behavior.

Swaggart and Gagnon (1995) examined the effectiveness of using Social Stories to teach appropriate social behaviors and reduce inappropriate behavior. The specific social skills addressed were verbal greeting behaviors, managing aggressive behavior, and sharing materials with others. The participants included three children with ASD between seven and 11 years of age. The research design of this study was multiple baseline across participants. The first participant displayed aggressive behavior (i.e.,
pulling hair, squeezing arms). The other two participants showed aggressive behavior specifically when they were required to share with others. For example, they became angry and they screamed when others came close to them or their stuff. Swaggart and Gagnon used six social stories to address the target behaviors. Each participant was given two stories to address both verbal greeting and aggressive behavior. The result of the study showed a decrease in aggressive behavior as well as an increase in greeting behavior. Also, the increase in sharing personal belongings improved for the participants after implementing the Social Stories. One of the participants shared his belongings independently without any hint from the observer. However, a limitation in this study, that did not provide sufficient experimental control because of the application of the AB design, which was unable to differentiate the influence of the dependent variables.

Kuttler and Myles (1998) examined the effectiveness of Social Stories to decrease tantrum behavior (i.e., screaming, cursing, and dropping to the floor) for one 12-year-old with ASD. Kuttler and Myles implemented two stories to address and decrease this behavior. Also, they implemented the intervention at the time that the participant’s behavior most frequently occurred, which was during lunchtime and independent work. After the intervention, the participant displayed a decrease in the targeted behavior. While this study only included one participant, the results support those reported by Swaggart and Gagnon (1995). The main limitation of this study was that the intervention was implemented with only one participant.

Reynhout & Carter (2007) examined the effectiveness of Social Stories to decrease the undesired behavior of “tapping of hands during reading” for one student with ASD. The authors employed an ABC single-subject design which is not strong in
terms of demonstrating internal validity. However, result of this study showed a decrease in inappropriate behavior. It is difficult to infer the relationship between the social story and the target behavior as the result is not clear whether the decrease in inappropriate behavior came from the Social Story or from other confounding factors. One of the confounding factors is that the teacher was prompting the student by directing the student to the communication book. Although results for the decrease in disruptive behavior were positive, it is difficult to interpret whether the outcome would have been achieved without interference by the teacher.

Adams et al. (2004) examined the effectiveness of using Social Stories to decrease frustration behavior. The participant in this study showed frustration behavior, while doing his homework, such as crying (with or without tears), screaming (loud vocalization or verbalization), falling (from his chair), and hitting (an object or person). The authors employed a single case study with an ABAB design. After implementing the Social Story intervention, it was clear that the inappropriate social behaviors of the participant decreased compared to the baseline. The participant’s parents stated that Social Stories were helpful and useful. While the results of this study initially indicated that using Social Stories is effective in reducing inappropriate social behaviors in a participant with ASD, some limitations need to be considered. The participant’s parents usually took turns helping their child while he was doing his homework. The differences in their personalities may have affected the outcome. For example, the participant's mother was less tolerant than his father. His mother organized the homework session so that it prevented inappropriate behaviors. On the other hand, his father didn’t rearrange the homework session. These differences may have affected the participant’s behaviors.
Another limitation of the study was the parent's reaction toward their child’s request for help. For example, after the social story was implemented, the participant learned to ask quietly for help. However, when his parents insisted that he stay on the task, he became frustrated and showed inappropriate behaviors. Overall, the study showed that Social Stories was a useful intervention in decreasing inappropriate behaviors, although it is important to recognize the limitations due to the treatment integrity issues discussed.

Ozdemir (2008) examined the effectiveness of Social Stories on reducing disruptive behaviors for children with ASD. Three elementary students with ASD participated in this study; their ages ranged between seven and nine years. The author employed a single subject multiple baseline across participant’s design. Based on the observations, one disruptive target behavior was identified for each participant. The target behavior for the first participant was raising his voice loudly defined as the participant’s voice going above the typical level in class. The second participant’s target behavior was chair tipping defined as occurring when one chair leg broke contact with the floor. The last participant’s target behavior was cutting in the lunch line and pushing his peers. The result of the study showed that all participants exhibited a reduction in their specific disruptive behavior compared to baseline performance. Similar to Swaggart and Gagnon (1995), this study had three participants with similar disruptive behaviors, which were targeted by the intervention. Both studies produced positive results in reducing inappropriate behaviors. However, when interpreting these results, the verbal and reading skill level of the participants should be considered. All the participants in this study possessed high verbal language and reading skills. It is not clear if the intervention would be as effective for participants with lower verbal and reading skills.
Increasing Positive Behavior

Along with the ability to decrease inappropriate behavior, studies have indicated that Social Stories can increase positive behavior. Barry and Burlew (2005) examined the effectiveness of Social Stories on increasing the ability of children with ASD to make good choices and play appropriately during free time. They provided positive behavior support for two children with ASD by bringing typical peers into the same setting to serve as an example of making a choice with materials and playing appropriately. Social Stories were applied to teach the participants to choose an activity and engage with peers in the classroom. A variation of the single-case design was used in this study. For two elementary school children, the authors employed an ABCD multiple baselines across the two participants. Two dependent variables were used in this study. The first dependent variable was a choice prompting using a 5-point scale that assessed the participant’s ability to make choices based on the amount of prompting needed. The second dependent variable was the measure of the appropriate play compared to typical peers. The authors defined this dependent variable as the participant engaging with materials and/or peers similarly to the play activities of children without ASD in the classroom. The results of this study showed an improvement in participants’ ability to make independent choices and to play appropriately. A limitation that needs to be considered when interpreting the results of the study is the authors inadequately defined “appropriate play” as the participant engaging with materials and/or peers similar to the play activities of children without ASD in the classroom, but no standard of appropriate play was defined for typical peers.
Delano and Snell (2006) examined the effectiveness of Social Stories to teach appropriate social skills (i.e., initiate conversation, seek attention, make a request, and make contingent responses) to three children with ASD between six and nine years of age. They assessed the increase in the duration and frequency of socially appropriate engagement. The research design of this study was a multiple probe across participants. In order to determine the generalization of the intervention, six typical peers were selected by teachers to model appropriate play. During the intervention, the researcher read the story to each participant and then the researcher asked the participant four comprehension questions to assess the participant’s comprehension. The results of the study showed an increase in the social engagement for the three participants. Two participants were able to generalize the skills to their general education classroom. One participant failed to generalize the skill. The authors attributed this failure to the participant’s inability to generalize the skill from the intervention setting to the general classroom.

Wright and McCathren, (2012) examined the effectiveness of Social Stories intervention to teach appropriate social behavior to four preschoolers with ASD. The authors employed multiple baselines across participants design. The target behaviors for the participants were talking and initiating a conversation with peers who were similar to those targeted in the study by Crozier and Tincani (2007). The results of this study indicated that the use of Social Stories increased the targeted behaviors for the participants with ASD. However, this study had various limitations including a low number of participants, inconsistent outcomes, and the inability to define the particular characteristics of the participants that led to positive behavioral changes. Treatment
integrity is another notable limitation of this study, as a checklist was provided which only determined if the Social Story was read and if comprehension questions were asked to the participants, and no data is available in regards to the frequency with which the Social Story was read in the home environment. It is also unknown if the way the teacher presented the Social Stories, asked questions, and introduced other information had an impact on the outcome of the study.

Al zyoudi et al. (2016) examined the effectiveness of using Social Stories to increase the appropriate social interaction skills for children with ASD (i.e., responding when asked a question by the teacher, asking questions related to ongoing activity, and playing with peers without hitting). The authors selected the participants based on their inappropriate interaction skills (i.e., talking without raising hands, lying on the ground, and not following the teacher’s directions) they displayed in the classroom. The target behaviors were similar to those targeted in the studies by Crozier and Tincani (2007) (i.e., sitting appropriately, talking to peers, and appropriately playing with peers) and Wright and McCathren (2012). However, Al zyoudi’s study used a different design than these studies. A variation of a single-subject design was used in this study. For the three elementary students, the authors employed an AB multiple baseline design across participants. The authors wrote two Social Stories that were reviewed by two early childhood professors at the United Arab Emirates University in United Arab Emirates (UAE). The intervention in this study included reading Social Stories to the students and asking questions regarding how they would behave as they moved through their daily routine (e.g., circle time, morning bell). The results showed an improvement in the participants’ social interactions skills. Experimental control is a limitation of this study as
researchers were not able to control confounding variables such as the participants’
schedules before school as well as peer interaction upon arrival to school. Additionally, it
was not possible to introduce the intervention before initial contact with teachers in the
morning, which would have been preferable in order to facilitate target behavior
outcomes.

Sansosti and Powell-Smith (2006) examined the effectiveness of using Social
Stories on teaching social engagement. Three participants with ASD were included in this
study. Their ages ranged from nine to 11 years. The target behavior for the first
participant was sportsmanship, which was defined as sharing items with peers during
recess time. The target behavior for the second participant was maintaining conversation,
which was defined as engaging in small conversation during recess time. The target
behavior for the last participant was joining in, which was defined as playing with his
peers as a group. The authors employed multiple baseline across-participants design. The
results of this study indicated that Social Stories were effective in increasing social
engagement for the three participants. However, no evidence supports that the
participants were able to maintain the target behaviors once the study was
completed. Also, no data is presented about treatment integrity. Participants read the
social story in the home environment and it is therefore difficult to determine if the way
the story was read or the context of the reading had any effect on the efficacy of the
Social Story intervention. Journals were completed by the parents, and two of the
participants were successful in following this protocol. However, the third participant did
not complete this requirement, and therefore it is unknown whether or not the
intervention was properly implemented.
Hanley-Hochdorfer et al. (2010) examined the effectiveness of Social Stories on increasing verbal or nonverbal initiations to peers (e.g., saying a comment about an ongoing topic, sharing enjoyment about the activity, and acknowledging the peer through verbal responses). The authors used multiple baseline designs across participants. Four participants with ASD participated in this study. Their ages ranged from six to 12 years. Results of this study showed an increase in verbal or nonverbal initiations to peers for only one of the three participants. They did not show the use of Social Stories intervention to be effective in increasing the target behaviors compared to the baseline. The authors noted that the lack of effectiveness of the intervention in this study was due to not giving enough prompting to the participants and the prompting was not related to the lunchroom where the intervention was conducted. A limitation of the study was the participants weren’t able to generalize the stimulus used in the Social Stories to the lunchroom environment, which impacted the effectiveness of the social stories.

The number of studies conducted on Social Stories for adults with autism is limited. One of these was conducted by Karayazi et al., (2014) to examine the effectiveness of Social Stories on teaching greeting and nose wiping behaviors. The authors employed a single case study with an AB design. The study included one 22-year-old female participant. The results of this study showed an increase in the percentage of greeting behaviors with others compared to baseline. Also, the appropriate wiping nose behavior increased to 100% compared to the baseline, which was only 6%. As with all but one of the studies with children participants, the results of this study showed Social Stories to be effective in teaching positive social behavior to an adult. One limitation of this study was that due to no maintenance or follow up sessions; it was
difficult to determine whether participants were able to maintain the outcomes over time. Another limitation is that since the study only included one participant, it is difficult to generalize the results across a larger population.

In addition to the use of Social Stories intervention by itself to improve social skills for children with ASD, a number of studies have been done examining the effectiveness of the Social Story intervention in conjunction with other interventions. A study by Hagiwara and Myles (1999) focused on a targeted behavior for the participants in order to improve appropriate social behavior through the use of Social Stories and task analysis. This study included three participants with ASD between seven and nine years of age. The authors employed a single subject multiple baselines across settings. The target behavior for the participants was hand washing. Using task analysis, the authors divided the behavior into six steps. An additional criterion included for the third participant was duration of on-task behavior. The authors defined any of the following as on-task behavior: reading or reading aloud, having eye contact with teachers, writing, commenting related to the task in which the participant is engaged, answering teachers, and watching objects related to the task (i.e., computers, television, pictures). The results of this study showed that the use of multimedia Social Story intervention for the three participants was effective in the intervention setting. However, only some of the participants were able to generalize these skills in different settings. An example of behavior they were able to generalize was their ability to complete the six task steps to wash their hands.

Norris and Dattilo (1999) examined the effectiveness of using Social Stories in conjunction with visual analysis (video camera). To teach children with ASD appropriate
social behaviors (i.e., beginning or answering other students verbally and physically, such as tapping shoulders, handing something to or getting something from someone, and playing games with toys or lunch items). As part of the study, they assessed if the changes in the participant’s social interactions were only related to Social Stories. The participant was an 8-year old African-American girl who exhibited inappropriate behaviors such as talking or singing to herself and making noises. Three social stories were implemented to help her process her inappropriate social interactions, as well as learn appropriate behaviors. The participant read one of the three stories before lunch while the researcher sat next to the participant. The result of this study was that the Social Story intervention successfully decreased the participant’s inappropriate behavior. The combined approach of visual analysis (video camera) and Social Story intervention proved to be beneficial for this participant.

Crozier and Tincani (2005) examined the effectiveness of using a modified social story to minimize disruptive behavior. They also examined the implementation of Social Stories with and without prompts. One eight-year-old child with ASD participated in this study. The author employed an ABAC reversal design. The researcher read the story to the participant, and then let the participant read it. After that, the researcher asked the participants three questions and asked the participant to circle the right answer. The target behavior for the participant was to not talk without permission. The results of the study showed a decrease in talking without permission. The use of Social Stories with prompts was more effective for the participant (disruptive behavior remained at zero) than the use of the Social Story without prompts. Some limitations need to be considered when interpreting the results of the study. The use of one participant may affect the strength of
the results. In addition, using more participants would strengthen the conclusion of the study. Another limitation of this study was the ABAC design did not strongly demonstrate a functional relationship between utilizing verbal prompts and reducing challenge behavior. Using other designs (e.g., ABACBC) may help to demonstrate a functional relationship between the Social Stories and the target behavior.

Crozier and Tincani (2007) examined the effectiveness of Social Stories in conjunction with verbal prompt on teaching appropriate social skills (i.e., sitting appropriately, talking to peers, and appropriately playing with peers). They kept the use of prompts that they employed in an earlier study conducted in Crozier and Tincani (2005). The study assessed the ability of the participants to maintain the target behavior, the fidelity of the intervention implementation, and teachers’ perception of the intervention. Two variations of single-case design were used in this study. Three preschool age children participated in the study. For two of the participants, the authors employed an ABAB reversal design. For the third participants, an ABCACBC multicomponent reversal design was used as Social Stories alone did not improve the student’s behavior. The results of this study indicated that all the participants exhibited increases appropriate behaviors and decreases in inappropriate behavior. In general, the study found positive effects of using of Social Stories to help children with ASD learn social skills. Some limitations need to be considered when interpreting the result of the study. An experimenter who was not part of the classroom staff was present during the implementation of the intervention, which may have impacted the effectiveness of Social Stories because it interrupted the standard classroom routine. Also, the verbal prompt given to the participants was not observed independently making it difficult to tell if the
change in the student’s behavior happened because of the prompt itself or by pairing prompts with the Social Stories.

Scattone (2008) examined the effectiveness of combined Social Stories with video modeling in developing conversation skills (i.e., eye contact, smiling, and initiations). Scattone employed multiple baseline design across behaviors for one nine-year-old student with ASD. He defined three target behaviors: 1) eye contact, described as looking at the interaction peer for 3 seconds or more; 2) smiling, described as grinning or laughing; and 3) initiations, described as an unprompted comment or questions made by the participants who had to be directed to the partner. For instance, “You look great” or “How is your day going?” Baseline data were collected in two different settings: a clinic and school during lunchtime. In the clinic, the participant had a conversation with one of five adults who served as the interaction partner in this study. Also, in the school setting, the participant would have a conversation with a typical peer who served as the interaction partner in this study. The author videotaped the interaction prior to the intervention. The location of video recorder was close to the participant, so the author could observe his face clearly. The results of this study showed different levels of improvements in each skill for the participant. In eye contact, he was highly improved while in imitations he showed little improvement. However, in smiling skills, he did not show any difference compared to the baseline. Some limitations need to be considered to interpret the results of the study. First, one participant is not enough to generalize the study. Second, it is impossible to determine which one of the interventions (i.e., Social Story or Video Modeling) was the most effective in the participant’s improvements.
In the most recent research conducted by Sansosti and Powell-Smith (2008), they examined the effectiveness of using Social Stories presented on computer and video models on teaching social communication skills within a general education classroom for three elementary participants with ASD. This study built on the study they conducted by Sansosti and Powell-Smith (2006), using Social Stories, however in the current study, they added another intervention which is video modeling. The authors employed multiple baselines across-participants design. Sansosti and Powell-Smith (2008) determined the target behavior for each participant by interviewing their parents and teachers. The target behavior of two participants was joining in, defined as getting attention from peers verbally or gesturally (e.g., calling peer’s name, or tapping on peer’s shoulder). In addition, the target behavior for the last participant also included maintaining conversation (e.g., playing with another close by peer, responding to a partner’s question, or explaining a question or a response from a partner). Results of this study showed improvement in the participants’ social communication skills. A limitation of the study is that the independent variable included a combination of Social Stories, video modeling, and teacher prompting, which does not allow for any of the three interventions to be evaluated or assessed independently. Each one of these strategies individually could have a significant effect on increasing the social communication for students with ASD.

Chan and O’Reilly (2008) examined the effectiveness of a Social Stories package on teaching social skills. Two participants with ASD participated in this study; they were five and six years old. Chan and O’Reilly employed a single subject multiple probe design across behaviors. Different target behaviors were identified for each participant.
The targeted behaviors for the first participant were inappropriate social interactions (e.g., no personal space, causing the peer to move away), inappropriate raising hand (e.g., above shoulder), and inappropriate vocalizations (e.g., monosyllables, noises, and comments irrelevant to classroom activities). The target behaviors for the second participant were inappropriate hand raising (e.g., above shoulder), inappropriate social initiations (e.g., approaching peers and asking to play), and inappropriate vocalizations (e.g., comments irrelevant to classroom activities). Six stories were used in this study, one story per target behavior for each participant. Results of this study showed improvement in the participants’ social skills and a decrease in inappropriate vocalizations. Some limitations need be considered when interpreting the result of the study. First, the role-playing could have gained certain results independently of the Social Stories. Thus, it is impossible to determine which one was more effective. Second, the participant's language ability might have played a significant role in the intervention effects. Thus, participants without verbal ability may not gain the same benefits from the social story as participants who are verbal.

Mancil et al., (2009) examined the effectiveness of Social Stories presented in a different format. They compared Social Stories when presented in paper format versus in computer format. Three participants with ASD participated in this study; their ages ranged between six and eight years. The authors employed an ABABCBC single subject design across participants. The targeted behavior of the participants was pushing (i.e., grabbing, touching, and shoving other children). The teacher used the Social Stories intervention with the participants and explained the purpose of Social Stories. After the participants read the stories on paper and the computer, the teacher asked questions to
measure the participants’ understanding. The results of the study showed a decrease in pushing for children with ASD. The decrease in the targeted behavior was greater after the children read the stories on the computer than when they read them from paper. These results align with those from the study by Sansosti and Powell-Smith (2008) that also used computers to present social stories to the participants and showed an improvement in the participants’ social communication skills. However, the small sample size may have affected the outcome of the study. Another limitation of this study is the teacher gave a prompt during the generalization phase. The authors did not study the comparison of using a verbal prompt without a Social Story in different setting.

Acar et al. (2017) examined the effectiveness of using Social Stories combined with video modeling. They sought to determine which one of these interventions were more effective in increasing social skills to children diagnosed with ASD. Three mothers and their children participated in this study. The children’s ages ranged between six and ten years. Two target behaviors were identified for each participant. The authors selected these behaviors based on input from the mothers and teachers of the participants. The target behaviors for the first participant were: First, offering help (e.g., the mother holding bags and wanted to open the door, the participant learned to say, “Do you need help?”) and second, identifying himself (e.g., the participant learned to say his first and last name and the name of his school to people who are familiar with his family). The target behaviors for the second participant were: 1) asking for permission (e.g., the participant learned to say, “may I have your pen?” when he wanted a pen) and 2) picking up his toys (e.g., the participant learned to pick up the toys when he wanted to play with someone from home). The target behaviors for the third participant were first, identifying
himself (e.g., the participant learned to say his first and last name and the name of his school to people who are familiar with his family) and second, saying his address (e.g., the participant learned to say the name of his neighborhood, streets, and apartment). The mother of each participant sat next to the participant and watched the video together and then took the participants to where usually the target behavior occurred. Then, the mother provided questions related to that video. The results of this study showed all three children were able to learn their target behaviors. Both Social Stories and video modeling appeared to be effective in teaching social skills to children with ASD. However, video modeling was more efficient for two of the participants while Social Stories were more efficient for one of the participants. The results also showed that the mothers were able to implement Social Stories and video modeling effectively. These results align with the study by Adams et al. (2004) that showed parents could use Social Stories effectively to teach social skills to their children with ASD. One gap in the study is that each participant's target behavior was supposed to be similar in difficulty. Measuring the difficulty of these behaviors for each participant is challenging.

**Summary and Limitations**

This review discussed the efficacy and application of Social Story intervention in reducing negative behavior and enhancing positive social behavior among children with ASD. A synthesis of the results from these studies indicates that the use of the Social Stories shows promise in effectively increasing the appropriate social skills and decreasing inappropriate social behaviors of children with ASD. The combination of the Social Story with other interventions such as video modeling and prompting also shows sign of success in improving the social skills of children with ASD.
One of the benefits of Social Story intervention is the ease of applications of utilizing Social Stories by teachers and parents when working with children with ASD. Many studies reported that those who had to implement the Social Stories were able to do so with little effort in different environments such as school, home, and in other settings (Adams et al., 2004; Hagiwara & Myles, 1999; Ozdemir, 2008). Additionally, Al zyoudi et al. (2016) added that the process of writing the story was easy and did not consume a great deal of time when the stories were written with experts’ support. Other studies reported that no stigma was associated with implementing Social Stories in the classrooms. For example, the participants were enthusiastically sharing the stories and responding to other participants (Ozdemir, 2008). Their enthusiasm around the Social Stories encouraged positive social interaction between participants and their classmates. Also, the effectiveness of Social Stories was quickly apparent in the participants’ behavior (Al zyoudi et al., 2016).

Another aspect examined in the review is the implementation of Social Stories across children of different age levels. Most of the participants were between preschool and elementary school age. A single study included an adult who was 22 years old. The results primarily showed Social Stories to be effective regardless of the participant's age. For example, the outcome of the study by Karayazi et al. (2014) with the 22-year-old participant was just as effective as the outcome for the preschool age participants in the study by Wright and McCathren (2012). Overall, the results indicated that Social Stories work successfully across different ages. Even though Social Stories has been an effective intervention in increasing social skills as well as decreasing the disruptive behavior for children with ASD, some gaps exist in the current body of research.
Although there currently exists a positive understanding of the effectiveness of Social Stories as well as widespread implementation, meta-analyses have shown that the overall effectiveness is still unknown due to various limitations that have been discussed in this chapter (Leaf, Justin et al., 2016). One limitation is related to how studies use a combination of the Social Stories intervention with other interventions. When Social Stories are combined with other interventions, it is difficult to determine if it is the Social Stories intervention individually, the other intervention, or a combination of the components that is effective. For example, Sansosti and Powell-Smith (2008) paired Social Story with video modeling. This approach was effective, but it was difficult to analyze clearly which part of the intervention was effective because it is hard to differentiate the effects of video modeling from those of the use of Social Stories. A meta-analysis of Social Stories studies was conducted by Kokina & Kern, (2010), who determined Social Stories to be only minimally effective. Leaf et al. (2015) noted that the majority of studies, which have reviewed the Social Stories intervention, have been weak.

Another limitation is the lack of demonstrative experimental control in the studies done with the Social Stories intervention. Experimental control refers to the ways in which researchers lessen the impact of extraneous experience and other environmental variables reinforce the inference that the increases or decreases in the dependent variable stem directly from the independent variable (Cooper et al., 2007). This researcher reviewed various studies during the course of this research and the majority displayed poor experimental control. These studies, (Al zyoudi et al., 2016; Norris & Dattilo, 1999; Swaggart et al., 1995), did not demonstrate sufficient experimental control because of
their application of the AB design, which was unable to differentiate the influence of the dependent variables (Barlow & Hersen, 1984; Kazdin, 1982). Moreover, Scattone et al. (2002) displayed poor experimental control because one participant in the study was undergoing another intervention during the same period of time during the school day. The researcher cannot determine if the outcome was a result of the Social Story intervention or the other simultaneous intervention. Another example of failing to demonstrate experimental control was a study done by Wright and McCathren (2012), which had no available data about the frequency of the reading of the Social Story in the home environment. It is also unknown if the way the teacher presented the Social Stories, asked questions, and introduced other information had an impact on the outcome of the study. This limitation alongside different literature reviews such as Test et al. (2011); Kokina, & Kern (2010), and Bozkurt (2014), all criticized Social Story research on a lack of experimental control.

The literature on the use of Social Stories is also deficient when it comes to treatment integrity. For example, Adams et al. (2004) utilized an ABAB single subject design to observe the effectiveness of Social Stories in minimizing the frustration behavior of children with ASD. The efficacy of Social Stories was supported by the study; however, treatment integrity was not assessed. In another case, Smith (2001) relied on the use of pre- and post- evaluations to observe the effectiveness of Social Stories to improve various social behaviors. Although Social Stories was reportedly effective in this case, there was no experimental control and no demonstrable treatment integrity. In Sansosti & Powell-Smith (2006), journals kept by the caregivers of the participating individuals noted the reading times of the story each day. For two of the three
participants, treatment integrity was displayed. However, the third participant did not do the journal and therefore treatment integrity could not be assessed. The review done by Sansosti & Powell-Smith, (2006), showed that only one study included a measure of treatment integrity. These issues need to be addressed in order to adequately evaluate the effectiveness of Social Stories for individuals with ASD.

Another gap related to the studies using this intervention is a lack of cultural diversity. The studies reviewed were implemented primarily in the United States. For example, only one study was conducted in a country bordering Saudi Arabia - the UAE (Al zyoudi et al., 2016); however, the results cannot be substantiated without further replication. Children or individuals with ASD from other cultures may have other needs that should be specifically addressed in the social stories applied to them (Ravindran & Myers, 2012). Currently, in Saudi Arabia there have not been any studies done about the Social Stories intervention. The idea has been presented to educators in Saudi Arabia and they have indicated their interest in using Social Stories. It is therefore, necessary to investigate the effectiveness of this intervention in Saudi Arabia. If Social Stories prove to be effective in Saudi Arabia, it may be a breakthrough for special education teachers and children with autism in this region.

Given these limitations, experimental control, treatment integrity, and a lack of cultural diversity, it is necessary to work to minimize these limitations by expanding the available research to make the Social Story an evidence-based intervention. The Social Stories intervention shows promise to work due to its benefits, such as simple, inexpensive implementation and its applicability in different settings. Working to decrease these limitations would be beneficial for the teachers and parents.
important for children with ASD, who experience deficits in social skills, which affect their social engagement and productivity in their lives. Furthermore, the Social Stories intervention should be examined in Saudi Arabia, as it is not currently in use there and interest in its implementation has been shown. Applying the Social Stories intervention in Saudi Arabia would enrich the field of special education in the country and provide additional resources to teachers and children with ASD.
Chapter Three

Methodology

Overview

The purpose of this chapter is to present the methodology of the study by reviewing the selection and setting of the participants, the research design, target behavior and intervention, materials, measurement, procedure, which includes the baseline, intervention, maintenance, generalization, and data analysis.

The primary goal of this study is to examine the efficacy of Social Stories in Saudi Arabia. Social Stories will be tested in Saudi Arabia, text only, with Arabic translation without changing the nature of the Social Stories, without pictures, and through the use of culturally relevant narratives (e.g., Ramadan instead of Christmas), in order to evaluate the applicability of the Social Stories intervention for children with ASD and their instructors in that part of the world. Studies show the Social Stories intervention to be a promising tool for children with ASD, and with culturally focused themes, teachers in Saudi Arabia may be able to utilize this tool in their classrooms as well.

Participants

The participants for this study were four students with ASD: (a) Mohammad, male, aged 7; (b) Omar, male, aged 7; (c) Zeyad, male, aged 8; and Khalid, male, aged 9. At the time of the study, the students were all residents of Jeddah City, Saudi Arabia. All the participant’s first languages are Arabic. Mohammad and Omar attend first grade in the same school. Zeyad attends second grade in the same school. Khalid attends third grade in the same school. These participants were selected because they met the following inclusion criteria: first, participants must have a current diagnosis of ASD according to the DSM-V, second participants will not have received the Social Stories
intervention in the past. Any participants having a history of using Social Stories will not be permitted to participate in this research. Third, participants will demonstrate deficits in social skills.

Table 1

**Summary of Study Participants**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age (Year)</th>
<th>Gender</th>
<th>Social skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohammad</td>
<td>7</td>
<td>male</td>
<td>Joining in</td>
</tr>
<tr>
<td>Omar</td>
<td>7</td>
<td>male</td>
<td>greeting</td>
</tr>
<tr>
<td>Zeyad</td>
<td>8</td>
<td>male</td>
<td>continuing conversation</td>
</tr>
<tr>
<td>Khalid</td>
<td>9</td>
<td>male</td>
<td>waiting</td>
</tr>
</tbody>
</table>

**Recruitment**

The study took place in the city of Jeddah in Saudi Arabia. The participants were recruited from an elementary school Al Faisaliah Elementary School. After the researcher obtained the approval of the Institutional Review Board (IRB) at Duquesne University’s IRB, the researcher followed the steps below. First, the researcher sent the IRB approval to the Ministry of Education in Saudi Arabia to obtain permission to conduct the study in its school. The Ministry of Education approved the study, after which they identified potential schools where the researcher could draw participants from. The researcher called the identified schools and contacted the principals to explain the purpose of the study and the methodology of the research. The principal identified the teachers that have children with ASD in their classes. Over the phone or via virtual meeting using Zoom, the researcher explained the purpose and the methodologies of the study to the identified
teacher, and the teacher informed the parents of children with autism who meet the criteria for inclusion in the study. The researcher provided informed consent forms to the teacher who was able to provide those forms to the parents and asked consenting parents to return the forms directly to the researcher using self-addressed envelopes. The children whose parents would have signed the consent forms would be asked to sign assent forms indicating that they agreed to participate in the study.

**Participant Background**

As these participants met the established criteria mentioned previously, they were eligible for participation in this study. In order to determine the individual target behavior for each child, the researcher, once the consent and assent forms had been signed, reviewed participant information with the assigning teachers. Once the teacher identified a particular target behavior for the child, the researcher reviewed the need for work on said target behavior with the participants’ parents, who all acknowledged the accuracy of that need. The researcher then confirmed the need for work on these particular target behaviors through observation sessions via zoom. In order to recognize the individual social skills deficits for the four participants, the following information should be acknowledged.

The social skill targeted for Mohammad is joining in. The operational definition of joining in is when someone asks their peers to join them maintaining a body position that is oriented towards the recipient of the action of joining in and saying a phrase such as, “Excuse me, can I join you?” or “Would you like to play with me?” or “Would you like to play a board game?” For example, if a child’s friends are playing soccer, he should be able to ask, “May I join you?” instead of being rude or intrusive such as stating, “Play
soccer with me now”. When Mohammad is around other children, like his cousins, Mohammad does not know appropriate ways to ask to join them. For example, he may say, “Excuse me, can I join you?” or “Would you like to play with me?” or “Would you like to play a board game?” and so on.

The social skill targeted for Omar is greeting. The operational definition of greeting is when an individual, with their body oriented in the direction of the recipient of the greeting, gestures and/or uses a verbal phrase such as “Hi,” “Hello,” or “Good morning”. For example, the child should be able to say “Hello” to his parents when he sees them, maintaining direct body posture rather than ignoring them or starting abrupt conversation. When Omar wakes up in the morning, he does not know appropriate ways to greet his mom and sister, such as a smile and saying “Hi”, or “Good morning,”. Omar should be able to appropriately respond back with positive emotion such as a smile and saying, “Hi, good morning”, or waving his hands.

The social skill targeted for Zeyad is continuing conversation. The operational definition of continuing conversation is when someone stands in front of the other speaker with their body oriented in the direction of the other speaker who is receiving the action of continuing conversation and using phrases to indicate their participation in the conversation, such as “Right,” “Ok”, “Cool”. For example, if the child is engaged in an ongoing conversation, he should continue to acknowledge the conversation verbally by saying “right” while maintaining correct body position rather than not responding at all. When Zeyad sits to talk with his parents, he should listen to the conversation and demonstrate understanding (e.g., right, ok, cool), look in the direction of the parents, and continue the conversation. When he is confused, he should say “I do not understand” or
“I don’t get it”. The child is unable to wait and demonstrate patience, and when his mom prepares food, he cries, screams, falls off his chair, or hits.

The social skill targeted for Khalid is waiting. The operational definition of waiting is when someone who has asked for an item he desires demonstrates the ability to calm himself and show patience until he receives said item. For example, if a child asks to play with a toy he should be able to remain calm and patiently wait to receive the toy instead of reacting negatively by screaming, crying, or hitting. Khalid has difficulty to understand the concept of waiting: when he asks for any item he likes he feels that he needs it right away. For example, when he asks for straws, he is unable to wait for 10 seconds until his mom grabs it for him, and he would immediately cry, scream, fall off his chair, or hit. Also, he cannot wait for his mom to prepare the food.

Setting

Due to the COVID-19 pandemic, the study took place virtually via Zoom in Jeddah, Saudi Arabia. The participants connected with the researcher via Zoom from their homes. The caregivers were present while the participant was connected virtually to the researcher on Zoom. The caregivers provided information to the researcher in regards to the location within the home where the problem behavior(s) generally occurred. The researcher instructed the participants to connect virtually in the same area of the home where the problem behavior generally occurred.

Research Design

This study employed a single subject multiple baseline across participants designed to test the effectiveness of intervention. This design permitted the researcher to compare the baseline phase with the intervention phase across multiple participants. The baseline data collection started with each participant at the same time. The intervention
started at varying times for each participant depending on the level of stability for each participant (Cooper et al., 2007). When the baseline becomes stabilized for one participant, the intervention will be initiated for that participant while the baseline will be maintained for the other participants. When progress was made with the first participant, the intervention began for the second participant based on stability, and it continued for the other participants. This was repeated across the remainder of the participants. For this study, the dependent variable was the lack of a specific social skill or skills dependent on the individual participant. The independent variable was the Social Stories Intervention.

**Materials**

The materials used for this study include the Social Stories written using Microsoft Word in Times New Roman size 12. The Social Stories did not contain any visual component. The Social Stories were accessed using a computer. In addition to the Social Stories, the materials for this study also included the data collection sheet and a stopwatch. As the study will be conducted virtually, the researcher and the participants will use a personal computer with the Zoom application.

**Data Collection Procedures**

The multiple baseline design requires a staggering of intervention for participants. As such, the researcher began the study with one participant, Mohammad. The other three participants, Omar, Zeyad, and Khalid, remained in the baseline phase until it was their turn to receive the intervention. Mohammad’s joining in behavior increased once the intervention began. Once Mohammad’s performance became stable, meaning the data did not vary more than 50% of the mean of the baseline (Alberto & Troutman 2009), the intervention was then introduced for Omar, and so on. This procedure was the same until
all four of the participants participated in the intervention. There was a perceivable change in the target behavior of each participant after the intervention was implemented.

The researcher based the study on the specifications of the multiple baseline design. The study lasted about nine weeks, which included the baseline, intervention, and generalization and maintenance. In the baseline, the researcher started the study by observing and documenting the performance of each participant's target behavior. For example, Mohammad’s target behavior was joining in with others appropriately. The researcher used Zoom to observe Mohammad in his home with his cousins, a place in which the researcher was able to clearly observe his behavior and document the occurrences of difficulty with the target behavior. The researcher used the same technique of observing the other participants via zoom, as well.

**Baseline**

The baseline observation was conducted by the researcher directly via Zoom, with the participants connecting from their homes. Each participant’s baseline observation lasted for 10- minutes. The 10-minute observation session was divided into fifteen-second intervals for the researcher to record on his checklist whether or not the dependent variable occurred. All the participants had at least five baseline sessions. No intervention occurred during this period. If any instance of the target social behavior occurred during the 10-minute observation, the researcher recorded any dependent variable occurrences on the data collection form. When baseline data became stable, intervention began with the first participant (Mohammad), while the other participants stayed at baseline.
**Intervention**

Each participant had a minimum of five baseline sessions, and when the baseline data became stable, the intervention began. The intervention was started first with Mohammad, and the other three participants continued in the baseline phase. This process was the same for all participants until each received the intervention. The researcher determined the effect of the intervention based on an achieved change in each participants’ behavior once the intervention was introduced.

During the intervention phase, the researcher conducted the Social Story intervention three times a week for approximately three weeks via Zoom. Each session took approximately 10 minutes for approximately seven sessions. The Social Story was related to the target behaviors of social skills. In this phase, the researcher connected with the participants via Zoom for 10 minutes before the time of the day when the target behavior generally occurred. Then, the researcher began by reading the Social Story to Mohammad, and then the researcher asked Mohammad questions about the story, such as “Did you like the story?”, “What happened in the story?”, and “What will you do when you’re in that place?” The researcher helped if participants struggled to answer the questions. Some ways in which the participants may struggle include not understanding the questions by responding incorrectly or not at all. For example, the researcher supported Mohammad in the following steps. The first step the researcher took once Mohammad had shown that he did not understand was to repeat the question. Once the question had been repeated with no understanding or response, the second step required the researcher to provide a hint (i.e., rephrasing the question to include more information to help guide the participant to the answer) to Mohammad that would be the same hint
used for all participants. The hint helped Mohammad to understand the story and it was the same for all participants in order to ensure that the same amount of information was available to all participants. If the participant was still unable to respond after three hints, the researcher provided the expected response to the participant. The researcher did not track the participant’s performance on these questions. However, these questions helped the participants to understand the Social Story. After that, the researcher collected data in the same manner as in the baseline.

**Maintenance**

This phase started one week following the ending of the intervention phase. The maintenance consisted of two sessions via Zoom in the span of one week and its purpose was to assess if the participants still retained the skills they learned or not. This phase was only observation of the participants without implementing the intervention. The researcher collected data in the same manner as in the baseline.

**Generalization**

Generalization data collection started three days after the intervention phase ended. The researcher observed the participant during this phase to ensure that the participant was able to generalize the target behavior in different settings. The generalization phase lasted for four sessions and took place in a different setting than where the intervention was implemented. For example, the intervention for Mohammad was implemented in the living room of the home while playing a board game, and the generalization phase was implemented in the backyard. During the collection of the generalization data, the researcher did not implement the Social Stories intervention. This generalization data helped to show the effectiveness of the intervention in the different
settings where the target behavior generally occurred. After that, the researcher analyzed the data in the same manner as in the baseline.

**Inter-observer Agreement (IOA)**

The researcher was the main data collector. In addition, the participating graduate student was collecting data during 25% of the sessions. The participating graduate student was instructed about how to record behaviors using the data collection form before the beginning of the study. Interobserver Agreement was measured by the number of agreements and disagreements over the phases of the study. The agreements counted when both observers agreed that the behavior happened or they agreed that the behavior did not happen. The disagreement counted when the observers did not agree that the behavior occurred. Computing the percentage of inter-observer agreement was done by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100 (Scattone, 2008). Inter-observer agreement verification was conducted for 25% of the sessions to guarantee the integrity of data collection for the participants during each step of the study. The agreement between the participating graduate student and the researcher was over 80% agreement.

**Data Analysis**

The data was graphed and analyzed visually (Horner et al., 2005). The participants’ social skills performance was low during baseline, and increased during the intervention and maintenance phases, as expected. The graphs showed the performance of each participant. Three essential concepts gave a significant meaning for the visual analysis (Horner et al., 2005). Level, trend, and variability were examined using visual analysis (Horner et al., 2005). The level of the data, or trend, showed growth in the participants' performance during the intervention and maintenance phases. Based on the
anticipated increase in the participants' performance, the trend indicated the direction of the data. For example, the trend line in the baseline phase was expected to show a steady trend. The trend line in the intervention and maintenance phase was supposed to show an increasing trend. For example, in the case of Mohammad, the trend line in the baseline phase showed a steady trend of not using appropriate ways of joining in, and the trend line in the intervention and maintenance phase showed an increasing trend of using appropriate ways of joining in. Data was analyzed by using the effect size calculation. The use of the effect size calculation helped to demonstrate the level of effectiveness of Social Stories intervention to increase or decrease the dependent variable (Fisch, 1998). The effect size in the study was large, therefore the relationship between the dependent variable and the intervention was strong. The formula to determine the effect sizes comprised the difference between the mean score of the baseline phases and mean score of the intervention phases divided by the standard deviation (Velicer & Harrop, 1983).

**Measurement**

**Measure of Social Skills**

The dependent variable was measured by the researcher via Zoom by frequency in 10-minute observation sessions. Partial Interval Recording (PIR) is the observation of whether or not a dependent variable occurs during a specified time period. The ten-minute observation session was divided into 40 equal 15-second intervals with 40 boxes to record whether or not the dependent variable occurred. When the researcher observed the dependent variable during the two-minute interval, the box for that interval was marked with the number of times the researcher observed the dependent variable. When the dependent variable was not observed during the interval, the researcher marked the box with a zero. When the observation session was over, the researcher added the number
of occurrences in which the dependent variable was observed and determined the percentage of the intervals with the observed dependent variable. In order to keep track of the intervals, the researcher used a stopwatch.

**Measure of Social Validity**

Social validity was assessed by asking the caregivers to complete an Arabic language questionnaire comprised of existing questions from the Intervention Rating Profile-15 (IRP-15) developed by Martens et al. (1985). The IRP-15 is a version of the Intervention Rating Profile, which assesses the caregiver’s acceptance of intervention. The IRP-15 utilizes a scale in which each question is scored between one (strongly disagree) and six (strongly agree). The range of the IRP-15 score is from 15 to 90. The greater the score, the greater the acceptability of the intervention. In addition, scores above 52.50 are reflected to be acceptable (Von Brock & Elliott, 1987). The questionnaire was translated into Arabic as the caregivers, who were completing the questionnaire, are native Arabic speakers. The questionnaire was in English and was translated to Arabic by the researcher. The translated version was then translated back to English by a professional translator to minimize the potential for translation errors.

**Treatment Integrity**

Treatment integrity was assessed by using a checklist, in order to make sure the intervention was implemented exactly the way it was designed to be implemented. The researcher completed the data collection form containing the steps that participants needed to complete during each session of the intervention (Crozier & Tincani, 2005). The process utilized the following steps: (1) read the story, (2) answer the question, (3) ask for help if he or she does not know the answer. At the same time, there was a graduate student completing the same data collection form (Crozier & Tincani, 2005).
order to compare results, for at least 25% of the sessions the graduate student had to be present to record on their own data collection form the treatment integrity, while the researcher completed the data collection form 100% of the time.
Chapter Four

Results

Overview

The purpose of this study was to examine the efficacy of Social Stories for children with ASD in Saudi Arabia. Social Stories was tested in Saudi Arabia, with Arabic translation, without changing the nature of the Social Stories, and through the use of culturally relevant narratives. This chapter will provide details regarding the results of the study, the reported inter-observer agreement, social validity, and treatment integrity. The researcher connected with the participants via zoom and counted the number of occurrences of the individual target behaviors during periods of ten minutes per participant. Each participant had their own determined target behavior based on concerns reported by teachers as well as researcher observations.

Data Analysis

The data was graphed and analyzed visually. The participants’ social skills performance was low during baseline, and increased during the intervention, generalization, and maintenance phases, as expected. The graphs show the performance of each participant. The level of the data, or trend, showed growth in the participants' performance during the intervention, generalization, and maintenance phases. Based on the anticipated increase in the participants' performance, the trend indicated the direction of the data. For example, the trend line in the baseline phase was expected to be steady. The trend line in the intervention and maintenance phase was supposed to show an increasing trend. For example, in the case of Mohammad, the trend line in the baseline phase showed a steady trend of not using appropriate ways of joining in, and the trend line in the intervention and maintenance phase showed an increasing trend of using appropriate ways of joining in.
The Effect of Social Stories

Baseline

During the baseline phase, each session lasted 10-minutes. The researcher observed the participants via zoom. No intervention was applied during the baseline phase. Mohammad’s baseline phase lasted five sessions, during which time he performed the target behavior of joining in only once in five sessions. Omar’s baseline phase lasted 12 sessions, during which time he performed the target behavior of greeting others once in three different sessions. Zeyad’s baseline phase lasted a total of 20 sessions, and he performed the target behavior of continuing conversations one time in eight of the 20 sessions. Khalid had a baseline phase that lasted 26 sessions, and he performed the target behavior of waiting once per session during four 4 different sessions. For all participants, the range during the baseline phase was 0 to 1. Mohammad’s average was 0.2, Omar’s average was 0.5, Zeyad’s average was 0.4, and Khalid’s average was 0.16.

Intervention

Once the baseline data became stable for at least four sessions for the participants, the researcher implemented the intervention. The intervention was started first with Mohammad, and the other three participants continued in the baseline phase. This process was the same for all participants until each received the intervention. The researcher determined the effect of the intervention based on an achieved change in each participant’s behavior once the intervention was introduced.

Mohammad was the first participant to begin the intervention phase. Mohammad’s father introduced his son to the researcher via zoom. The researcher told Mohammad that he had a story and he would like to read it together. Then Mohammad sat in front of the camera and he had a copy of the story in front of him. After reading the
story, the researcher asked three comprehension questions. The researcher helped Mohammad if he struggled to answer the questions by first repeating the question, second providing a hint (see Chapter three), and lastly by providing the response if Mohammad was unable to produce the desired response. The researcher did not track the participant’s performance on these questions. However, these questions helped the participants to understand the Social Story. This procedure was the same for all of the participants.

During the intervention phase, after reading the story to Mohammad, the researcher observed Mohammad in order to count the occurrences of the “joining in” target behavior. Mohammad’s father set up a scenario that showed how Mohammad engages with his cousins 10 minutes after reading the story. The researcher observed that occurrences of the “joining in” target behavior increased. Compared to the baseline, Mohammad showed an increase in his target behavior. For example, during the fourth session, he demonstrated “joining in” five times, which was his highest score. Mohammad’s range during the intervention phase was two to five and his average was 3.43. See Table 3 as well as Figure 1 to compare Mohammad’s baseline and intervention stages.

Omar was the second participant to begin the intervention phase. During the intervention phase, the researcher read the story to Omar, and then observed Omar in order to count the occurrences of the “greeting” target behavior. Omar’s Mom set up a scenario that showed how Omar engaged with his family 10 minutes after reading the story. Based on that, the researcher observed occurrences of the “greeting” target behavior increase. Compared to the baseline, Omar showed an increase in his target behavior during the intervention phase. For example, during the fourth, fifth, and seventh
sessions, he demonstrated “greeting” four times, which was his highest score. Omar’s range during the intervention phase was two to four and his average was 3.5. See Table 3 as well as Figure 1 to compare Omar’s baseline and intervention phases.

Zeyad was the third participant to begin the intervention phase. During the intervention phase, the researcher read the story to Zeyad, and then observed him in order to count the occurrences of the “listening to the conversation and demonstrating understanding” target behavior. Zeyad’s father set up a scenario that showed how Zeyad engaged with his parents 10 minutes after reading the story. The researcher observed occurrences of the “listening to the conversation and demonstrating understanding” target behavior increase. Compared to the baseline, Zeyad showed an increase in his target behavior during the intervention phase. For example, during the second and third sessions, he demonstrated the target behavior of “listening to the conversation and demonstrating understanding” four times, which was his highest score. Zeyad’s range during the intervention phase was two to four and his average was 2.7. See Table 3 as well as Figure 1 to compare Zeyad’s baseline and intervention phases.

Khalid was the fourth and last participant to begin the intervention phase. During the intervention phase, the researcher read the story to Khalid, and then observed Khalid in order to count the occurrences of the “understanding the concept of waiting” target behavior. Khalid’s Mom set up a scenario that showed how Khalid engaged with his family, 10 minutes after reading the story. Based on that, the researcher observed that occurrences of the “understanding the concept of waiting” target behavior increased. Compared to the baseline, Khalid showed an increase in his target behavior during the intervention phase. For example, during the fourth session, he demonstrated
“understanding the concept of waiting” four times, which was his highest score. Khalid’s range during the intervention phase was two to four and his average was 2.85. See Table 3 as well as Figure 1 to compare Khalid’s baseline and intervention phases.

Table 3

<table>
<thead>
<tr>
<th>Participants</th>
<th>Baseline</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Average</td>
</tr>
<tr>
<td>Mohammad</td>
<td>0 to 1</td>
<td>0.2</td>
</tr>
<tr>
<td>Omar</td>
<td>0 to 1</td>
<td>0.25</td>
</tr>
<tr>
<td>Zeyad</td>
<td>0 to 1</td>
<td>0.4</td>
</tr>
<tr>
<td>Khalid</td>
<td>0 to 1</td>
<td>0.16</td>
</tr>
</tbody>
</table>

**Maintenance**

This phase started one week following the intervention phase. The maintenance was two sessions via Zoom in the span of one week and its purpose was to assess if the participants still retained the skills they learned or not. This phase was only observation of the participants without implementing the intervention. The researcher collected data in the same manner as in the baseline. During the maintenance phase, all four participants’ target behavior decreased compared to the intervention phase but was still higher than during baseline. Mohammad’s range during the maintenance phase was two to three and his average was 2.5. Omar scored during the maintenance phases 3 on each session; therefore, his average was 3. Zeyad scored during the maintenance phases 3 on each session; therefore, his average was 3. Khalid scored during the maintenance phases 2 on each session; therefore, his average was 2. See Table 4 as well as Figure 1.
**Generalization**

Generalization data collection started three days after the intervention phase ended. The researcher observed the participants during this phase to ensure that the participants were able to generalize the target behavior in different settings. During the generalization phase, all four participants’ target behavior decreased compared to the intervention phase but was still higher than during baseline. Mohammad’s range during the generalization phase was one to two and his average was 1.25. Omar’s range during the generalization phase was two to three and his average was 2.25. Zeyad’s range during the generalization phase was one to two and his average was 1.5. Khalid’s range during the generalization phase was one to two and his average was 1.75. See Table 4 as well as Figure 1.

Table 4

<table>
<thead>
<tr>
<th>Participants</th>
<th>Maintenance</th>
<th>Generalization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Average</td>
</tr>
<tr>
<td>Mohammad</td>
<td>2 to 3</td>
<td>2.5</td>
</tr>
<tr>
<td>Omar</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Zeyad</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Khalid</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
The following chart, Figure 1, represents a visual comparison of the baseline, intervention, maintenance, and generalization phases for all four participants. The bottom row of numbers refers to the session number while the vertical row represents the number of occurrences of the target behavior for each participant. The chart can be used to understand the progress of each participant in regards to performing the target behavior over the course of the study.
**Inter-observer Agreement**

Inter-observer agreement verification was conducted for 25% of the sessions to guarantee the integrity of data collection for the participants during each step of the study. The agreement between the participating graduate student and the researcher was over 80% agreement.

As explained in Chapter three, in order to calculate the IOA, the participating graduate student collected data alongside the researcher in 25% of the sessions. The researcher instructed the participating graduate student in regards to the appropriate method of recording behaviors with the use of the data collection form prior to the onset of the study. For Mohammad, the IOA was 5 sessions which is 25% of the observation during all phases, the average IOA score for all sessions across phases was 92% (ranging from 87.5– 95%). For Omar, the IOA was 5 sessions which is 25% of the observation during all phases. The average IOA score for all sessions across phases was 94% (ranging from 87.5 % to 97.5%). For Zeyad, the IOA was 5 sessions which is 25% of the observation during all phases. The average IOA score for all sessions across phases was 88% (ranging from 85% to 95%). For Khalid, the IOA was 5 sessions which is 25% of the observation during all phases. The average IOA score for all sessions across phases was 90% (ranging from 82.5% to 90%). The results of the IOA were different for each of the participants, but all were over 80%.

**Social Validity**

As explained in chapter three, the researcher utilized a questionnaire in Arabic made up of questions from the IRP-15 to assess social validity. The questions were translated from English into Arabic and modified for caregivers instead of teachers and then translated back into English by a professional translator. Based on the IRP-15
scores, Mohammad - 82, Omar - 83, Zeyad - 81, and Khalid - 87, this study has strong social validity.

For each participant, only one of their parents filled out the questionnaire. All parents selected “Strongly Agree” for the statement that said that the social story is an acceptable intervention for the child’s problem behavior. For the second item, which is the statement that most parents would find this intervention appropriate for behavior problems in addition to the one described, two of the surveyed parents selected “Strongly Agree”, while the third surveyed parent chose “Agree”, and the final surveyed parent choose “Slightly Disagree”. For the remainder of the statements, the surveyed parents chose mostly “Strongly Agree” and “Agree” to a lesser extent. Refer to table 4 to see the list of questions Refer to table 4 to see the list of questions. Each check mark represents the response of the parent of one participant.
Table 5

**Social Validity Questionnaire**

How much do you agree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Slightly Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This would be an acceptable intervention for the child’s problem behavior.</td>
<td>√</td>
<td></td>
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<tr>
<td>2. Most parents would find this intervention appropriate for behavior problems in addition to the one described.</td>
<td>√</td>
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<tr>
<td>3. This intervention should prove effective in changing in the child’s problem behavior.</td>
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<td>4. I would suggest the use of this intervention to other parents.</td>
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<tr>
<td>5. The child’s behavior problem is severe enough to warrant use of this intervention.</td>
<td>√</td>
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<tr>
<td>6. The Physical activity Most parents would find this intervention suitable for the behavior problem described.</td>
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<td>7. I would be willing to use this intervention in the home setting.</td>
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<td>8. This intervention would not result in negative side effects for the student.</td>
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<td>9. This intervention would be appropriate for a variety of children.</td>
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<td>10. This intervention is consistent with those I have used in home settings.</td>
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<tr>
<td>11. The intervention was a fair way to handle the child’s problem behavior.</td>
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<tr>
<td>12. This intervention is reasonable for the problem behavior described.</td>
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<tr>
<td>13. I like the procedures used in this intervention.</td>
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<tr>
<td>14. This intervention was a good way to handle this child’s behavior problem.</td>
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<tr>
<td>15. Overall, this intervention would be beneficial for the child.</td>
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</tbody>
</table>
Treatment Integrity

As discussed in Chapter three, treatment integrity was assessed by using a checklist, in order to make sure the intervention was implemented according to plan. The researcher completed the following steps with the participant: (1) read the story, (2) answer the question, (3) ask for help if he or she does not know the answer. At the same time, there was a graduate student completing the same data collection form. In order to compare results, for at least 25% of the sessions the graduate student had to be present to record on their own data collection form the treatment integrity, while the researcher completed the data collection form 100% of the time.
Chapter Five

Discussion

The primary goal of this study was to examine the efficacy of Social Stories for children with ASD in Saudi Arabia. Social Stories were tested in Saudi Arabia, with Arabic translation without changing the nature of the Social Stories and through the use of culturally relevant narratives (Ramadan instead of Christmas), in order to evaluate the applicability of the Social Stories intervention for children with ASD and their instructors in that part of the world. The research questions for this study include (1) Does the use of social stories enhance the social skills of children with ASD in Saudi Arabia?; (2) Will children with ASD maintain the appropriate social skills obtained through the use of social stories?; (3) Will children with ASD be able to generalize the appropriate social skills?; (4) Is the social stories intervention for children with ASD considered socially valid in Saudi Arabia?

In this chapter there will be a discussion of the results of the study, the mechanism of the change, implications for practice, recommendations for policy, practitioners, and future research, as well as limitations of the study.

Review of the Results

The study was designed to determine if the implementation of Social Stories on an individual basis with participants enabled them to further develop their social skill. The study included four male elementary students from Saudi Arabia with ASD who were exposed to the treatment, Mohammad, age seven, Omar, age seven, Zeyad, age eight, and Khalid, age nine, at Al Faisaliah Elementary School in the city of Jeddah, Saudi Arabia. This study focuses on the implementation of Social Stories, in order to provide educators with the tools they need to support students in enhancing social skills.
Each participant was provided individualized intervention based on their need determined by the teacher and confirmed by the parents. The results of the study showed a small increase in target behavior for all four participants. The findings were based on the number of occurrences of the specific target behaviors for each participant during the intervention phase. Each participant showed more occurrences of their target behavior during the intervention phase as compared to the baseline phase. All four participants were also able to maintain those target behaviors to some degree during the generalization and maintenance phases. Overall, the results indicate that the implementation of the Social Stories Intervention yielded positive results for all four participants; however, these increases did not demonstrate significant improvement.

Overall, we see an increase in the target behavior for each participant during the intervention phase. The study therefore indicates, as each student was able to make slight improvements during the intervention phase, that the Social Stories Intervention may be an effective intervention for teaching social skills to children with ASD. The four participants were able to replicate the skills they learned during the intervention phase in both the maintenance and generalization phases of the study, although the number of occurrences during the maintenance and generalization phases were lower than during the intervention. Although the number of occurrences of the target behaviors during the maintenance and generalization phases were lower than during the intervention phase, the number of occurrences was still higher than during the baseline phase. As the four participants were also able to maintain and generalize the skills they learned during the intervention phase to some degree, this study is also in agreement with prior findings (Delano & Snell, 2006). In addition, based on the scores of the IRP-15, which were all
higher than 80, it was determined that the study was socially valid and appropriate for use in Saudi Arabia, which indicates that it may be a useful tool for teachers in Saudi Arabia.

**The Effectiveness of Social Stories**

Studies show that the Social Stories intervention helps to enhance the social skills of children with ASD. A visual analysis of the results of this study shows that, through the implementation of Social Stories, the participants’ social skills improved which is consistent with other studies such as (Acar et al., 2017; Al zyoudi et al., Barry & Burlew, 2005; Chan &O'Reilly, 2008; Delano & Snell, 2006; Sansosti & Powell-Smith, 2006; Wright & McCathren, 2012). This study supports Social Stories as a possible intervention to enhance desirable behaviors, such as joining in, continuing conversation, waiting, and greeting.

Studies also show that through the use of Social Stories, children with ASD are able to maintain the appropriate social skills as well as generalize the appropriate social skills in various settings after utilizing Social Stories (Delano & Snell, 2006; Wright & McCathren, 2012). This study supports prior findings as the four participants in this study were able to maintain and generalize the social skills they learned through Social Stories less than in the intervention phase but higher than the baseline phase. For example, Delano & Snell (2006) also reported that participants were able to show a higher occurrence of target behavior during the maintenance and generalization phases as compared to the baseline phase, although this was somewhat lower than during the intervention phase. While the findings show that the target behaviors were highest during the intervention phase, the maintenance and generalization phases show a decrease in these behaviors, but the data is still slightly higher than baseline.
Although various studies show that Social Stories is an effective intervention for children with ASD, this study is unique as it demonstrates the effectiveness of the intervention in Saudi Arabia. Many parents in Saudi Arabia prefer the use of biomedical interventions for children, such as medication and psychiatric treatment (Alnemary et al., 2017); however, this study also demonstrates that parents may be willing to utilize non-biomedical interventions such as Social Stories with their children as the parents of the participants in this study were willing to try a different type of intervention. The researcher observed the participants during this study engaging appropriately and smiling, and has concluded therefore that they enjoyed the intervention and showed improvements of their social skills through this intervention, leading the researcher to understand that this intervention can be effective in Saudi Arabia as well as in other parts of the world as already demonstrated by other studies.

**The Mechanism of the Change**

The Social Stories intervention utilizes short, specific stories to help children recognize and comprehend everyday social situations that they are likely to encounter (Gray, 1997) and learn how to distinguish social cues and predictable behaviors as well as the results of their own varying behaviors (Barry & Burlew, 2005; Gray, 2004). The stories outline important facets of everyday social situations, such as where the situation occurs, what will happen in that situation, who would be present in the situation, and why certain behaviors are preferred over others (Scattone et al., 2002). There are two parts of this intervention: (1) to define the situations these individuals may find themselves in, including possible behaviors from others and to teach an appropriate response based on these details and (2) to help these individuals understand and respond
to situations that may be more challenging (Sansosti et al., 2004). The effectiveness of the Social Stories intervention focuses on the increasing realization of social cognition in individuals with ASD (Bawazir & Jones, 2017). Social behaviors can be learned by individuals with ASD based on their understanding of social cognition in different settings as well as its applicability across various settings (Bawazir & Jones, 2017). As all children with ASD are unique, researchers can continue to learn more about the process of developing social cognition by applying the Social Stories intervention to children from diverse backgrounds, of different ages and development stages, and by focusing on a variety of social skills and decreasing the repetitive and undesired behaviors of the children (Johnson & Myers, 2007). For example, in this study the participants, who are from Saudi Arabia, were able to relate to the Social Stories as they were written in their native language and culturally focused, enabling them to better understand the concepts. This information adds to the literature as it shows the importance of culturally-focused and language sensitive Social Stories.

Social Stories is described as having the ability to teach children with ASD how to navigate social situations by providing clarity and tools to manage various social situations that may be challenging for these children (Bawazir & Jones, 2017). The participants in this study each had a unique target behavior based on information identified by their teachers and confirmed by their parents. The Social Stories were therefore selected individually based on the needs of each participant, and they were effective as the stories demonstrate specific situations in which certain social skills are necessary.
Through the use of Social Stories, the participants learn to recognize the situational cues and which behaviors are most appropriate for a particular situation. For example, Khalid’s target behavior was waiting, and the stories utilized with Khalid included details about the behavior of waiting, the importance of waiting, how not waiting can affect other people, and when it is appropriate to implement the behavior of waiting. Based on the number of occurrences of the target behavior of waiting during the intervention phase, the researcher concludes that Khalid was able to learn the skill of waiting through the implementation of the stories. Another example is Mohammad, whose target behavior was joining in. The stories utilized with Mohammad included details about the behavior of joining, the importance of joining in for Mohammad, how not joining in appropriately can affect other people, and when it is appropriate to employ the behavior of joining in. Based on the number of occurrences of the target behavior of joining in during the intervention phase, the study shows that Mohammad was able to learn the skill of joining in through the implementation of the stories he was taught. As the Social Stories define the situations which the participants may encounter and provide specific information about how to respond and interact appropriately, the participants are able to understand and replicate the appropriate actions when in similar situations in their everyday lives.

The majority of previous studies in regards to the effectiveness of Social Stories implemented the Social Stories intervention in combination with other interventions (Leaf et al., 2015). Because of this, researchers often struggled to determine if the overall impact on the participants’ social skills was derived from Social Stories or from other interventions. However, this study focused solely on the Social Stories intervention and
there were no other interventions taking place simultaneously. The results of the study indicate that the participants were able to learn and reproduce specific social skills based on the Social Stories interventions they learned, which indicates that the intervention was effective in teaching social skills to children with ASD in Saudi Arabia.

**Implications for Practitioners**

Currently, there is not enough access to effective services and interventions for children with ASD in Saudi Arabia, although the number of children with ASD is on the rise (Al-Aoufi, 2011). There are limited interventions available for use with children with ASD, such as PECS and TEACCH; however, it is important to have more intervention options, as all children are unique and may require different methods. This indicates that the results of these interventions may be ineffective and inefficient (Alnemary, 2017). Children with ASD often face challenges obtaining the social skills they need to navigate various situations and they require supportive instruction and guidance to improve these skills (Ke et al., 2018).

There are various interventions that teachers can use that can help children with ASD gain the social skills they need, including self-monitoring, peer-mediated intervention, video modeling, and Social Stories, which help students to comprehend social cues and respond with adequate and appropriate behaviors (Duncan & Klinger, 2010; Jonsson et al., 2016). Therefore, although practitioners should be aware of various interventions, and should continue to obtain new techniques and information through continuing education, this study demonstrates that the Social Stories Intervention can have an impact on the social skills of children with ASD in Saudi Arabia. Based on the findings of this study, the Social Stories Intervention could be utilized by practitioners...
when working with students with ASD in Saudi Arabia within the special education classroom setting and as part of the general education curriculum for these students. Studies showing that practitioners in Saudi Arabia should use Social Stories and other interventions for children with ASD can help to encourage the Ministry of Education in Saudi Arabia to create and implement specific curriculum and frameworks for special education that include successful interventions such as the Social Stories Intervention (Aldabas, 2015).

In order for implementation to be successful, some changes will be required. For example, teachers and practitioners will need additional classroom support. Currently, there are no paraprofessionals to help support staff in schools in Saudi Arabia. As many teachers struggle to provide individualized support for students with varying levels of needs, paraprofessionals could be a great help in making sure that the education plans are effective, for teachers and their students. Paraprofessionals can help to alleviate the burden placed on teachers in classrooms with many students (Brock & Anderson, 2021). Adding additional support staff to the classrooms to work directly with students with special needs are important steps in enhancing the quality of instruction and outcomes. Support from paraprofessionals is one change that should be implemented across the board in Saudi Arabia.

Another important change should be in the form of education and awareness surrounding the unique needs of children enrolled in special education curriculum. All teachers, not only those who specialize in special education, should be trained on how to work with children with special needs. Additional specific training in regards to specific evidenced-based interventions, such as Social Stories should be provided to special
education teachers (Aldabas, 2015) as this study indicates that teachers will have successful outcomes with students with ASD in terms of enhancing social skills. As research is furthered, continuing education should be provided and required of teachers who are working in the field of special education (Aldabas, 2015). Research also indicates that it is necessary to work to change the attitudes of teachers in regards to the utilization of interventions such as Social Stories which can lead to more positive results (Aldabas, 2015). Therefore, it is important for teachers to seek out continuing education opportunities and improve awareness in order to strengthen their understanding of various intervention techniques and increase their positive attitudes in regards to this population.

Implications for Research

Based on this study, Social Stories may be an effective intervention with children with ASD in Saudi Arabia. Based on the evidence introduced in this study, future research should be done in order to determine if Social Stories is an intervention that can be utilized more widely with similar impacts in Saudi Arabia. However, it will be necessary to further review cultural implications and language needs for this population in order to ensure appropriate access and success for students with ASD in Saudi Arabia. Based on this study, there is also a clear need for further evidence-based practice within special education programs in Saudi Arabia, as programs in this area do not often utilize evidence-based interventions with students, especially as it pertains to social skills development. Over all, many programs are utilizing the Social Stories intervention for work with children with ASD although there is limited empirical evidence for Social Stories, indicating that both further research should be done and future researchers should be aware of this limitation.
The implications of future research include the need for focusing on implementation and outcomes of the Social Stories intervention, as well as other evidence-based practices, both in Saudi Arabia and in other countries, in order to determine the effectiveness of those practices as well as the goal of enriching the field of special education in Saudi Arabia. Continued research in Saudi Arabia can help validate the findings and reproduce the outcomes. This can help motivate practitioners to utilize the evidence based practices for work with children with ASD.

**Recommendations for Practitioners**

Based on various studies, the Social Stories Intervention is an effective intervention for working with students with ASD (Adams et al., 2004; Hagiwara & Myles, 1999; Ozdemir, 2008). It is recommended that teachers utilize various intervention techniques including the Social Stories intervention and individualize those techniques based on the needs of the students, particularly in terms of their social skills deficiencies. Studies demonstrate that the Social Stories intervention is one of the most promising interventions to use with children with ASD in order to improve social skills (Karal, & Wolfe, 2018).

In addition to training and continuing education about Social Stories, it is also recommended that teachers pursue additional education in regards to interventions and working with students with disabilities. It is necessary for special education teachers in Saudi Arabia to receive training on instructional methodology as well as how to recognize the individual needs of students. In order for special education teachers in Saudi Arabia to be adequately prepared for working with this population, educational institutions must provide coursework that outlines how to meet the demands of this population and incorporate various techniques for working with students with disabilities.
in order to ensure their success (Alharbi & Alshammari, 2020). General education teachers in Saudi Arabia should be required to take special education courses as part of their certification in order to better understand how to work with students with disabilities (Aldabas, 2015) and research suggests this idea in order for general education teachers to be able to utilize specific techniques to best support these students (Aldabas, 2015).

Ultimately, it is recommended that teachers recognize the importance of a varied range of interventions, as well as the support for the rights of students with disabilities, and their equal and equitable education. University courses for general education teachers in Saudi Arabia should include instruction on various interventions and how to implement them. Teachers should familiarize themselves with as many empirically tested interventions as possible in order to be able to serve students with differing needs. They should also work to motivate students through the implementation of various interventions and make changes to strategies when needed. In order for teachers to be able to implement interventions such as Social Stories, it is recommended that they advocate for additional support such as paraprofessionals within the school district and more broadly.

**Recommendations for Future Research**

It is recommended that more studies be conducted that focus solely on the implementation of the Social Stories intervention in order to reduce any ambiguity in Saudi Arabia. Previous studies were often conducted with the Social Stories intervention in combination with another intervention (Leaf et al., 2015) and therefore it was difficult for researchers to determine the actual impact of the Social Stories intervention. Future research may also want to focus on reviewing general education and special education teachers’ knowledge about evidence-based practice and their ability to
adequately implement this practice in their work. It may be appropriate to conduct studies and surveys on current practitioners to measure their understanding of evidence-based practices, their formal education regarding the subject, and their willingness to both utilize these practices and further their knowledge in Saudi Arabia.

It is also recommended that future research utilize Social Stories that include a visual component. For this study, the Social Stories were written using Microsoft Word and delivered verbally, via zoom, and did not include images to assist with the comprehension of the themes. Research shows that utilizing pictures of interest for participants partaking in the Social Stories intervention can lead to better motivation and increase positive behaviors (Ozdemir, 2008).

Additionally, most studies were conducted in Western countries such as the United States, and little research has been done on the effectiveness of Social Stories in other parts of the world. In particular, this was the first study conducted in Saudi Arabia, and more research should be done outside of Western countries in order to measure the effectiveness of the intervention on participants from diverse backgrounds. For this study, the researcher had the Social Stories translated into Arabic for use with the Arabic-speaking participants. In addition, some changes were made to the stories in order to make them culturally-viable, as the Social Stories that are currently available were written by and intended for a Western audience, and therefore contain stories that are relevant to Western culture. Those stories can easily be altered to encompass the culture of other countries, such as Saudi Arabia, and this should be a priority for individuals focused on future research. If further research is done on Social Stories in Saudi Arabia,
it would be recommended that researchers pay particularly close attention to the translation and cultural expectations of the participants.

Future research should also focus on social validity. For this study, the researcher utilized an IRP-15 questionnaire and only group the parents of the participants responded to the questionnaire. The researcher did not obtain perspectives of others, such as special education teachers or the participants. In future research, additional surveying of teachers and participants may yield higher social validity.

Finally, it is recommended that future research focus on distinct groups of participants, ranging in age and gender, as well as further research into the effectiveness of Social Stories for different levels of social ability. As the findings indicated more difficulty with generalizing and maintaining the skills learned during the intervention phase, future studies should also consider lengthening the amount of sessions during the intervention phase to deduce if more practice of the specific social skills would lead to better outcomes for generalization and maintenance. Although the study produced viable results virtually via Zoom, it is also recommended that future research be conducted in person whenever possible, in order to ensure overall effectiveness and ease of use.

**Recommendations for Policy**

There are various laws in place in Saudi Arabia to guarantee the rights of students with disabilities. In 2001, RSEPI was introduced in Saudi Arabia and includes rights, requirements, and regulations for serving students with disabilities. Of particular importance is the RSEPI’s requirement for the institution of IEP’s, which is modeled after that in the United States (Alquraini, 2011). Although the existence of such legislation is important, the implementation of the laws are ineffective and unregulated, resulting in spotty and widely varied services in the country. For example, IEPs, which
are designed by the Ministry of Education in Saudi Arabia, do not meet the individual needs of the students, and are often generalized rather than individualized, and include modifications from the special education curriculum rather than the general education curriculum (Alquraini, 2011). As there is a lack of evidence to show that IEPs are properly implemented, and no regulations or accountability when they are not, it is recommended that further policy be created to ensure that the IEPs are individualized, effective, and properly implemented (Alquraini, 2011).

Further development of guidelines for policy implementation across Saudi Arabia, and specifically the enforcement of consequences for not following guidelines, is an important step towards equal and equitable education for students with disabilities. Although policies have been created to help support individuals with disabilities, there is a lack of regulation and accountability of effective implementation of the policies, leading to gaps in promoting the rights of these individuals, including on an educational level. School districts are aware of and encouraged to implement quality education based on the policies in place, however the policies can be vague and lack clear procedures. School districts should enforce the guidelines for teachers through incentive programs and consequential actions. The Ministry of Education should have the power to further develop guidelines for instruction as well as to hold school districts accountable if their employees are not following appropriate guidelines and curriculum. Research indicates that the most significant barrier to working with children with ASD in a school setting is the lack of amenities such as appropriate teaching materials, technology, and educational resources (Aldabas, 2015). If teachers are not equipped with the appropriate materials and resources, including education about how to implement
those materials and resources, teachers will not be able to adequately support children with ASD in the classroom (Aldabras, 2015). One key component of special education classrooms in the United States is the use of paraprofessionals. In order to ensure that classroom support, including interventions, is individualized and appropriately implemented, multiple professionals should be present in the classroom to provide one on one support to students and monitor progress (Brock & Anderson, 2021). The Ministry of Education should create a policy including the implementation of paraprofessional positions specific educational requirements for school districts based on the number of students with disabilities and the number of teachers currently available. In addition to policies that regulate and enforce appropriate special education, policy should also outline guidelines and funds that work to ensure that teachers are provided the necessary resources and technology to support their students.

**Limitation of the Study**

This study yielded five limitations. The first limitation in this study is the inability of the researcher to provide appropriate stimulus features in order for the students to fully comprehend the nature of the story. For example, in this study the researcher utilized zoom with the participants, due to the COVID-19 pandemic, and as the participants were tuned into the virtual session, the stimulus features of the social stories being presented were not able to fully resemble the environment in which the target behaviors were occurring. In addition, the stories were completely verbal, without the use of images or pictures to further emphasize the environment of the stories being dictated, which may lead to the impairment of the creation of connections in the minds of the participants. This may differ from a typical Social Story as the participants engaged with the
researcher virtually instead of having in-person contact and therefore may have interpreted or retained the story differently.

The second limitation for this study was social validity. In order to ensure that the study was socially valid, the researcher utilized an IRP-15 questionnaire. However, the only group who participated in this questionnaire were the parents of the participants involved in the study. The researcher did not obtain perspectives of the special education teachers nor those of the participants themselves. Additional surveying of teachers and participants may lead to higher social validity.

The third limitation is that this study utilized a single-subject design, which by its nature includes a small sample size of participants (Cooper et al., 2007). This study focused on four participants of a similar age range, cultural background, residence, class, resource availability, and level of cognitive functioning. The participants were all male and all attending the same school. As the sample size is small, it is recommended that this study be replicated within similar and different sets of participants in order to reproduce findings and develop stronger external validity.

The fourth limitation for this study is how during the generalization phase, the researcher changed the environment for the participant in order to determine if the skills learned were generalizable. However, the researcher was still present via Zoom although the participant was in a different location, for example, if the intervention took place in the living room, the generalization phase took place in the backyard. Therefore, it is difficult to determine if the results of the generalization phase were impacted by the continued presence of the researcher via Zoom or the change in environments. Additionally, during the generalization phase, the data shows lower occurrences of the
target behavior as compared to the intervention phase, but it is unclear if the number of occurrences of target behavior would have been different if the intervention and generalization phases had not been conducted via Zoom.

The fifth limitation for this study is related to its internal validity. This study was conducted entirely via Zoom. Based on the observations of the researcher, the participants enjoyed using the Zoom platform to partake in sessions with the researcher. It is difficult to determine if the interest they showed was more based on the fact that they could use this type of technology or if they were actually engaged in the learning of the Social Stories. Regardless, the presence of the researcher and the virtual environment may contribute to differing outcomes for the effectiveness of the Social Stories Intervention in this study. In addition, the participants connected to the researcher via Zoom from their home environments, and their parents were present in the home during the session. During the generalization phase, due to the restrictions of the COVID-19 pandemic, the participants were unable to partake in the generalization phase outside of their homes, which may impact generalizability. Although the researcher had the participants engage in this phase in a distinct part of their homes, the target behaviors were unable to be generalized outside of the home. This factor may also alter the outcome of the study and impact the number of occurrences of the target behaviors of the participants.

**Conclusion**

The purpose of this study was to examine the effectiveness of the Social Stories Intervention for students with Autism Spectrum Disorder (ASD) in Saudi Arabia. ASD significantly affects an individual’s communication, both verbal and non-verbal, social skills, and academic performance (Coeckelbergh et al., 2016) The study included four
male participants between the ages of 7 and 9 with a diagnosis of ASD enrolled in school in Saudi Arabia. The study utilized individualized social stories for each student based on their social skills deficits. Social Stories is a common intervention used to enhance the social skills of children with ASD (Balakrishnan & Alias, 2017).

The results of this study reaffirm the findings of previous studies which is that the Social Stories intervention increases social skills for children with ASD. This study shows an overall improvement in target social behaviors for the participants and supports the effectiveness of Social Stories as an adequate intervention for this population. This intervention was shown to be adequate, effective, and safe for use in the educational setting, and was also shown to be socially valid.

Finally, this study is important because it contributes to the research specific to the field of special education in Saudi Arabia, which at the current time is minimal. It reaffirms the effectiveness of the Social Stories Intervention for children with ASD. It is recommended that additional research be conducted to further highlight the importance of this intervention and enrich the field of special education research in general in Saudi Arabia.
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### Appendix A

**Recording Key (1) occurred and (0) did not occurred**

<table>
<thead>
<tr>
<th>Target behavior</th>
<th>Mohammad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appropriate ways to ask to join</td>
</tr>
</tbody>
</table>

“Excuse me, can I join you?” or
“Would you like to play with me?” or
“Would you like to play a board game?” and so on.

<table>
<thead>
<tr>
<th>Target behavior</th>
<th>Omar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appropriate ways to greet</td>
</tr>
</tbody>
</table>

“Hi, good morning”,
or waving his hands”.

<table>
<thead>
<tr>
<th>Target behavior</th>
<th>Zeyad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Listen to the conversation and demonstrate understanding</td>
</tr>
</tbody>
</table>

Saying “right, ok, cool”
looking in the direction of the parents.
when he is confused, saying “I do not understand” or “I don’t get it”.

<table>
<thead>
<tr>
<th>Target behavior</th>
<th>Khaild</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Difficulty to understand the concept of waiting</td>
</tr>
</tbody>
</table>

Khalid countdown until the food be served
say to his Mom, “I am hungry”
watchs his favorite TV program
Appendix B

Treatment Integrity checklist

<table>
<thead>
<tr>
<th>Steps</th>
<th>occurred</th>
<th>Not occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Read the story</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Answer the question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Ask for help</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C
### Social Validity questionnaire – Arabic version

<table>
<thead>
<tr>
<th>تصنيف التدخل</th>
<th>أوافق بشدة</th>
<th>أوافق قليلاً</th>
<th>لا أوافق قليلاً</th>
<th>أوافق بشدة</th>
<th>أرفض</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - كان هذا التدخل مقبولاً لاحتياجات الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - معظم الآباء يوجدون هذا التدخل مناسبًا للأطفال ذوي الاحتياجات المماثلة.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - أثبتت هذا التدخل فعاليته في دعم احتياجات الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - أود أن أقترح استخدام هذا التدخل لأباء الآخرين.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - كانت احتياجات الطفل شديدة بما يكفي لتبرير استخدام هذا التدخل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - معظم الآباء يجد هذا التدخل مناسبًا لاحتياجات هذا الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 - سأكون على استعداد لاستخدام هذا التدخل في المنزل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 - لم ينتج عن هذا التدخل أثار جانبية سلبية على الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 - سيكون هذا التدخل مناسبًا لمجموعة متنوعة من الأطفال.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 - كان هذا التدخل متناغمًا مع تلك التي استخدمتها في البيئات المنزلية.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 - كان التدخل طريقة عادلة للتعامل مع احتياجات الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 - كان هذا التدخل معقولًا لاحتياجات الطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 - أحببت الإجراءات المستخدمة في هذا التدخل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 - كان هذا التدخل وسيلة جيدة للتعامل مع احتياجات هذا الطفل.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>15 - بشكل عام، كان هذا التدخل مفيدًا للطفل.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Appendix D

Institutional Review Board (IRB)
Parental Consent for Parents/Guardians and Children to Participate in a Research Study

Duquesne University, Pittsburgh, PA

Title of Study: The Impact of Social Stories Intervention on the Social Skills of Children with Autism Spectrum Disorder (ASD) in Saudi Arabia

Principal Investigator:

Name: Marwan Alkhudhayri Department Counseling, Psychology, and Special Education
University: Duquesne University Email: alkhudhayrim@duq.edu
Phone number: +1 (412) - 396-1852

Faculty Advisor:

Name: Dr. Bridget Green Department Counseling, Psychology, and Special Education
University: Duquesne University Email: greenb@duq.edu
Phone number: +1 (412) - 396-1852

Purpose of Study

The goal of this study is to test the effectiveness of using Social Stories to increase his/her social skills. We assume that using social stories will increase the social skills of children with ASD.

Description of the Study
• If you allow your child to participate in the study, we will work with your child for approximately 10 minutes per session for approximately 17 sessions across seven weeks.
• If you allow your child to participate in this study, you will help us by setting up the home environment in order for us to best observe the targeted behaviors.
• Participants will be allowed to choose their own nickname. The participant will be referred to by the name they choose. The chosen name will also be used to personalize their social stories. Only the researcher will have access to the identification of the participant.
• In the first part of the study, we will record the data for your child’s targeted behavior for 10-minute periods at least three times a week in the same setting.
• In the second part of the study, we will conduct social stories three times a week for four weeks via Zoom. Each session will take approximately 10 minutes for 12 sessions.
• The third part of the study will take place a week later. This will include two Zoom sessions to see if your child retained the skills they learned or not.
• The fourth and final part of the study will start three days later during which you will observe your child to make sure he or she is able to keep up the target behavior in different settings.

Risks

There will be no more risk than experienced in day-to-day activities.

Benefits of Being in the Study

As a result of participating in this study, it is possible that your child may:

• Learn how to interact in a particular situation
• Recognize others’ feelings
• Learn new social skills

Confidentiality

• We will provide a pseudonym in place of your child’s name to use throughout this study and when this study is published.
• All data records, research records, and personal information will be kept confidential and destroyed two years after completion of the study.

Payments

• There is no financial compensation for participating in this study.

Right to Refuse or Withdraw

• The decision to participate in this study is entirely up to you and your child. You are under no obligation to provide consent for your child to participate in this study.
• Your child has the right to withdraw completely from the study at any point during the process; additionally, you have the right to request that the researcher not use any of the responses that your child has provided to date.

Right to Ask Questions and Report Concerns

• You have the right to ask questions about this research study and to have those questions answered by us before, during, or after the study.
• If you have any further questions about the study, at any time feel free to contact me, Alkhadhayrim@duq.edu or by cell phone at [+966500896556].
• If you like, a summary of the results of the study will be sent to you at no cost.
• If you have any other concerns about your rights as a research participant that have not been answered by the investigators, you may contact the Duquesne University Institutional Review Board at irb@duq.edu
• If you have any problems or concerns that occur as a result of your child’s participation, you can report them to the IRB using the contact information above.

SUMMARY OF RESULTS:

A summary of the results of this study will be provided to at no cost. You may request this summary by contacting the researchers and requesting it. The information provided to you will not be your individual responses, but rather a summary of what was discovered during the research project as a whole.
Consent

Your signature below indicates that you agree to participate and allow your child to participate in this study and that you have read and understood the information provided above. You will be given a signed and dated copy of this form to keep, along with any other printed materials deemed necessary by the study investigators.

☐ Yes, I agree to participate in this study

☐ No, I do not agree to participate in this study

Name of Child (print): ____________________________________________

Name of Parent/Guardian (print):

____________________________________________________________

Signature of Parent/Guardian: __________________________ Date: __________

Signature of Investigator(s): __________________________ Date: __________
CHILD’S AGREEMENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: The Impact of Social Stories Intervention on the Social Skills of Children with Autism

WHO IS DOING THE STUDY?

Principal Investigator: Marwan Alkhudhayri
Department Counseling, Psychology, and Special Education.

University: Duquesne University

Faculty Advisor: Dr. Bridget Green
Department Counseling, Psychology, and Special Education.

Email: Alkhudhayrim@duq.edu
Email: greenb@duq.edu

Phone number: [Redacted]

Phone number: +1(412)-396-1852

WHAT IS A STUDY?

This study will help us learn ways we can improve the social skills for children ages of six (6) - 10 years through social stories. First, we read a story. Then, we ask the student/participant questions about the story.

This paper discusses the study and the choice that you have to take part in it. Please ask any questions that you have. You can ask questions any time you would like. You can also choose to not answer or talk with us.

WHAT THIS STUDY IS ABOUT:

If you agree to be in this study, you will join us every school day for no more than 30 minutes each day for seven (7) weeks. You will use Zoom to develop and practice a social story made just for you. As a result of participating in the study, it is possible that you will increase your
social skills through the social stories. You are allowed to ask me any questions and pause or stop at any time during any part of the process.

WHY IS THIS STUDY BEING DONE?
We are doing this study to find out more about use of social stories because we do not know very much about the effectiveness of the strategy.
In order to take part in the study, you must be:
1. You must have a current diagnosis of Autism Spectrum Disorders.
2. You have not received the social stories in the past.
3. Participants will have a need in one or more social skills.

WHAT DO YOU HAVE TO DO?
If you agree to be in our study, you need to use your computer with the Zoom application. If you do not show up for the three meetings, we will ask you to not be in the study. There is no additional costs to you to participate.

HOW LONG WILL YOU BE IN THE STUDY?
➢ This study will last about seven (7) weeks.
➢ You will be asked to participate every three (3) days for seven (7) weeks.

IS THIS STUDY HARMFUL? HOW IS IT HELPFUL?
Doing this study is not any more unsafe than other things you do each day. If you are uncomfortable with anything, please let us know and we will stop and do whatever we can to make you feel better. It is important to remember that you are in charge of your body. We do not know if you will be helped by being in this study. We may learn something that will help other children with autism interact in different environments in the future. If anything hurts or you are uncomfortable with some of the questions, please let us know and we will stop or do whatever we can to make you feel better.

WILL YOU GET PAID TO DO THIS STUDY?
There will be no money given to you for doing this study, but doing the study will also not cost you anything.

ARE OTHER PEOPLE GOING TO KNOW WHAT YOU DID OR SAID?
The researchers will keep the things you say and do confidential. You can choose a name, different from your real name, you would like to be referred to throughout the study. If we find useful information in our research we will want to share it with others, either by writing a paper about it, or talking about it with other professionals. If I publish this study through an article or presentation, I will only refer to you by the name you chose. If there are other things during the research that have your name on them, we will keep them locked in a password protected file or a locked filing cabinet for two years, then we will shred them or delete them off of our computer.

CAN YOU QUIT IF YOU WANT?
Yes. You do not have to be in the study if you do not want. Don’t worry; no one will be mad at you if you decide to stop. If you decide to stop, you can tell us if we can use any information we already got from you, or you can have us delete it all. It’s up to you. If you do start the study, and decide you do not want to do it anymore, just tell one of us or tell one of your parents so they can tell us. If you decide to stop, we will delete all of your information.

CAN YOU HEAR ABOUT WHAT HAPPENED?
After we finished the study, we will review the information we collected. Once we do, we can tell you about what we found out or can give you a paper that will explain what we discovered. If you would like a copy, please ask and we will provide it to you for free.

WHAT WILL HAPPEN TO THE INFORMATION I PROVIDE?
To protect you, we do not want to use your real name. You are able to choose a name that we will call you during each meeting and in the paper.
All the information such as, data records, research records, and personal information will be kept confidential and destroyed two years after completion of the study.

OK, WOULD YOU LIKE TO DO IT?
If you read and understand everything on this paper, and you understand that you don’t have to participate if you don’t do not want to, and you can quit anytime you want. If you still have questions, you can ask them by calling, principal investigator: Marwan Alkhudhayri, Phone: +966500896556, or the faculty advisor: Dr. Bridget Green, Phone: +1 (412)-396-1852
If you have questions about protecting you in the study, then the best person to contact would be Dr. David Delmonico, Chair of the Duquesne University IRB, at 412.396.1886.
Would like to get started?

[FOR CHILDREN WHO READ/WRITE:]
If you do not want to get started, then that is all. Thanks for listening.
If you do want to get started and do the study, please circle the green traffic light and write your name below.

[FOR CHILDREN WHO DO NOT READ/WRITE:]
(Have the child either respond by saying “yes” or “no” or by pointing to one the two pictures below).

---

Child’s Signature

Date

Researcher’s Signature

Date