

**Impact of Social Story™ Intervention with Six Children  
with Autism Spectrum Disorder from Ajyal Al Watan Centre Riyadh**

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**ABSTRACT**

*Introduction:* This research investigated the impact of a Social Story™ (SS) intervention on the social and behavioural skills of six children with autism spectrum disorder (ASD) enrolled at the Ajyal Al Watan Centre Riyadh, in the Kingdom of Saudi Arabia.

*Aim:* The main aim of the research was to determine how autistic children's social and behaviour skills could be supported through the SS intervention in the Saudi context.

*Methodology:* The study used a mixed-methods multiple case study design that included a Social Skills Improvement System Rating Scales (SSIS-RS) questionnaire survey and semi-structured interviews with six parents/guardians and six teachers of the participating autistic children. Specifically, the six teachers and six parents/guardians of the participating students rated their respective student/child based on the SSIS-RS questionnaire pre- and post-intervention. Similarly, semi-structured interviews were also conducted before and after the intervention. Both qualitative and quantitative data were collected and analysed independently, followed by triangulation of data.

*Results:* The SS intervention resulted in positive changes for the six autistic children's social and behavioural skills. This was apparent from both the quantitative and qualitative data, with results tending to indicate a greater improvement in social skills in terms of challenging behaviour. Results also indicated the need for parent/guardian-teacher (home/school) collaboration, greater co-production of SS with ASD students, teachers and parents, and interest in the adoption of SS intervention into the school curriculum.

*Contribution:* This study enriches the sparse literature on SS interventions in the Middle East, offering key recommendations for future research and practical applications. It recommends more studies on SS effectiveness and explores ways to encourage teacher-parent collaboration in creating customised social stories for autistic students. Practically, it advises local practitioners and educational authorities, like educators, teachers, and the Saudi Ministry of Education, on integrating SS methods into curricula, educating parents about the merits of Social Stories™, and mitigating school-based discrimination against children with disabilities.

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**List of Abbreviations**

*ABA – Applied Behavioural Analysis*

*ASC - Autism Spectrum Condition*

*ASD - Autism Spectrum Disorder*

*BERA - British Educational Research Association*

*CBI – Computer-Based Instructions*

*DBT – Design-Based Research*

*DTT – Discrete Trial Training*

*ICD – International Classification of Diseases*

*ID – Intellectual Disability*

*KSA – Kingdom of Saudi Arabia*

*PBS – Problem Behaviours Scale*

*PECS – Picture Exchange Communication Systems*

*PSD - Pervasive Development Disorder*

*SBAI - Social Behavioural Assessment Inventory*

*SGD – Speech Generating Devices*

*SLT – Social Learning Theory*

*SS - Social Story™*

*SSC – Social Skills Scale*

*SSIS-RS - Social Skills Improvement System Rating Scales*

*ToM – Theory of Mind*

*VM – Video Modelling*

*VOC – Voice Output Communication*

## CHAPTER 1 - INTRODUCTION

### 1.1 Introduction

As an education graduate with Bachelor's and Master's degrees in Special Education from King Saud University, the researcher recognises the transformative power of education in preparing children for a better future. Their teaching experience in Saudi Arabia enhanced their passion for and commitment to the education of children with disabilities, which was driven by an understanding of the challenges these children face, as well as personal connections to a family member with autism. The researcher firmly believes in the value of education in developing essential skills and changing societal perspectives, and they have made a personal commitment to contribute to overcoming these challenges and ensuring the inclusion of children with disabilities into society, free from prejudice and discrimination, through this research.

Furthermore, acknowledging the need for and the significance of evidence-based research in influencing Saudi educational decision-makers to effect positive change within our existing educational systems, the researcher is motivated to explore strategies that can contribute to the improvement of educational outcomes for children with autism spectrum disorder (ASD). Hence, the focus of this study is to investigate the impact of Social Story™ intervention on social and behavioural skills while also considering its effect on the individual ASD characteristics of six autistic children from Ajyal Al Watan Centre Riyadh, Saudi Arabia.

The researcher's interest in Social Story™ intervention commenced during their academic journey, when they encountered a range of literature discussing interventions aimed at helping children with disabilities acquire essential skills to navigate daily life in their communities. One of the courses that they undertook included discussions of the Social Story™ (SS) intervention, which captured their attention due to its methodology of using social stories as springboards and a base for learning. As an educator who believes in the power of stories to capture students' attention and interest, the SS intervention framework and methodology caught the researcher's interest. More importantly, SS intervention has been reported to be effective in developing skills among autistic children, particularly in Western contexts (Gray and Garand, 1993). Previous studies by Karal and Wolfe (2018), Qi et al. (2018), and Aldabas (2019) have indicated the

efficacy of SS intervention for individuals with autism spectrum disorder (ASD). Although some earlier studies have raised criticisms of SS intervention (Sansosti et al., 2004; Reynhout and Carter, 2011; Kokina and Kern, 2010; Bucholz, 2012), more recent studies have shown increased quality and higher efficacy ratings (Karal and Wolfe, 2018; Qi et al., 2018; Aldabas, 2019). The researcher found the overwhelmingly positive impact of SS intervention compelling, motivating the researcher to investigate its effectiveness in the Middle Eastern context, particularly in Saudi Arabia.

Upon reviewing existing literature in the Middle East context, I discovered a scarcity of studies in the field, with only one study conducted in 2016 by Kelly et al., which revealed a high prevalence of autism in the Gulf region. This further motivated me to pursue a study on SS intervention for ASD children, recognising its potential impact. Additionally, within the Saudi Arabian context, the researcher found only one research study by Alotaibi (2016) that supported the use of social stories as an intervention. The study explored the perceptions of 15 special needs teachers through semi-structured interviews, investigating three case studies involving children with ASD from two mainstream boys' schools in Riyadh, Saudi Arabia. The study conducted utilised qualitative collection of data, providing information on the use of Social Story™ with ASD children. The case studies tracked participating children's social skills over a period of 15 to 17 weeks in order to evaluate the effectiveness of SS as a behavioural skill intervention (Alotaibi, 2016). Such minimal extant literature with limited use of methodology to investigate the impact of SS intervention convinced me to conduct an investigation of SS intervention using quantitative and qualitative methods of data collection and gathering the perceptions of not only teachers but also parents, both of whom are critical to the care and development of children with ASD.

Furthermore, extant literature indicating the need to conduct research on autistic interventions in Saudi Arabia motivated me to pursue an investigation in the field of educational intervention for autistic children. A case in point is Al Masoud's (2010) study that posited autistic children being integrated into the mainstream educational system despite the severe learning difficulties of these children due to inadequate knowledge of how to deal with them. Additionally, Zeina and Bashir's (2014) study concluded that there is an imperative need for autistic intervention studies

to be conducted, as the implications of the lack of research and insufficient intervention knowledge in this area affect Middle Eastern practitioners in the field.

The limited amount of existing literature and methodology in investigating educational interventions made me realise that the lack of intervention application and research in the Eastern context, specifically in Saudi Arabia, contributes to the lack of knowledge regarding any intervention's effectiveness or ineffectiveness. More importantly, inadequate knowledge leads to anxiety and apprehension among educators and parents around accepting any type of intervention or creates mental biases with preconceived notions that any intervention would not be beneficial for the children, for the simple reason that they have not been exposed to the advantages or benefits of some educational interventions, and of the SS intervention in particular.

It should be added that the replication of this intervention research in multicultural settings is not only challenging but also involves a number of factors relating to cultural identity and even its implementation (Huitsing et al., 2020). Though Hofstede (1984) did not use the term culture, he stated that ideas or strategies that are feasible within the confines of one national culture may be structurally very different and, hence, difficult to employ in another national culture. Language is an important factor in message delivery, and it contributes to and solves the problem of understanding this type of transfer. Thus, not only is the common language — English — required, but also the language that is suitable to the culture — cultural competence in communication. The tension, however, is between the changes necessary to fit the cultural context and the need to stick to the designed intervention. It is about the capacity to implement certain changes to intervention, in essence, to argue whether that is allowed or argue how much change is too much — to preserve the effectiveness and identity (Castro, Barrera, and Martinez, 2004). In addition, geographical and ethnic diversity adds further levels of complications. The heterogeneity of racial and ethnic groups requires interventions to be sensitive to varying norms and behaviours, where actions considered adaptive in one context may be maladaptive in another (Hidalgo et al., 2015; Nguyen et al., 2016). As a result, when transferring and applying interventions in different cultural contexts, researchers should incorporate the existing cultural and language aspects and analytical variables.

Therefore, taking into consideration the numerous challenges in the adaptation of intervention, the researcher realised that the study presents a viable opportunity to introduce the SS intervention to educators and parents as a tool and educate them by presenting it as a new perspective that can benefit children with autism in acquiring the necessary social and behavioural skills to effectively function in a specialised centre for children with autism symptoms, thereby potentially influencing their function in society. Moreover, this awareness can provide an opportunity for interventions, such as the SS intervention, to be widely accepted in an Arab educational system, shedding light on its effectiveness in supporting students with autism. It can also decrease or eliminate discrimination as well as stigmatisation of schoolchildren with a disability, thereby making the educational system more inclusive of children with disabilities in mainstream education. All these theoretical and practical contributions are explained in detail in Chapter 8.

Additionally, the timing of the study also coincides with the recent transformative changes in the Kingdom of Saudi Arabia (KSA), as the KSA implements major reforms by creating an open environment in social, educational, and political spheres. This study has been time-framed in a period when advancements in education are being made, such as the idea of encouraging the integration of both genders in schools, along with the Vision 2030 project (Vision2030.gov.sa, 2019) of His Highness Crown Prince Mohamed Bin Salman Al Saud. The hope is that this study's positive findings may aid high-level education decision-makers in incorporating SS intervention into the Saudi curriculum to support children with autism or, at a minimum, aid these decision-makers to acknowledge the existing problem in the educational system concerning children with disabilities and to fund studies on interventions to determine which tool, proven to be effective, can be appropriately adopted.

Furthermore, it is essential to note that this study pioneers the implementation of Social Skills Improvement System (SSIS) Rating Scales (SSIS-RS) administration in Arabic. This study is the first to reproduce a reliable and consistent method for easy and rapid SS intervention for autistic students in Ajyal al Watan, Saudi Arabia. This study's methodological strength is that the bilingual panel and English speakers translated the questionnaire items to avoid methodological inaccuracies and cultural differences.



Bearing in mind all the vital pieces of information laid out above, the researcher has found a viable research gap that led to the informed decision to conduct a study on SS intervention, with the aim of creating awareness by presenting Social Story™ intervention as a tool for supporting children with autism to learn and adopt necessary social skills and minimise behavioural challenges, in preparation for their effective integration into society, specifically in the Arab culture.

## 1.2 Research Aim

Extant literature in the Western context emphasise the Social Story™ intervention's effectiveness in terms of behavioural skills of children with ASD, especially in studies conducted from 2013 and onwards (Karal and Wolfe, 2018; Qi et al., 2018; Aldabas, 2019). However, in the Eastern context, especially in the Kingdom of Saudi Arabia, there is a scarcity of research concerning the use of Social Story™ interventions, and this lack of research underscores the need to evaluate the effectiveness of culturally specific Social Stories™ designed for a culturally sensitive context like Saudi Arabia. As mentioned earlier, the acceptability of values and cultural aspects in one culture may not necessarily be appropriate in another (Gjersing et al., 2010). Bearing this in mind, it is essential to consider the challenges posed by cultural differences between Eastern and Western cultures, which include variability in the acceptance or rejection of intervention programmes, language disparities, awareness of certain neurodevelopmental issues, and cultural/religious beliefs that may be viewed differently across cultures, affecting social acceptance and perception. For example, in Saudi culture, autism faces a stigma and is sometimes associated with 'the evil eye'. Furthermore, assessment standards developed in Western cultures may not be suitable in the Saudi context due to systematic biases (Ma et al., 2021; Alqahtani and Efstratopoulou, 2023). This consideration needs to reflect the issues concerning bridging cultural gaps and the influence of Western educational systems and colonisation on Eastern educational settings as they impact the implementation of SS intervention in KSA. By engaging in this critique, it becomes challenging to develop interventions that are more inclusive, culturally responsive, and equitable. Therefore, this cultural dimension is also pertinent to reflect on in correspondence to the context of the given study.

Moreover, Alotaibi's (2016) study is the only one that talks about SS intervention, and his findings support the effectiveness of SS intervention with children with ASD. Al Masoud (2010) and Zeina and Bashir (2014) reiterate the need for studies on intervention for autistic children because of the lack of knowledge regarding how to support them, which is compounded by the fact that autism cases are rising in the Kingdom of Saudi Arabia (Kelly, 2016). Additionally, special education and educating children with disabilities so that they can learn skills that will help them function well in society have become the researcher's primary motivations for conducting this study. Moreover, the transformative changes in the Kingdom of Saudi Arabia in terms of social and political perspectives have made this study relevant and timely, with numerous potentials not only for children with autism but also for their teachers, parents and schools, and the country's educational system. Given these circumstances, the researcher has become very resolute in pursuing a study on SS intervention and its impact on children with ASD.

Therefore, this research aims to investigate the impact of the Social Story™ (SS) intervention on six children with Autistic Spectrum Disorder (ASD) in the Ajyal Al Watan Centre, Riyadh. Specifically, the research focuses on studying the overall impact of SS intervention on the social skills and challenging behaviour of the participating students, as well as the impact of the intervention on the participating students' individual ASD characteristics.

The study uses a mixed-method combination of the quantitative and qualitative collection of data. Quantitatively, the researcher uses the SSIS-RS questionnaire, which refers to the SSIS-RS questionnaire of Gresham and Elliot (1990) that was enhanced further in 2008, in which both the teacher and the parent/guardian of each of the participating students rate the students' social and behavioural skills and individual characteristics. The questionnaire is distributed before (pre) the intervention and then after (post) the intervention in order to determine any changes, i.e., development or lack of progress in the ratings provided by the teachers and parents.

The researcher also conducts interviews (pre- and post-intervention) with the participating children's parents/guardians and teachers, which make up the qualitative part of the data.

Additionally, the researcher also conducts pre- and post-intervention class observations, collects

information on students from the school file, and develops a behavioural chart based on the researcher's observations during the intervention. All data collected were triangulated (shown in Figure 1) to determine the overall impact of SS intervention on the six participating children with ASD.

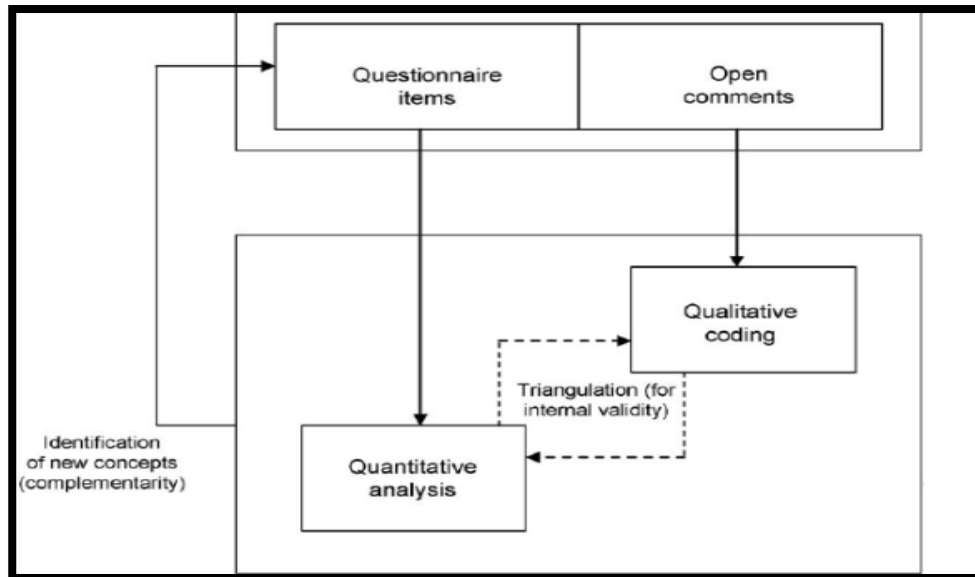


Figure 1 Triangulation of quantitative and qualitative data adopted from Barnes et al. (2006)

### 1.3 Significance of the Study

This research will not only focus on the practical applications of social stories in educational settings for children with autism but also aim to contribute to global literature in this field. By doing so, it seeks to enrich the theoretical understanding of how social stories can be effectively used to support children with autism, providing educators, caregivers, and researchers with valuable insights and strategies. The goal is to bridge the gap between theory and practice, offering tangible benefits in educational and developmental outcomes for children with autism.

First, the objective of this research is to augment understanding through awareness among key stakeholders – educators, parents or guardians, school administrators, and education officials – regarding the efficacy of the Social Story™ technique. This intervention, when utilised effectively, has the potential to help the students diagnosed with ASD to develop the necessary social and behavioural skills. These skills may enhance their capability to fully engage and interact and be included within mainstream classroom environments. The subsequent application

of these learned skills can assist these students in operating more effectively within both educational and domestic settings and also contribute more actively across broader societal contexts. The enhanced awareness generated by this research could motivate the abovementioned stakeholders to initiate measures designed to support autistic children in their learning of social and behavioural skills. For example, parents could reinforce the Social Story™ intervention within the home environment through relevant domestic activities. Educators, informed by this research, could apply the Social Story™ intervention more effectively within their classrooms, and school administrators could make the strategic decision to incorporate the use of the Social Story™ intervention within their broader school curriculum. Similarly, education officials, empowered by the knowledge from this research, could make informed decisions about integrating effective interventions, such as the Social Story™ method, into national curricula.

Second, this research holds substantial potential as an inspiring and motivational resource for educators, encouraging them to deepen their understanding and insights regarding the Social Story™ intervention. Through the assimilation of this knowledge, educators can acquire essential skills for instructing ASD children. Furthermore, the study can catalyse the adoption of effective teaching methodologies and strategies aimed at managing an inclusive classroom setting. This signifies that the implications of this research extend beyond the immediate context of ASD, promoting a universal characteristic of inclusivity within educational environments.

Third, this research also aims to inform practitioners in the field to investigate and look into the most appropriate intervention – most specifically, SS intervention – to be incorporated into their curriculum, adopting methods and strategies as well as best practices to strengthen the quality of their educational services to all children, without any discrimination.

Fourth, this research project represents a pioneering effort in the field through its translation of questionnaires and interview questions. These have been specifically designed to align with the cultural context and backgrounds of the participating teachers and parents, and the production of an Arabic version of these tools constitutes an important contribution to prospective researchers and experts, with the potential to facilitate a broadening of studies focused on the Social Story™ intervention for ASD children. The motivation behind this translation effort stems from a

recognition of the critical need for research in this context, given the lack of studies currently available in this area.

Fifth, in the same manner, the effectiveness of SS intervention will spread the need for further research, encouraging researchers in the field to conduct the use of SS intervention in the Arabian Gulf setting, instituting more generalised findings, which, in turn, can help relevant officials in the Arabian Gulf educational institutions to make informed decisions in terms of planning and implementing the best type of curricula for children's learning.

Sixth, the investigation into the effectiveness of the SS intervention can aid in transforming the negative perceptions of many in the Arab culture, most especially parents and guardians, concerning the use of interventions in helping children with impairment and becoming more accepted within society. This is supported by Fekih-Romdhane et al. (2023), who posits the importance of adopting a collaborative care model for ASD intervention in enhancing awareness, thereby addressing both challenges and negative attitudes among parents and guardians. The end results, i.e., changing people's perspectives, including their apprehension of Western-based interventions, will aid teachers, educational experts, and relevant officials in adopting the best intervention proven to be very beneficial in aiding students with disabilities. This argument builds on the idea posited by Kamenopoulou (2020) that adopting Western practices or paradigms potentially enables the analysis of common acceptance of the Western-directed intervention or dissonance in the understanding of participants towards operationalisation of this intervention in the local Saudi context. Therefore, it would help in determining the local perspectives and illustration of unique experiences towards this intervention as an opportunity or a paradox. The term paradox is used here to reflect a dual reality. On the one hand, there is the widespread acceptance of inclusive education as a morally righteous choice, a sentiment widely recognised within the international community's agreed goals; on the other hand, diverse understandings and implementations of inclusive education exist, dependent on the specificities of the local context. This dichotomy underscores the importance of nuanced, context-specific applications of educational interventions. Nevertheless, it is imperative to acknowledge that this study does not extend to the realms of decolonising or decentralising the field, primarily due to

the inherent limitations pertaining to the contextual scope and the participant base of the research.

Last, the researcher hopes that the demonstrated effectiveness of the SS intervention will pave the way for society to lessen or reduce discrimination, most especially stigmatisation of such impairments in children, leading to the total and equal acceptance of such children, as with all other children, in mainstream educational institutions. Stimulating such an environment of complete acceptance for these children, and equating them with their peers within mainstream educational institutions, can truly engender a more inclusive societal attitude, one that recognises and values the diversity of all children, regardless of their individual learning needs.

#### 1.4 SS Intervention: Background and Contextual Overview

Carol Gray originally conceptualised Social Stories™ in 1991 and it has become the foundation in educational and therapeutic settings for ASD children. The efficacy of Social Stories™ (SS) in relation to the enhancement of ASD children's social comprehension was bolstered due to early endorsements by educational psychologists and subsequent empirical validations (Crozier and Tincani, 2005; Gray, 2018).

The development and creation of the Social Stories™ are based on guiding principles, assisting the practitioner in the creation of the narrative's structure, the relatable content, the selection of appropriate language, and the provision of supportive illustrations, all centered on meeting the particular learning needs of ASD children. Each story follows this specific format: a clear introduction, body, and conclusion, centred on the challenges ASD children face when it comes to specific social skills or challenging behaviour. All narratives are developed descriptively rather than directive, and their language is simple and accessible to the specific ASD child. This approach assists in encouraging ASD children's interest and participation as well as facilitate learning and understanding in terms of social interaction (Gray and Garand, 1993; Reynhout and Carter, 2011).

Extant literature indicates that Social Stories™ are laden with research and practice in the Western context but lack studies focused on the Middle Eastern contexts. This gap highlights a

significant area for contribution in terms of adapting and examining the effectiveness of Social Stories™ within different educational and special needs frameworks. This study aims to bridge this gap by implementing SS interventions particularly applicable to the social and cultural expectations of ASD children in the Middle East, particularly in the Kingdom of Saudi Arabia. Notably, this study's context is essential by providing insights into various social interactions applied in different cultures, aiding in assessing the impact of SS intervention's effectiveness.

In addition, this strategy focused on ASD children's regional cultural values, taking into consideration areas such as educational approaches, child development, and support structures. In Saudi Arabia's education system, for instance, ASD children's local customs were considered during the writing and designing of Social Stories™ by ensuring that cultural aspects were integrated and that the content. These expectations pertain to social norms, including those related to family contact, communication, and societal attitudes, which may affect the success of the SS intervention.

The theoretical framework for this study is grounded in Bandura's social learning theory (SLT) (1977). Bandura's SLT theorises that individuals learn through observations, mimicking, and modeling. This theory justifies the adoption of Social Stories™ in that it proposes that children with ASD are capable of acquiring appropriate social behaviours through watching and imitating behaviours presented in the story. The study demonstrates the values of the Social Stories™ structural approach by incorporating social learning theory into its design and by highlighting the role of observational learning in the acquisition of social skills.

The scope of this research includes the effectiveness of Social Stories™ in new sociocultural settings based on incorporating the SLT's robust framework with cross-cultural modifications. In other words, this study's SS intervention strictly follows the guiding principles set by Gray, as well as the inclusion of local cultural elements to ensure that the SS is relatable and applicable to Saudi children involved in this research. Hence, this approach elevates the relevance of this study as it provides crucial insights into the effectiveness of SS intervention and indicates the feasibility of ASD interventions being customised based on context.

Chapter 4 will delve deeper into the process of creating and implementing these culturally adapted Social Stories™, offering a detailed account of the methodology, the intervention process, and the outcomes observed in the participating children. This research underscores the importance of cultural sensitivity in educational interventions for ASD, paving the way for future studies to explore similar adaptations in other underrepresented regions.

### 1.5 SS Intervention in the Saudi Arabia Context

The study context focuses on Saudi Arabia, exploring the prevalence of autism within the country and the state of resources available to individuals on the autism spectrum. It encompasses an analysis of the services, assessments, and healthcare facilities dedicated to autistic individuals, assessing their adequacy and accessibility. Further, the research delves into the educational landscape for autistic children in Saudi Arabia, examining the support structures in place, the pedagogical approaches employed, and the extent to which educational settings are equipped to meet their needs. Finally, it scrutinises the interventions currently utilised in these educational environments, evaluating their effectiveness and cultural appropriateness in the Saudi Arabian context. This comprehensive overview aims to identify gaps and provide insights into opportunities for enhancing the support system for autism in the country.

### 1.6 Summary

To conclude, this chapter presents an outline of the purpose of the research conducted by the author and the justification for investigating the inclusion of the Social Story™ intervention in the educational setting of children with ASD in Saudi Arabia. By framing the study within the researcher's academic and professional experiences, as well as the cultural and systemic contexts of Saudi Arabia, the study is positioned to address a significant gap in the current understanding of ASD interventions in the region. Such an integration of the researcher's beliefs and research ability also goes toward the goal of this study, which is to assess and still further develop the social and behavioural abilities of children with ASD in the hope of making the findings not only scientifically accurate but also applicable in the broader society. The forthcoming chapters will build on this introduction, delving deeper into literature, methodology, and empirical data, all of which are geared toward reinforcing the critical link between theoretical knowledge and practical application in the field of special education.



## 1.7 Definition of Terms

This study uses terms that are specifically applicable to the comprehension of this research, related to the impact assessment of Social Story™ interventions on six ASD children and its goal of full appreciation of the intervention's influence on the participants' social and behavioural challenges. In this section, the researcher provides the definition of several essential terms and concepts.

*Assertion* – In the framework of this study, assertion refers to the initiation of behaviours such as requesting information from others, introducing oneself, and reacting to the actions of others. These behaviours are critical indicators of social competence and are particularly significant in evaluating the social interactions of children with ASD within the context of therapeutic interventions like SS (Gresham and Elliott, 2008).

*Bullying* – Within the framework of this study, bullying is defined as the act of coercing others into doing something against their will, inflicting physical or emotional harm, or deliberately excluding others from participating in activities (Gresham and Elliott, 2008).

*Challenging Behaviour* – In this research, challenging behaviour is used interchangeably with the term “problem behaviours” as classified in the SSIS-RS. This term is chosen to describe behaviours that interfere with social interactions or learning without attaching a negative stigma to the children participating in the study. Challenging behaviour encompasses actions that may disrupt or complicate the acquisition and performance of socially skilled behaviours, and the use of “challenging” rather than “problem” aims to focus on the behaviours as hurdles that can be addressed and overcome, rather than labelling the behaviours – and by extension, the children – as problematic.

*Communication* – In the context of this study, communication encompasses the skills of taking turns and maintaining eye contact during conversations, using an appropriate tone of voice and gestures, and exhibiting politeness through expressions such as “thank you” and “please” (Gresham and Elliott, 2008).

*Cooperation* – In this research, cooperation is defined as the act of assisting others, sharing materials, and adhering to established rules and directions. Cooperation is vital in comprehending how ASD children act in social and educational settings. This is crucial for interventions like the SS, whose primary aim is to improve ASD children’s ability to engage in different environments (Gresham and Elliott, 2008).

*Design-Based Research (DBR)* – It is a research methodology that combines different data collection methods in order to assess and optimize interventions related to education with the aim to ensure that the said intervention is applicable and effective in real-world settings.

*Empathy* – In this study, empathy is defined as the ability to show concern and respect for the feelings and viewpoints of others. This emotional capacity is crucial for fostering meaningful social interactions and is particularly emphasised in therapeutic interventions like Social Story™ that are aimed at enhancing the social skills of children with ASD (Gresham and Elliott, 2008).

*Engagement* – In the context of this study, engagement refers to actively participating in ongoing activities, inviting others to join, initiating conversations, making friends, and interacting effectively with peers. These behaviours are critical for assessing the social involvement of children with ASD and are integral to the success of interventions like Social Story™, which aim to improve these interactive skills (Gresham and Elliott, 2008).

*Externalising* – Within this study, externalising is defined as a category of challenging behaviours exhibited by children, characterised by verbal or physical aggression, argumentativeness, and an inability to control temper. These behaviours are outward manifestations of emotional dysregulation and are pertinent to the analysis of interventions like SS in children with ASD (Gresham and Elliott, 2008).

*Hyperactivity/Inattention* – This term describes behaviours that include excessive movement, impulsive reactions, and easy distractibility. The context of this study emphasises specific problems that children with ASD tend to exhibit when participating in organized activities or

sustaining attention, thereby affecting the likelihood of positive responses to interventions such as Social Story™ (Gresham & Elliott, 2008).

*Impact* – This term is used in this study to describe the number of changes or achievements that the SS intervention brings concerning the social and behavioural skills of the six children with ASD. These relate to various abilities related to social participation, including interactions, social cognition, and social behavior to different requests. This evaluation is done by assessing the development of communication and social skills such as empathy, cooperation, and other related skills, which are the direct outcomes of the intervention. The purpose of the assessment is to assess the degree of effectiveness of Social Story™ in enhancing the behavioural and social development of children with ASD.

*Initiation* – The concept of initiation in the present research includes an active role of children with ASD in taking up interactions and carrying out activities without being directed by a third party. This includes starting conversations, suggesting play to children, or being in a room full of people and interacting. Being able to initiate is also deemed an important step for becoming independent within social settings. Initiation is a focal point in intervention programs such as Social Story™, where the objective is to prepare children with ASD to cope in social settings without their parents or caregivers (Gresham and Elliott, 2008).

*Internalising* – Within the scope of this study, internalising means behavior and affective state oriented inward. It comprises emotions like anxiety, sadness, and even feelings of isolation, as well as indicators of low self-worth (Gresham and Elliott, 2008).

*Intervention* – In the framework of this research, intervention stands for the organized usage of the technique, which is a method applied particularly to children with ASD. This intervention uses educational stories that explain social scenarios with necessary hints and responses.

*Observational Frequency Behaviour* – In this study, “observational frequency behaviour” refers to a method of measurement that involves recording descriptive information about each child’s behaviour on a chart. This approach is utilised to track the frequency and context of specific

behaviours before, during, and after the SS intervention, and these data provide a comprehensive snapshot of the environmental and individual factors influencing the children's behaviours at different phases of the intervention, allowing for a detailed analysis of how and why behaviours may change over the course of the study. This method assists in exploring the impact of the intervention on the change in the specified interim targets of negative behaviours, and the development of positive social abilities.

*Post-Intervention* – This refers to the phase following the implementation of the intervention, during which researchers conduct surveys and interviews with parents and teachers to obtain their ratings and make observations of the child's social and behavioural skills to evaluate the effectiveness of the intervention.

*Pre-Intervention* – This refers to the phase before implementing specific interventions, during which researchers conduct surveys and interviews with parents and teachers, gather details about the child from the school, and observe classroom behaviours and interactions to assess the baseline conditions.

*Problem Behaviours* – In the framework of the Social Skills Improvement System Rating Scales (SSIS-RS), problem behaviours are defined as actions that hinder either the acquisition or performance of socially skilled behaviours, and these behaviours can negatively impact an individual's ability to engage effectively in social interactions and learning environments (Gresham and Elliott, 2008). Although the term “problem behaviours” is utilised within the SSIS-RS to categorise disruptive or unproductive behaviours (e.g., externalising, bullying, internalising, and hyperactivity/inattention), the researcher has opted against using this term to avoid the negative connotations associated with it. Instead, alternative language, i.e., challenging behaviour, is used to describe these behaviours in a way that focuses on specific areas for improvement without stigmatising the children involved.

*Responsibility* – For the purposes of this study, responsibility is characterised as showing regard for property or work and demonstrating the ability to communicate effectively with adults. This definition encompasses the need for responsibility and communication skills in the child with

ASD as key attributes that are fostered by supporting interventions like Social Story™ for promoting increased autonomy and socialization (Gresham and Elliott, 2008).

*Self-Control* – In the context of the current research, self-control is considered to be a response to social situations including aggressive and non-aggressive forms, such as ‘conflicts’ and ‘teasing,’ as well as ‘turn-taking’ and ‘compromising.’ This behavior is important in social relationships and is especially a subject of concern in the social development of children with ASD and strategies like Social Story™ (Gresham and Elliott, 2008).

*Social Engagement* – In the context of this study, social engagement refers to the involvement and participation of children with ASD in social interactions and community activities. This involves their ability to begin and sustain an interaction, respond to social cues, and be involved in group activities. One of the other areas that is targeted through intervention programs like the Social Story™ is enhancing the social applicability of people with these symptoms by use of specific techniques that provide social situations and behaviors that are appropriate (Gresham and Elliott, 2008).

*Social Skills* – In the context of this study, social skills are defined as learned behaviours that enhance positive interactions and minimise negative ones within appropriate social contexts. These skills are crucial for effective communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. Each of these domains contributes to an individual’s ability to interact successfully with others. The development and refinement of these skills are especially important for children with ASD, as they help these children navigate social situations more effectively.

*Social Skills Improvement System Rating Scales* – This tool, developed by Gresham and Elliot (2008), is utilised to assess the effectiveness of Social Story™ interventions on children with ASD. The SSIS-RS provides a comprehensive set of rating scales designed to measure social skills, communication abilities, and behavioural functions. The system evaluates both positive social behaviours, such as cooperation and empathy, and problem behaviours, such as externalising or internalising issues. The SSIS-RS’s application in this study posits that the

researcher can quantitatively assess the participating children's progress in their social and behavioural skills as a result of the SS intervention implemented, providing a more structured and standardised assessment of the intervention's impact and effectiveness.

*Social Story<sup>TM</sup>* – This refers to a specifically structured and personalised narrative, developed by Carol Gray, that describes a situation, skill, or concept in terms of relevant social cues, perspectives, and common responses, designed to help individuals with autism understand and behave appropriately in social situations.

*Target Social Skill* – In this study, the term “target social skill” refers to a specific social skill identified as requiring enhancement or development based on a thorough assessment conducted by the researcher in collaboration with the teacher. This identification process determines which particular skill will be the focus of the Social Story<sup>TM</sup> intervention.

*Target Challenging Behaviour* – In the context of this study, target challenging behaviours refers to specific behaviours identified as “problematic” following a detailed assessment by the researcher in collaboration with the teacher. These behaviours are singled out as focal points for intervention through the SS approach.

## 1.8 Thesis Outline

Following Chapter 1, this research is organised into six further chapters.

Chapter 2 presents a review of related literature on Social Story<sup>TM</sup> (SS) intervention, discussing the most important topics related to SS intervention, such as its concept, characteristics, and impact based on previous studies, and focusing on social skills and challenging behaviour in relation to Autism perspectives. Additionally, discussions on the definitions, ASD intervention methods, and relevant theories are also included to clarify the stance of this study and research gaps are also identified in this chapter.

Chapter 3 highlights the research methodology, centring on the discussion of the research philosophy, serving as the basis for this study, the research design, research methodology,

research instrumentations, descriptions and details of the subject of the research and how the analysis will be conducted.

Chapter 4 is a mini-chapter that underlines the guiding principles governing the creation of Social Stories™ following the guidelines stipulated by Gray (2018). This chapter also contains a description of the processes undertaken, from the collection of information during pre-intervention to the drafting of the social story, its implementation, and post-intervention.

Chapter 5 presents the qualitative collection of data, findings, and analysis. The qualitative data highlights the pre- and post-intervention semi-structured interviews of teachers and parents/guardians alongside the researcher's observations, which are presented according to the research objectives set based on the three research questions of this study. The thematic analysis is also presented in this chapter.

Chapter 6 deals with the quantitative collection of data that were taken from the SSIS-RS questionnaires in which the teachers and parents/guardians provided pre- and post-intervention ratings of participating children's social skills and behaviours. This chapter also provides the findings and the analysis relative to the three research questions of this study.

Chapter 7 presents how the quantitative and qualitative results were discussed and analyzed utilizing the data triangulation method with findings that are of great significance. It also provides thorough discussions and interpretations of the findings with respect to the influence of SS intervention on children with ASD.

Chapter 8 provides the conclusion of this study with detailed narratives of the contributions and limitations of this study. It also offers future research recommendations as well as recommendations for practitioners in the field.

## CHAPTER 2 – CONTEXTUAL REVIEW AND FRAMEWORK

### 2.1 Introduction

The primary objective of this chapter is to comprehensively review the existing literature within the sphere of autism, with a pointed focus on the Social Story™ (SS) intervention. The context of this thesis is to gauge the efficacy of SS intervention in enhancing the social and behavioural skills of six autistic children from Ajyal Al Watan Centre in Riyadh, Kingdom of Saudi Arabia (KSA).

The literature exploration begins by defining autism, delineating the nuances between terms like autism spectrum disorder (ASD) and autism spectrum conditions (ASC), supported by definitions from authoritative voices in the field. Subsequent sections illuminate the characteristics of autism, emphasising the importance of this foundational understanding in crafting effective interventions. As the chapter progresses, an array of ASD interventions is discussed, culminating in an in-depth exploration of SS intervention, which encompasses its unique characteristics, foundational concepts, its potential impact – especially on bolstering social skills in autistic children – and its positioning in the broader autism discourse. The synthesis of findings from previous SS intervention studies further underscores its significance and forms the basis for its adoption in this research. The chapter concludes with a discussion of the methodological considerations specific to SS intervention.

### 2.2 Definition of Autism

A clear comprehension of the definitions of autism is imperative, including the terms associated with it and the nuances these terms convey, and this section delves deep into the evolution of terminologies and classifications associated with this complex neurodevelopmental condition. As with many conditions, the words used to define and describe autism carry weight, impacting not just medical and academic discourse but also shaping perceptions of society, personal identities, and policy directives to benefit individuals under this spectrum.

Autism is a complex neurodevelopmental condition that is distinguished in individuals by their differences in social communication and social interaction (Kanner, 1943; American Psychiatric



Association (APA), 2013). The formally accepted name is autism spectrum disorder (ASD) (Fifth edition; DSM-V), and the term ‘spectrum’ is aptly used to indicate that autism manifests in different forms under various levels of severity (Autism Research Institute, n.d.). In order to consider the emotional and social impact of the traditional terminology used to describe autism, Baron-Cohen (2015) coined the interchangeable term autism spectrum conditions (ASC) relative to ASD, which signals a move towards using a more lenient term than disorder with respect to autistic individuals and also to avoid stigmatising children with the label ‘disorder’ since the term ‘condition’ acknowledges both the disability and the differences and strengths in such individuals (Young et al., 2016). The term ‘disorder’ suggests a harsh concept that reflects randomness and a lack of order or intelligible pattern, whereas the term ‘condition’ is simpler and implies the state of being of an individual. Proponents of the term ASC argue that using ASC concepts refers to both the strengths and difficulties of these individuals. Moreover, ASC is less hard-hitting, even in descriptions entailing the level of severity and other cognitive differences associated with autism (Baron-Cohen, 2015). However, critics refer to the internationally accepted diagnostic term ‘disorder’ used by DSM-V, because of its legacy in referring to the appropriateness of symptoms and their severity associated with autism. Concerning this study, the researcher opted to use the term autism, autistic, or autism spectrum disorder (ASD) rather than autism spectrum condition (ASC) as this is the most commonly used term in the context of the study, which is the Kingdom of Saudi Arabia.

The periodic alterations in the diagnostic categorisations of autism have met with a great deal of controversy regarding determining a standardised definition (Volkmar and Jackson, 2020). Because of the diverse range of differences and presentations in individuals diagnosed with autism, a constant updating of diagnostic criteria has taken place over time. For instance, the varying range of cognitive ability may be represented by different levels of IQ scores in these individuals, ranging from below-average, through average, to above-average, and the less severe cases may not manifest the symptoms until a time when their abilities cannot meet social demands, having been masked previously due to certain learned strategies (DSM-5: American Psychiatric Association, 2013; Livingston, 2017; Oerlemans et al., 2018). Hence, autism is labelled as a ‘pervasive developmental disorder’ (PDD) by the *International Classification of Diseases* (Tenth Revision ICD-10) and as ‘autism’ by the *Diagnostic and Statistical Manual of*

*Mental Disorders* (edition DSM IV). These diagnostic standards also include four other separate conditions of PDD, such as Asperger's syndrome, PDD not otherwise specified (PDDNOS), childhood disintegrative disorder, and Rett syndrome. Moreover, both diagnostic standards (ICD-10 and DSM-V) classify autism under ASD, and both share similarities largely by reflecting on the social and non-social characteristics of autism. DSM-V reflects the most modern concept of autism as it was introduced in 2013, whereas ICD-10, introduced in 1992, underwent an evolution in 2018 to ICD-11. Following its approval from the World Health Assembly in May 2019, ICD-11's pre-final version was released by WHO in June 2018. However, the transition from ICD-10 to ICD-11 resulted in the reporting of health statistics by WHO being based on the new system beginning on 1 January 2022, following the guidelines on clinical descriptions and diagnostic guidelines (CDDG) in ICD-11 on mental, behavioural, and neurodevelopmental disorders. ICD-11 tallies with DSM-V in many respects but differs in some aspects that were being reviewed for the final version (Zeldovich, 2017). Reed et al. (2019) note an interesting point regarding the overlap between DSM-5 and ICD-11, explaining that the development period of both diagnostics (i.e., DSM-5 and ICD-11) are substantially the same. Even membership of both groups was similar, and ICD-11 working groups were proposed to look at the clinical utility and global applicability of the material being considered for the development of DSM-5. Aiming to overcome major and arbitrary differences, the development structure of ICD-11 was influenced by both WHO and APA to keep in harmony with the structure of DSM-5, although with permission for conceptual differences in both (Reed et al., 2019).

Although this research is based within the Gulf region, it still takes the two associations into consideration. Thus, their definitions are of value. According to the recent manual of DSM-V, autism is a spectrum disorder in an individual, noted since early childhood and manifesting itself in challenges regarding communication and social interaction, and differences in patterns of behaviours, activities, and interests. Moreover, the 11th version of ICD states that autism is a group of disorders with qualitative differences, specifically in social interaction reciprocity, communication patterns, and a stereotyped repertoire of behaviour and activities. Reed et al. (2019) extend the views on ICD-11's characteristics of autism, stating that it incorporates both childhood autism and Asperger's syndrome from ICD-10 under the single category of

social/communication deficits and challenging behaviour. To determine the extent of an individual's impairment under the autism category, qualifiers have been added to ICD-11 to assess the full range of autism more holistically. In relation to this study, the guidelines on autism are used according to the current and updated literature.

Deweerd (2018) highlights similarities between both manuals, stating that both are very close but do not contain identical diagnostic measures for autism. Both sets of diagnostic criteria differ in purpose, and Doernberg and Hollander (2016) indicate that DSM-V mainly aims at improving clinical utility, whereas ICD-10/11 aims at improving diagnostic measures. Despite these differences, professionals seek to administer both systems as complementary solutions towards improving the health and social and educational approaches used with children and adults with autism and other neurodevelopmental disorders (Doernberg and Hollander, 2016).

A considerable amount of research has been conducted over the span of the last ten years (Zwaigenbaum et al., 2015) that has attempted to assess potential interventions to address the social communication and behavioural differences in children with autism, but, because of the heterogeneity of the condition, determining a unified solution has not been yet possible. Hence, as there is little consistent evidence existing regarding 'what works' and 'how it works,' it is crucial to understand the characteristics of autism, discussed in the next section, that develop in the early stages and could be addressed through effective interventions (Bond et al., 2015).

After examining the varied definitions and perspectives on autism, the next section delves into the specific characteristics of autism spectrum disorder. For the purposes of this research and for clarity in subsequent discussions, henceforth the condition will be referred to and conceptualised as 'autism spectrum disorder' or 'ASD' or autistic for the adjective to describe the individuals diagnosed under this spectrum.

### **2.2.1 Characteristics of Autism**

Autism spectrum disorder (ASD) is a multifaceted neurodevelopmental condition that has been described and characterised in numerous ways within both research and clinical settings. A widely accepted definition is offered by the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-V), in which autism's main characteristics are marked by

restricted, problem patterns of behaviours, interests, or activities (American Psychiatric Association, 2013). In addition, an autistic child can reflect hyperactivity to sensory input and exhibit different attention towards the sensory characteristics of the environment: e.g., evident unresponsiveness to pain/temperature, inappropriate reactions to specific sounds and surfaces, unnecessary touching and smelling of things/objects, and overt visual fascination towards lights or movement.

Moreover, the severity of the level of social communication and problem behaviour in an autistic child varies, but it is categorised into three levels by DSM-V. The categorisation of each level varies as per the relative support it requires. Level 1 severity requires support. Consequently, in the absence of essential support, impairments in social communication contribute to difficulties, such as challenges in starting social interactions and noticeable instances of atypical or unsuccessful reactions to social overtures from others. For instance, an autistic child may tend to engage in conversation but fail or may attempt to make friends but remain unsuccessful. Likewise, their level of challenging behaviour may make it difficult for them to plan, organise and even switch between activities. Relative to this, the characteristics of Level 2 severity require substantial support with social communication and restricted behaviour. Notably, despite providing support, tendencies to demonstrate verbal and non-verbal communication deficits may persist. This may be followed by abnormal responses, an inflexibility in behaviour, and occasions when distress and difficulty in focus are frequent enough to be obvious to observers. The most severe level, i.e., Level 3, is distinctive as it requires the most considerable level of support because of severe differences in verbal and non-verbal communication, followed by minimal responses to others. For example, they are characterised by rare interactional initiatives and respond only to direct social overtures. Moreover, their problem behaviour is impaired to such a severe level that they encounter extreme difficulty coping with change and focusing on an action in a given context.

In addition to this, the characteristics of autistic children are also linked to their early developmental period. Neurodevelopmental disorders are typically identified through their phenotype (physical characteristics) or genotype (chromosomal and molecular traits). However, ASD lacks a specific phenotype and a consistent genotype for definitive identification.

Hence, symptoms must be present in the early stages of development, although these may not fully exhibit themselves until their social context's demands surpass their limited tendencies; they are sometimes overlapped by learning strategies later on (Grzadzinski et al., 2013). Moreover, Pedersen et al. (2017) elaborate that there is an overlap between the clinical characteristics of ASD and intellectual disability (ID), creating the potential for diagnostic confusion.

DSM-V states that symptoms pertinent to autism can cause clinically potential differences in the social, occupational, and other meaningful functioning of individuals; however, ID disorders and global developmental delays do not explain these differences in detail. The tendency of ID and autism to co-occur is there, but when it comes to their diagnosis, social communication should be below the expected level required for the general development level (Fletcher-Watson and Happé, 2019).

As highlighted above, the levels of severity of characteristics elaborated by DSM-V vary, and autism in each individual is heterogeneous (Golzari et al., 2015); its exact cause is still uncertain. In children with autism, complex sets of characteristics have been reported, with the most common including difficulties in understanding and recognising others' perspectives, beliefs, and emotional states, either from visual or auditory cues, thereby exhibiting a lack of responsiveness to others' needs and social overtures. This is contributed to by their inability to keep a gaze and hold eye contact as a social cue in some of the cases (Scassellati et al., 2018), and these characteristics, in particular, are related to the 'theory of mind' in children with ASD. Consequently, spontaneous (i.e., without very obvious signalling) social skills are often critically reduced in autistic children. Hence, they lack the skills to support others, which further includes helping, sharing, comforting, co-operating, and interacting in group activities. These different characteristics of children with autism limit their reciprocal social relationships (Oerlemans et al., 2018). In relation to this study, the researcher examines the potential of SS intervention to enhance these social relationships. It has to be noted that scholarly research, particularly the studies by Gernsbacher and Yergeau (2019) and Holt et al. (2022), has cast doubt on the claim that autistic individuals lack theory of mind (ToM), revealing that the ToM deficit theory is not

only unsupported by empirical evidence but also socially harmful, as it fosters stereotypes and discrimination. Gernsbacher and Yergeau highlight the inconsistencies in ToM assessments, while Holt and colleagues show how autistic perspectives refute the ToM deficit narrative, emphasising the need for a re-evaluation of ToM's role in autism research.

Numerous scientific studies relate these characteristics originally to genetics by 10 to 20 percent, as cited by Jeste and Geschwind (2014). However, more recent evidence has recorded heritability to account for 64 to 91 percent of autism (Tick et al., 2016), with the remaining being down to environmental factors and certain unknown factors (Rynkiewicz et al., 2018). This is also stressed by Rossignol et al. (2014), who state that a strong interaction of genetic predisposition and environmental factors contribute to the causes of autism.

Indicating the heterogeneous nature of autism, not every individual with autism will have the same characteristics as another (National Autistic Society, 2017). Therefore, researchers can only be sure that social difficulties are the primary and apparent characteristics of autism and differ in each person. Social difficulties are related to communication challenges, such as difficulties in maintaining a conversation, showing atypical eye contact and unusual speech patterns, lacking social engagement, and experiencing difficulty in comprehending others (Kandola, 2019).

Yeo and Teng (2015) state that children with autism develop social challenges both cognitively and behaviourally. Hence, they are affected by their ability to understand others or determine others' interactions, behaviour, and emotional resonance; this controls their verbal responsiveness. Therefore, their ability to understand the significance of social inclusion and relationships is hampered (Kreider et al., 2016). Moreover, according to evidence produced from prior research (Güral et al., 2013; Dean et al., 2017; McVey et al., 2017), different aspects influence the development of social skills in children with autism, which include age and gender (Dean et al., 2017; McVey et al., 2017), parental or caregiver's support (Caplan et al., 2019), and the academic services (Azad et al., 2018) offered to them.

Another important dimension that needs to be addressed, and which is also relevant to this current study, is the key behavioural characteristics that children with autism exhibit in the

classroom and home settings. Josilowski and Morris (2019) argue that the characteristics and behaviours of autistic children are dependent on the transitions they face in a classroom routine that may lead them to respond with challenging behaviour. In fact, according to Josilowski (2019), a child with autism whose learning process is supported by a strong relationship between parent and teacher can reduce anxiety and increase security for the child, which is why parents and teachers must be mindful of their responsibilities and ensure that these responsibilities are clearly defined and shared in accordance with that understanding, as well as through regular communication (Katyal and Evers, 2007). Adding to this, Ladarola et al. (2017) argue that autistic children face new challenges when shifting from self-contained classrooms to inclusive settings or even general education classrooms, which is problematic for both teachers and parents (Carroll, 2013; Sanahuja-Gavaldà et al., 2016). Moreover, autistic children may face social rejection from peers in an inclusive setting (Majjoko, 2016), leading them to struggle with their interactive behaviours. Ladarola et al. (2017) argue that school-based challenges in the social skills domain range from potential change in behaviour to complete reliance on an adult's or caregiver's support. The social skills differences in a classroom setting are often reported as exhibiting perceived aggression, tantrums, and self-injury (Sanahuja-Gavaldà et al., 2016). However, Goodall (2016) reports that the transition of autistic children into different classroom settings (i.e., mainstream or inclusive school settings) offers them the opportunity to learn from their peers. Adding to the beneficial perspective of mainstream and inclusive educational settings, Goodall (2016) further asserts that, undoubtedly, mainstream inclusion leads autistic children to display more social behaviour and increased social skills. Furthermore, Josilowski and Morris (2019) state that consistent classroom support from teachers, paraprofessionals, and services assists autistic children in understanding their social and emotional needs and gives them the necessary social and life skills that would allow them to progress in the classroom toward their potential.

This aligns with the research of Golzari et al. (2015), which finds that interventions using social stories had a remarkable effect on engagement-related measures, including understanding/perspective-taking, initiating interactions, and sustaining interactions with others. Sundberg and Partington (2013) find that many children with autism exhibit noteworthy language delays or disorders, underscoring that communication challenges are a notable concern in this population.

Children with ASD generally require consistency in their environment and may struggle to maintain situations that require social communication skills with unfamiliar people and the need to be flexible (Tobin et al., 2012).

Contrary to this, in a home setting and in a more autonomous and uncontrolled environment for an autistic child, parents report more challenges in reinforcing learning and generalising the skills learned at school due to the child's challenging behaviour since this underpins feelings of anxiety, depression, withdrawal, problems with socialisation, impaired attention, rule-breaking, and aggression that are said to originate from challenging social skills and difficulties in interacting and responding according to a given context (Scassellati et al., 2018; Lindor et al., 2019). The National Autistic Society (2017) suggests that the challenging behaviours of children with autism can differ noticeably between school and home environments. In school settings, which may be inherently stressful for these children, they might mask their true feelings, leading to subdued body language, altered responses, and facial expressions.

As stated earlier, understanding the characteristics of autism is imperative so that appropriate and effective intervention can be employed during the early stages. This is also in agreement with the findings of Golzari et al. (2015) that Social Stories™ are an effective intervention in improving the social skills of children with ASD. Bearing this in mind, a discussion of various autism spectrum disorder (ASD) interventions is provided next.

### 2.3 Development and Challenges of ASD Intervention Methods

Numerous interventions for children with autism have been suggested in the autism literature and have had promising results (Chang and Locke, 2016). Interventions are available under the term of social skills interventions: i.e., peer-mediated interventions (Wolstencroft et al., 2018), social skills training, group-based social skills interventions (Gates et al., 2017), and LEGO therapies (Levy and Dunsmuir, 2020), all with varied theoretical foundations (Levy and Dunsmuir, 2020). Specific features of these interventions tackle fundamental developmental changes: e.g., the functional, behavioural, and cognitive abilities of children with autism.



Vivanti et al. (2017) emphasise the importance of structured theoretical frameworks for creating and assessing interventions aimed at autistic children, but, despite positive advancements, there are still notable deficiencies and areas needing further research in all phases of intervention, from conceptualisation to real-world application. The main challenges include (a) establishing structured theoretical frameworks for the initiation, assessment, and application of early interventions, ensuring these interventions are in line with current scientific understanding and societal shifts since their original conception; (b) prioritising the practicality of intervention methods and their alignment with the values of those involved during preliminary tests; (c) adopting research methods that enable comparison between various interventions and their formats, examination of the core components of treatments, and determination of factors influencing outcomes; (d) leveraging community-engaged research to tailor intervention models for local contexts; (e) integrating concepts pertaining to the implementation process and results into clinical trials; and (f) a cyclical process of knowledge advancement from developing interventions to implementing them.

A primary focus in the field should be the creation and/or enhancement of structured theories to drive focused analysis of all intervention aspects: effectiveness, mechanisms of action, interaction with the child's unique traits, context of implementation, and compatibility with other concurrent interventions. As new interventions for ASD emerge frequently, with little clarity on how they differ or overlap with existing methods, a clear definition of their distinct and common theoretical foundations is essential for clarity and simplicity in the field. Advocates of new models should explain their treatment rationale and distinguish their theories from existing ones, providing a foundation for hypothesis-driven evaluation.

Relative to the efficacy of individualised interventions executed to address various challenges of children with autism, there is research evidence that reflects on the effectiveness of interventions in an inclusive setting for these children. Watkins et al. (2019) highlight that as more children are educated alongside their typically developing peers in standard educational settings, it is crucial to assess the methodological quality and effectiveness of school-based peer education interventions designed to assist these children. Similarly, Hume and Campbell (2019) discuss the 40-year history of incorporating peers in interventions for autistic students, starting with peers

aiding young ASD children in preschools to boost social interaction. Various peer interventions have evolved for students of different ages, aiming to enhance a wide array of skills in students with ASD, which include peer modelling, creating peer networks, providing peer support (like peer tutoring and ‘best buddies’ programmes), using indirect peer-mediated instructions, and directly training from peers. The scope of these interventions spans from improving play activities to fostering friendships and enhancing communicative behaviours.

Moreover, efforts to increase the awareness, sensitivity, and competencies of peers have been explored, with studies showing that these peer interventions not only benefit the students with ASD but also have positive effects on their peers. This comprehensive approach to peer intervention reflects the importance of inclusive and supportive educational environments for children with ASD.

Critics have raised concerns about the potential for stigmatisation in integrated educational settings when implementing interventions for children with autism. In response, there has been a growing focus on developing and evaluating school-based interventions that aim to reduce the stigmatisation of children with ASD with such interventions typically involving peer-directed educational approaches and peer modelling techniques. These methods often include providing a mix of descriptive information to foster likability by emphasising commonalities between students with ASD and their peers, explanatory details to contextualise unusual behaviours, directives on how to inclusively interact with autistic peers, and factual information about ASD characteristics.

Scheil et al. (2017) suggest that these educational interventions are designed to combat stigma by offering accurate, age-appropriate, and relevant information about ASD, coupled with clear strategies for understanding and engaging with autistic individuals. School psychologists should be mindful of these considerations when creating, applying, and supporting peer interventions in educational environments. Additionally, Hume and Campbell (2019) emphasise the need for researchers to address these challenges in future studies to broaden the effectiveness and scope of peer interventions for students with ASD.

The Exceptional Children (EC) division US (2011), in its document on good practice guidance, acknowledges the heterogeneous nature of autism and classifies a diverse range of interventions to address the differences in students and their presentation. In this regard, the four most obvious categories of interventions elucidated by the EC division are (1) teaching interventions aimed to reinforce responses through discrete trial training (DTT), (2) computer-aided instruction, (3) naturalistic interventions, and (4) visual supports. These are found to enhance the frequency of students' social interactions, improve their task initiation capabilities, and sustain improvements (Bond et al., 2016). Communication and social interventions, picture exchange communication systems (PECS), voice output communication (VOC), aids/speech generating devices (SGD), SS, and video modelling are all said to be effective with preschool children with autism and have been found to contribute to appropriate initial communicative acts (Trottier et al., 2011). Behavioural interventions, such as reinforcement, shaping alternative behaviours, positive behavioural intervention, et cetera (Odom et al., 2010), have been found to contribute to overall behavioural improvements.

Other perspectives on prior interventions used to address autistic social skills are highlighted by Golzari et al. (2015) in their report. Examples of these interventions are (1) the floor time approach (Liao et al., 2014), (2) relationship development intervention (Carter et al., 2014), (3) the Son-Rise picture exchange communication system programme (PECS) (MacDonald, 2014), (4) applied behavioural analysis (ABA), and (5) play therapies (Aliakbari et al., 2012; Taziki et al., 2013). Although they have been shown to be effective, Golzari et al. (2015) argue that these interventions have been executed mainly for cognitive training and improving communication skills but not specifically social skills. Hence, the efficacy of specific interventions for social skills development was unclear until the SS intervention was used (Gates et al., 2017). Social skills are crucial for success in different but imperative contexts of a child's lifespan: e.g., school, home, workplace (in later ages), and the community (Gresham, 2015; McCoy et al., 2016). In addition, difficulties with social competence may become more evident in adolescence as the expectations and needs related to social competence evolve over time, making it more complex for an autistic individual to cope with post-school and educational challenges (Laugeson and Ellingsen, 2014). Such difficulties can lead to greater stress, which challenges their ability to transition into more progressive social roles as adults (Picci and Scherf, 2015),

and, regrettably, if these difficulties remain unaddressed, autistic children are more likely to be isolated, leading to more serious complications, including anxiety and/or depression (Volkmar et al., 2014). Therefore, addressing these issues at an early age is crucial (Ke et al., 2017).

The challenges involved in processing social cues and overtures, interpreting people's intentions, and choosing appropriate responses are some challenges that children with autism face. They cannot picture what it would be like to live with these differences. Hence, based on this argument, the complexities of the social self are addressed by researchers and practitioners to a great extent, and interventions are designed and executed extensively to help address the social development of children with autism (Zeedyk et al., 2016).

The apparent basic skills are inherited, making it challenging for the parents, caregivers, and practitioners to teach and even for autistic children to apply those skills according to a given situation; as stated by Camargo et al. (2014), this challenges their ability to reach typical developmental milestones. Hence, developing social skills in autistic children allows them to effect changes in the development of positive personal relationships with parents, teachers, siblings, friends, and peers. Moreover, the significance of social skills spans multiple domains of educational and living contexts. For example, teachers rate social skills as an essential aspect of children's success in the classroom and in academic attainment on the whole (Moody and Laugeson, 2020). One basic skill, for example, is greeting, which is apparently a simple social skill but a complex construct in different contexts, such as in the home or in the classroom, as it encompasses different ways of greeting different people (friends, teachers, or parents) (Sasson et al., 2020) and words and actions for exchanging greetings differ. Hence, greetings are complex, as are most social skills (Cappadocia and Weiss, 2011; Brady et al., 2020). That being said, there has been an increase in interest and scientific attention being paid by researchers on ways to help develop social skills and on interventions and training programmes designed for and specifically centred on autistic children to help improve their multidimensional social skills, i.e., social competencies, well-being, language, and mental health, although the effects and improvements are not robust across the measured outcomes (Moody and Laugeson, 2020). However, numerous scholars have supported social skills interventions as efficacious in improving such skills in autistic children (Reichow et al., 2013; Gates et al., 2017).

In the same vein, McCoy et al. (2016) add that numerous technology-based interventions for enhancing the social skills of autistic individuals, such as video modelling (VM), role play, and computer-based instruction (CBI), have been encouraged for use by practitioners. However, CBI and VM have been classified for an older age group of the autistic population.

On the other hand, Golzari et al. (2015) state that SS intervention is deemed best for children with autism within the age range of two to six years. The SS intervention is a positive and proactive behavioural intervention that is administered to teach or enhance social behaviour and advocated by practitioners. SS has emerged as having elements of other effective interventions for autism, e.g., visual support, where it often coheres by pairing pictures or using videos to provide visual support to facilitate understanding (MacDuff et al., 1993; Dettmer et al., 2000). It also fits with priming strategies in that it is employed before a prescribed task or situation to enhance a student's engagement to complete the activity (Wilde et al., 1992; Schreibman et al., 2000). This reflects the fact that SS has emerged from prior behavioural approaches to evolve into a more specific behavioural strategy.

A comprehensive systematic literature assessment conducted by Bond et al. (2016) outlines numerous categories of intervention by assessing studies conducted in different countries, although mainly from the US (65) and the UK (7). The effectiveness of each intervention was determined based on scores associated with each group design, the appropriate use of procedures for monitoring, the clearly defined sample, and the use of objective measures (Bond et al., 2016). On this basis, interventions were classified in terms of having the most evidence, moderate evidence, some support, and a small amount of evidence. The categories included social interventions (e.g., social initiation training, computer-assisted emotional recognition, multi-component social interventions); communication interventions (e.g., video modelling, PECS, behavioural communication approaches, peer-mediated interventions); play-based interventions (LEGO); challenging and interfering behaviour interventions (e.g., narrative interventions and SS); comprehensive interventions; pre-academic and academic skills interventions; and adaptive skills interventions.

Moreover, the influence of setting is also evident in these interventions: e.g., a natural setting, controlled setting, general educational setting, and real-life setting; these present more challenges (Locke et al., 2015). The environment is undeniably one of the factors that triggers the varied perspectives of parents and teachers. Even Gaines et al. (2018) emphasise how architecture and interior spaces can positively influence individuals with ASD by modifying factors such as colour, lighting, space organisation, textures, acoustics, and ventilation, based on the most recent research in environmental psychology and education. It is also argued that the outcomes from using a particular intervention should be clear and relevant and that they should also make potential gains, with adequate training and resourcing for the devised intervention (Bond et al., 2016).

Interventions executed to address social challenges constitute the largest proportion of relevant scientific evidence (Wong et al., 2015), followed by communication-based interventions, which are coupled with moderate evidence (Watkins et al., 2017), while interventions focusing on challenging behaviour carry a larger base of scientific evidence (Bond et al., 2016). The effectiveness of the interventions for challenging behaviour revealed mixed results in children with autism, for example, aged between 4–11 years, while narrative interventions (e.g., SS) used in the age range of 7–13 years showed effective outcomes.

The assessment of the above interventions, designed to address social, communication, and challenging behaviour in autistic individuals, reveals that these interventions are often relevant in terms of a particular challenge, a particular age group, and the setting in which they are executed. Hence, different effects are reported depending on the focal point of each intervention (Bond et al., 2016). However, the use of SS intervention to address diverse impairments of children with autism is becoming quite popular among educational psychologists (EPs) and educational practitioners as an intervention for improving the social functioning of such children and alleviating their challenging behaviour (Wright et al., 2016). The versatility of SS has made it an attractive choice by practitioners over other interventions (Khantreejitranon, 2018).

The efficacy of SS relative to other interventions is still under analysis, and no definite conclusions exist on its final effectiveness. Researchers, such as Karkhaneh et al. (2010) and

Rhodes (2014), have reflected on how SS is effective in terms of narrative synthesis and its flexibility in modifying a story to improve the targeted behaviour of children with autism; that is, it is able to be tailored to each individual participant (Samuels et al., 2012; Hutchins et al., 2013; Thompson et al., 2013), while others, such as Leaf et al. (2015) and Karal and Wolfe (2018), appreciate its effective methodological framework and quality. Adding to this, Kokina and Kern (2010) find this intervention to be effective due to its coherent results, as social stories are considered to be reliable in producing a positive impact on targeted behaviour in autistic children (Rhodes, 2014; Wong et al., 2014). Lastly, SS shows itself to be effective not only when used alone but also when used with other interactive technological interventions (Hutchins et al., 2013), and therefore this research showcases the positive use of SS as an intervention since it is used to tailor each story based on the special case of a certain child's needs after evaluation (Fleming et al., 2015).

In conclusion, the choice to concentrate on the SS intervention for this study is anchored in contemporary research outlined above, which underscores the promising effectiveness of this method. It is imperative that the SS intervention follows a well-defined guideline or framework to guarantee its efficiency in aiding autistic children in honing their social and behavioural skills. A detailed discussion of the SS intervention is highlighted in the next section.

#### 2.4 SS Intervention: Concept and Characteristics

The wide use of SS within the autism community (Smith et al., 2020) has meant it has acquired the reputation of being an effective method for addressing differences in social skills and the behavioural challenges of autistic children (Min and Theng, 2017). Initially introduced in the early 1990s by Carol Gray, Social Stories™ (SS) rapidly gained popularity as an intervention method for children with autism, and Gray (1991) then designed a particular set of criteria concerning the development and delivery of SS. Furthermore, Gray and Gernard (1993) established rules on sentence types and a pertinent ratio to certify that the content emphasises description rather than being directive, describing the who, what, when, where, and why questions for individuals with autism (Gray, 2012, 2019). Hence, it developed as a strategy for improving and developing social understanding in children with autism (Meister, 2020) by sharing information in a meaningful way through versatile concepts (Lau and Win, 2016). Being

distinct from typical direct social instructions, SSs are distinct by offering more explanations through different concepts, supporting the learner's understanding, and facilitating interpretations in a specific learning environment (Kennedy et al., 2019).

To understand the distinctiveness of SS, recognising that through the use of first-person language, endorsed by basic text and images, a social story can be described, using the child as the story's main character. The use of emotional labels, positive tone, and easy description aid and support the child's understanding of the given situation. Therefore, these are the characteristics and attributes that add to the effectiveness of the SS in helping to promote the interactive interpretation and learning of the child.

To reiterate, the stories can be defined as brief, highly customised narratives (Thompson and Johnston, 2013), designed to address specific areas involving individuals with autism by sharing specific information to tackle social and challenging behaviours (Samuels and Stansfield, 2012). Notably, it is vital that the person delivering the SS intervention to children with autism is adequately trained, as its effectiveness can be dependent on many factors, such as context, the skills of the storyteller, the competence of the caregiver, and the method of implementation (Bearss et al., 2015; Leaf et al., 2018).

SS is viewed as a proactive behavioural intervention, chiefly administered to autistic students and written from an instructional perspective to support positive behavioural actions (Schreiber, 2011), thereby enhancing the likelihood of social success by easing the complexity of interpersonal interactions (Leaf et al., 2012). The descriptive format of an SS determines its effectiveness, and it is emphasised that the meaning should be clear in a few sentences (i.e., 5-10) and that it should motivate individuals to take appropriate actions (Qi et al., 2018). To yield maximum output and direct the desired behaviour, the SS should have a predictable sequence, a specified format, and a framework of descriptive sentences (describing targeted behaviour). It should consist of directive sentences (explaining directive responses and actions) and perspective sentences describing the viewpoint of others and commonly shared values and opinions (Schreiber, 2011).



According to Odom et al. (2014), the social validity and reliability of SS are promising as positive outcomes have been observed in terms of accomplishing the desired behaviour. Among the various advantages of SS are that they focus on targeting one specific/single behaviour at a time and allowing change and effectiveness to be measured and shown clearly (Qi et al., 2018). In addition, the effectiveness of an SS is also associated with innovative characteristics despite its traditional composition of words on paper. Test et al. (2011) report that if videos, audio recordings, hand drawings, and/or photographs are incorporated into the execution of the SS, they will add to their execution and overall efficacy.

Another advantage of using this narrative intervention is that teachers who are reading or portraying the SS have flexibility with this type of assessment since it gives them an opportunity to prioritise which behaviour they wish to target and change first (Hutchins and Prelock, 2013). Most researchers will recommend that the most noteworthy functional skill that affects performance personally and socially needs to be addressed first (Leaf et al., 2012).

Social Stories™ is dependent mainly on illustrated interaction and the simplicity of storytelling (Logsdon, 2013), and the existing literature manifests that social stories are, in fact, effective in addressing numerous challenges, such as social behaviours among children with autism. However, Aldabas (2019) posits that SSs should not be used in isolation. To fully assess their effectiveness, further research is needed into their application in combination with technological tools, exploring their full potential in this context. This study aims to address this gap by using SS to enhance the systemising quotient of participants by also making use of abstract content in stories (customised illustrations). The efficacy of the SS is dependent upon an array of factors, including the description of participants and settings, experimental control and internal validity, social validity, and external validity (Reynhout and Carter, 2011). As stories are known for their ability to address various purposes, it is imperative to assess their social validity to keep track of their effectiveness in producing notable outcomes, and the measures used to assess the social validity of an SS include post-intervention interviews, questionnaires, and formal/informal rating scales, though validity and reliability also call for generalisations of setting, stimuli, and the individuals involved in the process (Hutchins and Prelock, 2013). Khantreejitranon (2018) and

Golzari et al. (2015) incorporate an experimental design to assess the validity and reliability of SS and find it to be the sole intervention in addressing challenging behaviour.

#### **2.4.1 Impact of SS Intervention**

Further acknowledging Gray's (1990) development of SS, modern evidence also supports its contribution. For example, Silver-Tawil and Brown (2019) term SS as a cross-collaborative approach and an attractive instructional strategy (Karal and Wolfe, 2018). It is through the use of written stories with pictorial cueing or video frequency that participants modify their problem behaviour and social skills (Ghanouni et al., 2019), and Bozkurt and Vuran (2014) describe SS, also known as social narratives or story-based interventions, as one of the most validated and efficacious interventions in terms of improving social differences and behavioural skills in children with autism. Hemmeter and Conroy (2018) add that SS has been found to encourage prosocial behaviours, social aptitudes, and social correspondence, which is mainly because of the visual information it can relate to, which has been found to be a more viable and convincing means of pinpointing social skills and desired behaviour in children with autism (Golzari et al., 2015).

Moreover, SS enhances attention levels, enabling children with autism to relate the social cues provided in their stories to their own lives. SS has been reported to help children with autism to understand others through facial expressions and consequently learn to initiate, greet, and provide feedback through different gestures (Kabashi and Kaczmarek, 2017; Ghanouni et al., 2019), and the empirical view of the studies by Leaf et al. (2015) and Karal and Wolfe (2018) state that SS as an intervention for children with autism has resulted in participants internalising self-care skills and increasing their self-esteem by reducing their social and emotional anxiety. Moreover, Tarnai (2012) and Halle et al. (2016), following their implementation of the intervention, described it as a powerful intervention that can be tailored, based on the age of the child, to any given context.

The researchers Kabashi and Kaczmarek (2017) have taken a step forward and further investigated the use of the SS intervention with other means of intervention, such as video modeling. The collaboration of both SS and video modeling was found to be effective, and it has

been reported that using both mediums motivated children with autism to start a conversation and sustain attention and conversation. These results can be supported by prior evidence given by the National Autistic Society (2015), which confirms that children with autism are good visual learners, and practitioners should use visual learning with them (Erdodi et al., 2013; Kidder and McDonnell, 2017). Therefore, the use of SS is encouraged internationally because of its illustrative format, especially since Leaf et al. (2015) discovered that SS facilitates the interpretation of complex situations for children with autism, mainly because it is a visual representation rather than being in a written format.

## 2.5 Significance of Addressing Social and Behavioural Challenges of Children with Autism

Social skill differences are noted as one of the most notable challenges that impact the child with autism in school and home settings (Thompson and Winsler, 2018), making their social life difficult (Golzari et al., 2015). Social skills development is important for children with autism because of their often-limited social interactions (Karal and Wolfe, 2018), although some profiles of autistic children can be excessively social, where they are reported to be overly friendly, over-bearing, overly talkative, and interrupting (Lincoln et al., 2007; Organization for Autism Research, 2016; Levinson et al., 2020). However, both Rowley et al. (2012) and Libister et al. (2022) highlight that autistic children with stronger social skills are more susceptible to bullying in mainstream classrooms. While Libister et al. (2022) emphasise the increased likelihood of identifying and reporting incidents of bullying and interacting with non-autistic peers, Rowley et al. (2012) attribute this vulnerability to the negative reactions elicited by the “almost socially good enough” behaviours of children with autism from their non-autistic peers.

Many researchers have given their own definitions of social skills. Lee et al. (2018) refer to social skills as a set of attributes or behaviours needed to establish social connections and positive relationships through the effective use of verbal and non-verbal communication. On a similar note, Wichnik-Gillie et al. (2018) simply identify social skills as a constituent of a complex class of behaviours and stated that social skills are exhibited across different situations. As can be seen from the definitions, social and behavioural skills are primary attributes that individuals must learn to carry out their daily lives. Hence, helping develop these skills in

children with autism is imperative. Mathews et al. (2013) identify a range of difficulties with social skills, such as the inability to initiate social interactions or maintain effective conversations and communication as well as noting the association of social skills with multiple aspects of development (i.e., academic achievements, relationships with peers, restricted interests, concrete and literal thinking, lack of problem-solving aptitude, inadequate organising abilities, and difficulty in interpreting information). They further stress that individuals who are found to have difficulties with social skills must be provided with support (Lee et al., 2018). Yeo and Teng (2015) categorise the social skills differences in children with autism into three domains: cognitive, behavioural, and emotional. This has a domino effect whereby, first, the cognitive domain limits an individual's ability regarding social-emotional reciprocity and, therefore, causes limitations in non-verbal communication. Second, this leads to not wanting to socialise, being less oriented toward people, and using few gestures in an interaction (Franchini et al., 2017). Third, this results in a low level in the behavioural domain because of their lack of the communication skills required for social interactions.

Thus, because social development is associated with multiple aspects, such as establishing and maintaining relationships, academic well-being, and the development of socially acceptable behaviour, it is important to use the SS intervention to help children with autism to acquire such skills. Garwood and Van Loan (2017) suggest that sufficient social skills are academic enablers that lead children with autism to participate in academic environments, while according to Gresham (2015), inadequate social skills are disabling as they will delay the pursuit of both social and academic development. Furthermore, having the required social skills is likely to motivate children with autism to interact positively with peers, be more participative, engage in necessary academic activities, and behave in socially appropriate ways (e.g., abiding by classroom rules and instructions). However, if these social skills are neglected and left unaddressed, children with autism can manifest challenges, either internally by suffering from anxiety and depression, or externally by not complying with school rules and teacher instructions, as well as avoiding social interactions with peers. They may even become physically or verbally aggressive (Gresham and Elliot, 2014; Sanrattana et al., 2014; Smith et al., 2014).

Therefore, to help improve the social and behavioural skills of children with autism, Guler et al. (2017) stress the need to understand the role of the context in the successful validation, development, and execution of any intervention. Knowing how varied the cognitive differences are, there is no unified root cause of autism, so it is a challenge to formulate a unified theoretical perspective (Beck, 2018). There are many interventions related to autism, and the literature mentioned above has addressed the salient features and efficacy of these interventions and reflected on how they were designed and executed to extend the social well-being of autistic children (Whalon et al., 2015). Furthermore, previous studies have also assessed how the selection of a particular intervention is based upon the changing social demands required by the profile of autistic children and the specific context, as social skills are highly context-specific. It is unlikely that a specific intervention will be holistic and effective in addressing the needs of autistic children of all ages, as specific needs vary from infants to those of a young age and then to adults (Ke et al., 2017), and the different interventions available to address the social challenges are categorised based on their context and need specificity by prior systematic reviews: i.e., communication interventions, challenging behaviour interventions, joint attention interventions, play-based interventions, cognitive behavioural interventions (Weston et al., 2016) and social interventions, with social skills interventions being categorised as a group (Miller et al., 2014). In the same context, Bond (2016) offers a more detailed and comprehensive insight into behavioural and developmental interventions for autistic children that could be used in educational contexts, including social communication interventions, joint attention interventions, play-based interventions, challenging behavioural interventions, pre-academic and academic skills interventions, and motor skills interventions. Furthermore, the variations in these interventions were assessed on the basis of the relevant resources needed for their execution: for example, training, delivery time, and the core components of each intervention related to the targeted age of the autistic child (i.e., pre-school, school-age children from 5–14 years, and children up to the age of 17 (Bond et al., 2015).

## 2.6 Outcomes of Previous SS Studies Addressing Social And Behavioural Challenges

Prior literature has classified SS as an intervention to address social skills and challenging behaviour in children with autism (Leaf et al., 2016; Zhu et al., 2016; Smith, 2017; Karal and Wolfe, 2018). Numerous studies (Rhodes, 2014; Garworrdd and VanLoan, 2019; Wahmen et al.,

2019) note that, up to the present, more than 15 studies have reviewed the effectiveness of SS and assessed the efficacy of this intervention on the basis of its narrative synthesis. SS intervention has been validated for the quality of its rigour, and in terms of effect size metrics and methodological framework (Leaf et al., 2015; Karal and Wolfe, 2018; Qi et al., 2018).

However, the literature questions whether SS only helps children with autism in certain situations and does not help them to know how to respond to new situations that happen for the first time. Hence, Ghanouni et al. (2019) suggest that SS must be representative of social situations that children with autism not only have encountered but also ones which they might encounter in the future. In addition, they state that SSs could be developed in terms of creative and different content, such as in an emotional SS, thus tailoring them for future purposes; this is a distinctive approach to this intervention. Even though there has been ample literature on SS to start research into this topic, there are still gaps in the literature that the researcher wishes to help discover, especially the correlation between initiations of social interactions in future social encounters that the child with autism might encounter.

Despite the lack of empirical evidence, SS remains a widely used and highly endorsed procedure by teachers, guardians and clinicians for children with autism (Leaf et al., 2015). However, the available empirical evidence supporting the use of SS reveals mixed results. Assessing the use of SS for improving challenging behaviour in children with autism, the research by Chan et al. (2011) reveals mild to moderate results with three 8-year-old autistic boys, using a single case experimental research design. The study also took into consideration the role of trained teachers in executing SS. Hence, in a mainstream classroom setting, an acceptable social validity score was reported by the staff.

In a similar context, Iskander and Rosales (2013) gained positive outcomes regarding the effectiveness of SS, coupled with differential reinforcement of other behaviour (DRO), to address the challenging behaviour and enhance the social inclusion of two autistic boys aged 8 and 11 years in a special school classroom for autistic students. Likewise, improvements were reported by Cihak et al. (2012), including improved task engagement and social skills of four

autistic boys of 11, 12, 13, and 14 years of age in a mainstream school using SS in collaboration with video modeling.

Leaf et al. (2015) provide an extensive analysis of prior studies that endorse SS to address the impairments in children with autism, highlighting different evidence-based parameters for assessing its effectiveness. Leaf et al. (2015) state that studies reporting the inefficacy of SS were due to poor execution of an appropriate research design and inappropriate demonstration of the SS procedure. Hence, methodological limitations impede the actual effectiveness of the intervention when inappropriate execution may lead to the intervention of confounding variables that impact the evaluation of the results. Prior evidence also posits the extensive incorporation of SS because it offers ease of execution relative to other complicated procedures, such as video modeling (Leaf et al., 2012, 2015), and because of its perceived efficacy, it is seen to be adopted excessively by researchers for subjective measurements.

As is evident from the above, many researchers have supported the SS intervention as an effective tool to enhance the ability of children with autism to understand the emotions and intentions of others (Kandalaft et al., 2013). However, Ploog et al. (2013) challenge the effectiveness of SS by stating that the intervention does not help unless the situation of the child with autism is the same as in the illustrated story he/she has been told. Ritcher et al. (2011) agree with this by stating their scepticism regarding the efficacy of SS as an intervention and express uncertainty about its outcomes due to different linked aspects such as contextual factors, a lack of cooperation by the participants, and inadequate study design and execution.

## 2.7 SS Intervention's Applicability in School and Home Settings

Intervention plan processes have been found to be difficult to retain when changes in context occur in children with autism (Chang et al., 2014; Carruthers et al., 2020). In other words, the behaviour of children with autism differs depending on their current setting. For example, a child with autism can socialise with his/her siblings at home but does not socialise with peers at school. Hence, it is important to find ways to generalise the intervention process beyond its original learning context (Carruthers et al., 2020); therefore, using SS as an intervention will allow the context to be generalised because the story is solely about the child and his/her

behaviour, and the child will be able to take his/her story home. Thus, the context will differ, but the story will be narrated in both settings and relating to the story will be then possible, especially if the intended behaviour to be taught is a general one, such as saying thank you or washing their hands.

Therefore, the current study will consider the input from both teachers and caregivers (parents/guardians) at home and school. Then, the SS intervention will be executed to attain a collective result that could be generalised for both settings. Moreover, the current research will address the research questions of social skills development (the initiation of responses, social engagement, and communication) as well as emotional regulation and empathy through the effective use of SS, which are all skills that can be taught within both home and school settings.

## 2.8 The Importance of Cultural Context in SS Intervention Implementation

The incorporation of cultural considerations is of paramount importance in the design and implementation of educational interventions. Within the realm of research, the conceptual dimension of cultural adaptation holds relevance, particularly in the process of adapting social skills interventions from a Western cultural context to an Eastern one (Devenport et al., 2018). This perspective on cultural adaptation encompasses the recognition and exploration of social and cultural disparities in the globalisation of education and pedagogical practices, with specific attention given to the differences between Eastern and Western cultures. Ungar et al. (2014) emphasise the importance of a contextually sensitive approach in understanding varying cultural behaviours and practices, both at home and in school, arguing that the success of any programme or intervention often hinges on including a cultural component or demonstrating sensitivity to contextual differences among students. Factors such as the size of the community, socioeconomic status, family support, access to other services and supports, and the availability of resources play a remarkable role in this regard.

The significance of cultural adaptation and conformity is closely tied to the intervention's ability to align with the characteristics of the target population. Researchers emphasise the challenges associated with achieving appropriate correspondence across cultures, as ideas, notions, concepts, expressions, and practices deeply rooted in a particular culture may not seamlessly



transfer to another. It is crucial to acknowledge that cultural disparities exist, and concepts cannot be universally generalised or transferred in their entirety from one culture to another.

Furthermore, it is important to note that certain concepts may exist in multiple cultural contexts, yet diverge in terms of their meaning, connotation, and historical significance within each culture (Korn et al., 2021). The issue of cultural non-correspondence not only poses challenges in translation but also encompasses linguistic, cultural, and functional equivalence, as well as the potential for misunderstandings regarding connotations and metaphorical representations in research findings. Consequently, the translation process may inadvertently overlook crucial aspects, leading to a loss of important nuances in the translated versions (Marginson and Yang, 2021).

When it comes to the design and execution of an intervention, it is crucial that they are aligned with the demographic characteristics of the specific context and study participants, and this consideration will play a vital role in determining the intervention's effectiveness and external validity across cultures. Moreover, numerous studies have indicated that culturally adapted social skill interventions tend to yield greater effectiveness compared to non-culturally adapted ones (Bangpan et al., 2019), and this finding underscores the importance of recognising the cultural specificity of social behaviours, as diverse groups often demonstrate unique social skills in various settings and contexts (Harrison et al., 2017). By acknowledging and addressing these cultural nuances, interventions can be better tailored to meet the specific needs and behaviours of different cultural groups, thereby enhancing their overall effectiveness. However, it is worth noting that there is a dearth of research on this particular dimension (Wong et al., 2016; Devenport et al., 2018), which not only indicates the need for research but is also a justification for this current study.

In the sphere of autism, the cultural adaptation of interventions for autistic individuals holds considerable importance due to variations in values and perspectives regarding social behaviours among different societies and communities, as evidenced by research (Tawankanjanachot et al., 2023). One important perspective to be considered is the negative perception surrounding the adoption or implementation of Western educational tools or interventions within an Eastern

context. Despite certain concepts appearing to have universal applicability, they do not readily translate or function seamlessly across different cultural contexts. The encounters between Eastern and Western cultures and the contrasts arising from cross-civilisational differences contribute to a lack of assimilation due to the inherent dissonance, thereby reinforcing social stigmatisation (Xu, 2022).

The cultural sensitivity and appropriateness of any intervention or research design call for insight into the imposition of Western educational systems, values, and practices existing as dense colonial narratives and discourses. This historical legacy has shaped many countries' educational systems and cultural norms today, as the differences between Eastern and Western cultures in educational practices and interventions can be seen as a reflection of this historical power imbalance and the influence of colonisation (Özçelik, 2022). Another underpinning reason for this cultural dissonance is the Western dominance and universalisation of educational practices. Vickers (2022) explains that this dominance has led to the universalisation of certain educational models, such as the traditional pedagogical approach and standardised research procedures and practices. It is obvious that, because of cultural diversity, when interventions designed within this Western framework are introduced to Eastern contexts, there is dissonance in aligning the framework with the cultural values, teaching methods, and assessment practices of Eastern cultures. This difference highlights the need for culturally sensitive and context-specific interventions.

Another effect of colonisation is the strong emphasis of the Western context's universal applicability in education and research, indicating an implicit biased academic tradition. It perpetuates the notion that knowledge generated by Western studies is considered the norm and universally applicable, while often portraying certain non-Western contexts as exotic or outside that norm. This bias can place non-Western researchers at a disadvantage, as their local knowledge and expertise may be evaluated and judged through the lens of Western experts' 'normal' worldviews. Consequently, the credibility and value of non-Western researchers' perspectives may be undermined within the academic discourse (Lazem et al., 2022), which potentially impacts the studies they conduct.

Having mentioned the overall situation of implicitly biased academic and research design being produced by dense Western narratives and studies but considered universally applicable across cultures, researchers should be encouraged to question and critique existing systems, practices, and power structures. In the educational context, critical design theory further highlights the underlying assumptions, biases, and power dynamics embedded in educational interventions and practices (Sheth, 2019), necessitating the critical examination of how Western educational models may perpetuate unequal power relations or neglect the cultural values and aspirations of Eastern cultures. Engaging in this critique makes it possible to develop more inclusive, culturally responsive, and equitable interventions.

The manifestation of cultural disparities, as described above, has implications for the successful implementation and design of interventions in the context of Saudi Arabia. To ensure the effectiveness and acceptance of social stories interventions, it is essential to include cultural differences, such as the interpretation and usage of nonverbal cues, facial expressions, eye contact, types of games and objects used during play, and the expression of emotions that influence the acceptance and design preferences within the study context. This cultural variability is particularly relevant to individuals with ASD, as social behaviours are shaped by cultural norms and expectations. By tailoring interventions to the cultural specificities and sensitivities of the target context, researchers and practitioners can enhance the effectiveness and relevance of the interventions.

However, despite the increasing recognition of the necessity for cultural adaptation in social skills interventions, and the rising prevalence of autism, there remains a dearth of knowledge regarding the specific processes involved in culturally adapting these interventions and evaluating the evidence of such adaptations. Research in this area is limited, leaving a gap in understanding how to effectively tailor interventions to different cultural contexts while also assessing their impact. Therefore, there is a pressing need for further investigation and empirical studies to address this gap and provide guidance on the cultural adaptation of social skills interventions for autistic individuals.

This gap highlights the implication that the study should consider the contextual and cultural factors that come into play and were identified during the execution of SS intervention. Moreover, this also implicates how the cultural and contextual factors reflect the cultural discrepancies that may go contrary to the SS interventions that have been previously executed in different contexts. By anticipating the influences of these factors, SS intervention has been tailored to assume a unique form or construction applicable to the cultural context, i.e., Saudi Arabia. Moreover, considering these influences, it implies the need to identify the cultural adaptations made during the course of data collection to entail this perspective, such as the translation of the questionnaire into Arabic and back into English.

## 2.9 Contextual Background of Previous SS Intervention Studies

In general, SS has been recommended as a promising and effective intervention for children with autism (Leaf et al., 2015; Singleton, 2016; Qi et al., 2018). Hence, the context of previous intervention studies must be projected for the researcher to compare similarities and differences and to highlight gaps. Over the last 20 years, numerous reviews, both systematic and unsystematic, have been conducted on the implementation of interventions for children and adolescents with autism spectrum disorder (ASD), as noted by Pervin et al. (2022). These studies have examined the effectiveness of various types of interventions, focusing on a range of outcomes such as communication and language development, social skills, behaviours, and academic achievement.

Pervin et al. (2022) report on the effectiveness of various interventions for autism in the context of high-income and low-middle-income countries, reporting that the disparity in the effectiveness of interventions for children and adolescents with ASD spans across the variation between various factors across different countries and contexts, including lack of resources, execution of interventions by non-trained teachers or specialists, geographical location of the study, the age and gender of the participants, substantial cultural differences, and socio-economic factors. Hence, it is important to pay attention to these factors in order to see how prior findings address them. In light of the available evidence, no single intervention can be solely effective in addressing the varied needs across the range of profiles of autistic individuals. To maximise the effectiveness of interventions, the field and research base of autism needs to manifest more on

the understanding of the nature of generalisation among children with ASD and determining the effective strategies that may further enhance learning and address their challenges (Carruthers et al., 2020).

For future research which focuses on interventions and programmes to address the needs and impairments of autistic children, it is recommended that an effective collaboration between researchers, parents, practitioners, and autistic individuals should be facilitated for them to work together in a more cohesive way to reach solutions. Parson et al. (2009), in addressing what might work best for autistic children, extended an international review to provide an extensive empirical research synthesis of work published between 2002 and 2008 to acknowledge and emphasise the best practice in educational provision for autistic children. The review examines the efficacy of interventions for autistic children across various dimensions, emphasising best practices in educational provision and interventions. It focuses on themes such as learning and development, and the importance of fostering positive partnerships and training with the aim of enhancing the overall well-being of autistic children. Parson et al. (2009) conclude that there is a lack of robust empirical evidence, and research needs to consider more factors, i.e., there needs to be a more detailed approach to assess the processes involved in following a particular intervention. Moreover, there is a need to examine the style and principles of a particular intervention to assess its suitability for a particular autistic child. It is important to note that later extensive systematic review of educational interventions by Bond et al. (2016), based on the study of Parsons et al. (2009), addresses the fact that, despite the research carried out since 2008, the limitations identified by Parsons et al. in 2008 persist. Since Parsons et al.'s (2009) review, research efforts to address the limitations of the interventions and practices employed for autistic children have been developing at a critical pace. Nonetheless, the lack of improvement revealed that inadequate practical efforts were being made in this area.

On the whole, however, Parsons et al. (2009) present a productive contribution to be considered in future research as they reveal the need for a more versatile range of interventions to address the diverse needs of autistic children in different settings, so the emphasis has been placed in the interviews on the educational nature of the intervention in addressing the individual needs of each autistic child while maintaining the collaboration of the parents. In addition, another

dimension in addressing the primary impairments in autistic children (i.e., social communication, social interactions, and overcoming their challenging behaviour), the training of practitioners, should be given more importance for the intervention to achieve its greatest potential (Guldberg et al., 2011).

Second, the study of Bond et al. (2015) projects that SS intervention implementations, which are largely targeted at behaviour change, are mainly carried out with autistic children aged 7–12. Hardin (2015) stresses the age factor in SS in prior findings, highlighting the fact that studies conducted from 2005 to 2014 targeted mainly the 2- to 15-years-old age group of autistic individuals, while only five studies targeted children with autism aged 5 to 9 years (Bond et al., 2015). Mayton and Menendez (2013) report positive results for children with autism under 9 years of age after implementing SS interventions with them, adding that, in the majority of cases within this age range, the intervention was beneficial except for one study that was conducted with a group of 5-year-olds. They state that these negative results could have been due to implementing the intervention with a whole group of children in a private agency setting with no reinforcements (re-telling) of the story for each child (Kassardijan and Leaf, 2014). Few studies were found that involved participants aged between 3 and 6 years (Mayton and Menendez, 2013; Bozkurt, 2014; Hardin, 2015), and only a few involved participants older than 18 years (Schneider and Goldstein, 2010; Qi et al., 2018). Therefore, this research will consider children with autism in the 3-6 years age group in order to increase the number of studies examining that age range and also to help with an early intervention in their lives, increasing their chances of attaining social skills at an early age.

Thirdly, the literature shows that most research into SS targets boys (Karal and Wolfe, 2018), with eight out of 12 studies carried out between 1999 and 2015 including only male participants with autism, while only four studies have included a female participant with autism. Johnson (2015) reveals that involving boys more frequently in such research is because boys are four times more likely to have autism than girls, and Rynkiewicz et al. (2018) records variations in this ratio from 4:1 to between 2.0 and 2.6:1. Moreover, Zwaigenbaum et al. (2012) report that researchers are proposing that the gender ratio in autism is closer to 2:1 as the figure has been subjected to a number of biases, in that diagnosis in girls is impacted by developmental,

psychological, social and cultural influences and stereotypes. Sarris (2013) argues that autism research is rare in girls because there are fewer females with the diagnosis, reinforcing the view that autism is labelled primarily as a male disorder. Critics of this view say that it is possible that girls with autism are left undiagnosed or under-diagnosed, and perhaps some diagnostic stereotypes keep them from being diagnosed (Dworzynski et al., 2012; Rynkiewicz et al., 2018). This triggers a need to right the gender imbalance in autism studies where a shift from a predominant focus on boys to girls is required (Sohn, 2019). Padilla and Pierson (2015) state that, after the implementation of SS interventions, a high success rate for males with autism had been reported. Hence, in light of the aforementioned imbalance and the gender bias associated with an autism diagnosis, this research seeks to contribute to this neglected area of autism research and concentrates on implementing the intervention on an equal number of both genders: three boys and three girls. This will shed light on girls with autism for future research to be implemented; in addition, the success rate of the SS implementation is considered based on the participation of both genders.

Fourth, a systematic review of the literature by Wright et al. (2016) on the effectiveness of SS relates to the collaboration between researchers, teachers, and parents. It has been found that implementing this intervention with both teachers and parents can be difficult because some participants will not want to take part in the study (Kokna and Kern, 2010; Leaf et al., 2016). Moreover, 'supplementary tactics' between all three participants (parents, teachers, and the researcher) might be limiting (Pesu et al., 2016; Bronwell, 2018; Qi et al., 2018). Hence, the researcher in the study must be aware of possible obstacles to cooperation and make sure that teachers and parents/caregivers are given ample time to decide on their cooperation and work on building rapport within the whole intervention process.

Moreover, this research considers the gap addressed in the study carried out by Bond et al. (2016), who state that all recommendations concerning autism interventions come from school psychologists, not from parents/guardians. Further supporting this view, Theilking and Terjesen (2017) note that recommendations from school psychologists occur while conducting training and learning programmes in different schools when each school has groups of children with autism with different behavioural and emotional needs. Hence, they have a collection of ideas

based on focus groups conducted to consider specific interventions, then choose from a wide range. In doing so, they get to know a great deal about the needs of and facts concerning children with autism that are invaluable in assessing their differences.

Thus, this study will consider both home and school settings by assessing teachers and parents, which will be achieved by using the Social Skills Improvement Rating Scale (SSIS-RS) questionnaire and semi-structured interviews with both parents and teachers. The researcher will allow the voices and opinions of parents to be heard and taken into consideration, and both school psychologists and parents will be allowed to discuss each child's social behaviours in the home and school settings. Consequently, this will offer them a broader view of the child's behavioural differences and will permit them to work collectively on possible ways to address these differences and keep regular track of progression (Qi et al., 2018).

The analysis of the existing systematic reviews of research concerning SS interventions for children with autism reveals that the findings are mainly based on studies in the US and the UK, which limits the extent to which these findings can be generalised in other geographical locations as the studies are affected by cultural bias (Wright et al., 2016; La Roche et al., 2018). Moreover, adding to this, Leeuw et al. (2020) indicate that most autism-based research is focused on Western, high-income countries when affluent, English-speaking countries have enormous reserves of professional support and extensive care services (Samadi and McConkey, 2011; Durkins et al., 2015), while culturally appropriate interventions and instruments are lacking in non-Western settings where the majority of the autistic population lives (de Vries, 2016; Durkin et al., 2015). Hence, the available literature is largely culturally and contextually biased (Leeuw et al., 2020).

Therefore, to assess the geographical, cultural, and contextual factors and to address the developmental concerns associated with children with autism, this study is addressing children with autism within a Saudi Arabian context. As a result, this research will make a potential contribution to this context by diverting the thrust of autism research, which is heavily skewed towards Western countries, towards countries that might reveal culturally and contextually important factors to be considered in the process of diagnosing and identifying autism. Hence,



the current study aims to map out cultural and contextual factors that affect or might affect the identification and effective provision of services. Moreover, the use of SS as an intervention in a Saudi context will serve as a springboard for culturally appropriate instruments to address the social and behavioural challenges of autistic children (West et al., 2016), and this study also seeks to address researchers and policymakers who aim to improve the support systems available for the underserved autism population in the Arab world, as well as aiming to somehow direct the prevailing imbalance of knowledge in the context of autism research toward the identification of autism by developing intervention support in a Saudi Arabian context to overcome cultural and contextual bias.

Another reason for employing SS as an intervention within this context is the socioeconomic factor and the income level of the majority of families (Alnemaary et al., 2016), as it is an economically friendly intervention for children with autism (Wright et al., 2016).

Furthermore, the search of prior literature within this geographical context revealed a dearth of previous studies that were conducted to assess the effectiveness of SS as an intervention for children with autism; only one study, by Alotaibi et al. (2016), considers teachers' perceptions of the use of SS to address social skills in children with autism. Aiming to address the usefulness of Social Stories™, the study incorporated a case study to assess and address three main social skills of autistic children in a supportive school setting: greeting, playing with friends, and talking with class fellows during break time. According to the findings, Social Stories™ were found to encourage effective improvements in the social skills of autistic children when used independently or in combination with any other method. Such combinations could include, for example, combining social stories with PowerPoint to present stories; incorporating visuals, graphics, and audio stimuli; using colourful materials as visual aids, e.g., flipcharts, multi-media computer software; and video incorporation of the overhead projector to show the Social Stories™ in the break time. All these methods were said to increase the curiosity of the students to learn and know.

Moreover, the interesting fact associated with the study of Alotaibi et al. (2016) is the efficacy of teachers in having an awareness and understanding of the interests and specific educational

needs of the students as well as other cultural considerations (of Saudi Arabia). These might affect the successful execution of the Social Stories™, so the provision of culturally specific resources (for instance, developing the social story on the standards based on Saudi behavioural customs) is important as SSs are culturally specific.

It has been found that there is a dearth of studies on the execution of SS intervention across cultures. However, it is important to mention the available studies that talk about the efficacy of SS intervention for children with ASD. For example, the study conducted by Golzari et al. (2015) aims to test the hypotheses of social stories executed to address social skill challenges in male students with ASD in Iranian schools. The findings reveal a statistically significant improvement in social skills in the experimental group compared to the control group, which reflects that SS intervention is an effective approach to regulating children with ASD in developing their understanding of perceiving others, regulating their social interaction initiation, and understanding how to maintain appropriate interactions (Golzari et al., 2015). Therefore, the study helped to corroborate the use of social stories as an effective intervention model for students with ASD.

It is also important to mention a recent systematic review of literature by Alhwaiti (2022) that analyses the up-to-date information about Social Stories™, because of the inconsistent evidence regarding the effectiveness of this intervention for autistic children and focusing on its effectiveness in terms of social skills across different cultures. Keeping in view the importance of inclusion criteria, the research includes studies published in English, includes autistic children only and reviews six studies from Egypt, Kuwait, Turkey, and the US conducted between the years 2012-2022. The autistic children included in these studies were aged between 5-12 years, including both genders interchangeably in each study, and they focused primarily on assessing the role of SS in improving social skills and challenging behaviours in these children with autism, e.g., social initiations and responses, social initiations and responses of their peers, social play behaviours, and social engagement. The findings across these studies reviewed by Alhwaiti (2022) indicate the effectiveness of the SS intervention employed in teaching the target children's challenging behaviours and social skills.

Conforming to a cultural context is important and must be kept in mind, as the effect of the location's culture on the child and on the learning environment is crucial if the execution and use of social stories are to be effective (Meng, 2008; Alotaibi et al., 2017). Furthermore, values and cultural aspects may be acceptable in one culture but inappropriate in another. Existing research and scholars have stressed the need to recognise the compounding challenges coming to the forefront when addressing the various challenges autistic children face – directing the attention towards the factors of age, ethnicity, linguistics, religion, gender, and social economic orientations of a given study context – and there is a dearth of studies paying enough attention to unspoken social rules and cultural elements that play major roles in developing and executing the interventions and addressing challenges in children with autism (Lee, 2011; Steinbrenner et al., 2022). Zwaigenbaum et al. (2015) and West et al. (2016) have highlighted a remarkable issue in the field of autism interventions: the underrepresentation of specific minority, racial, and ethnic groups. This lack of diversity has created a substantial knowledge gap regarding the desirability, feasibility, efficacy, and cultural or linguistic appropriateness of interventions for non-Western children with autism, as well as for the families and the practitioners who work with them. In the context of the study, the KSA, gender segregation, hierarchical relations, family orientations, and tribalism may be some of the challenges faced in relation to autism research; in particular, the restrictive norms in KSA for women may inhibit their participation in advanced research.

In summary, the above discussions highlight the critical need to evaluate the effectiveness of Social Stories™ (SSs) tailored for the unique cultural context of Saudi Arabia, addressing an identified gap in autism services and interventions in this area, as highlighted by Alnemary et al. (2016). The research thus aims to illuminate the specific circumstances in Saudi Arabia, aligning closely with the study's research questions. The review of literature on Social Stories™ and other interventions points to the importance of examining how SS interventions can be adapted to the distinct features and challenges of each autistic child, taking into account varied contextual factors.

Despite some inconsistencies in their use, SSs are still widely employed as a psycho-educational intervention for children with autism, as noted by Leaf et al. (2019). Rodriguez et al. (2019) further underscore their effectiveness, attributed to the high level of individualisation and content

specificity. This custom-tailored SS approach, designed to meet the unique needs of children with autism, is in direct alignment with the study's objectives to assess the impact of SS on participating children's social skills, challenging behaviours, and individual ASD characteristics. This alignment emphasises the importance of choosing interventions that are not only effective but also tailored to the specific needs and cultural context of the target population.

## 2.10 Methodological Design in Comparison to Previous SS Intervention Methods

Although SS intervention is used widely, its methodological design is questioned by some researchers (Leaf et al., 2015), which is mainly due to the steps of the intervention process that each researcher plans based on the factors (geographical location, age, and gender) of the tailored study (Marshall et al., 2016; Wright et al., 2016; Smith, 2017).

As a result of the considerable variations in the educational literature (Slocum et al., 2012) and the varying review criteria, previous literature on SS interventions produces different conclusions. However, Garwoid and Van Loan (2017) examine how to address the issue of gaining reliable information from an intervention, stating that one way to do this is to examine the reviews of meta-analyses to overcome the impact of methodological flaws and thus assess the fidelity of research on social skills training for autistic children.

The methodological design review of SS carried out by Leaf et al. (2015) reveals that the majority of studies (19 studies in their review) used the multiple baseline method, followed by reversal design. (One study used an ABA, ABAB design, or an ABABAC design, and only nine used a single case study methodology.) On the other hand, Hardin (2015) uses different scales to assess social and behavioural dimensional studies and pre- and post-test interventions, such as the Social Behavioural Assessment Inventory (SBAI) rating scales (Stephens and Arnold, 1992), questionnaires, and informal teacher and parent interviews to determine the child's progress after the SS is implemented. However, no matter what methodological design Leaf et al. (2015) and Hardin (2015) use, or others within their study, it has been reported that SS is effective and recommended for use with children with autism.

Therefore, based on the above, it is concluded that multiple methods are recommended to record the results of an SS intervention. As Leaf et al. (2015) declare, the methodological rigour of the potential research assessing SS has been very weak. Multiple methods are also employed in intervention-based studies when two or more settings are involved (e.g., home and school) and also when the intervention measures the different behaviours of two or more participants. A stepwise approach with different data recording methods is then more effective in yielding appropriate and reliable findings. As the literature shows, there is only a small percentage of studies that have incorporated a single-subject methodology, which has reported adequate results concerning SS interventions (Bozkurt and Vuran, 2014; Khantreejitranon, 2018).

In relation to this study, design-based research is being employed, which is advocated because it blends design and practice with empirical steps (Brown, 1992; Anderson and Shattuck, 2012) and facilitates the research process via different data resources before connecting them through targeted and attained outcomes. Hence, it enables the integration of research-based theoretical and educational foundations (Golf and Getenet, 2017). Being systematic and flexible in nature, this design method takes into account real environments and settings while offering the researcher and participants a free flow of analysis, design development, and execution. Hence, context-oriented design principles can be generated using this approach.

Additionally, a mixed-methods framework is being adopted with the goal of acquiring results that shed light on the quality of interactions between researchers and participants. This approach also aims to ascertain the presence or absence of diverse behavioural and relational patterns in children with ASD. These insights are gleaned from meticulous observations of informal interactions during the intervention, conducted in natural contexts, as, according to several studies (e.g., Pickard et al., 2016; Clarke et al., 2017), questionnaires as a data collection method solely cannot provide the holistic, specific, and detailed information essential to contribute to develop more specific interventions to improve social skills in children with ASD. In this study, the use of observational methodology within a mixed-methods framework allows the researcher to closely observe and document the micro-behaviours of participants at the start and end of the intervention. This approach reveals subtle differences pre- and post-intervention, providing greater specificity in understanding the process and progression of each participant, and these

observations are quantitatively captured in behavioural frequency charts, offering a detailed view of changes over time. The observation of frequency behaviour is also aiming at determining the evolution and performance of targeted social skills, improvement of challenging behaviours and ASD characteristics and how it varies across each participant student with ASD, by comparing data through observation of their performance pre- and post-intervention. The adoption of this approach is also consistent with previous research by Alcover et al. (2019), wherein recording observation of behavioural frequencies enabled comparison of variance in the improvement and changes of targeted social skills in students with ASD. Prior studies have further advocated the use of observation methodology to determine changing patterns of spontaneous behaviours in the natural environment (Portell et al., 2015) and further supplements to assess social performance and intervention goals by using an observational scale or chart (Arias-Pujol and Anguera, 2017)

With regard to ethical concerns, direct observations of the participants will be made to gauge the progress of their behaviour and skills; these will not invade their privacy or pose any risk to them (BERA, 2019). Roser et al. (2015) note the effectiveness of using qualitative measures through direct observation of autistic children, stating that, through this approach, it is feasible to assess and examine difficulties with social interactions, social obstacles, and other behavioural fluctuations of autistic children in different settings. This approach, which requires visual interactions, cues, and narratives, can be designed to address the problem more effectively, and a recent version of the British Educational Research Association (BERA) (2019) states that observation should be appropriate and respectful for young children, while it is also vital to yield information for improving the social learning of autistic children in a more practical way (Roser et al., 2015). Hence, the researcher will keep these aspects in mind and implement them during the direct observations of the participants in the intervention phase. An observation schedule of the participating children's frequency behaviour is tabulated in Appendix 2 to record the classroom interactions and behaviour of autistic children.

In this regard, this study aims to assess how SS interventions can be designed and implemented in a real working context, keeping in view the collaboration of both teachers and parents and thus developing a connection between the targeted and desired results: i.e., the improvement of the social and behavioural skills of children with autism.

## 2.11 Theoretical Rationale for SS

It is pertinent to have a theoretical approach that serves as a bridge to connect the literature review and the methods by which the study is organised (Kanbir et al., 2018). Interestingly, there is no evidence in the extant research of any particular theoretical rationale that accounts for SS's efficacy. Reynhout and Carter (2011) offer the probable reason for this by stating that SS intervention is considered to be loose contingency contracts that involve natural reinforcers. It is noted, however, that any tentative philosophical mechanisms remained speculative until 2017. Before then, scholars within the field viewed SS as an intervention to be used within a framework of social cognitive theory, but this viewpoint underestimated the effectiveness of SS (Adams et al., 2004) in relation to enhancing social skills. However, a study by Jones and Bawazir (2018) made a brief connection between SS interventions and social learning theory (SLT), stating that both SS and SLT follow the same process of learning: i.e., attention, retention, reproduction, and motivation. The study reflected on a debated perspective of a theoretical rationale for SS in which Carol Grey's initial idea of social theory did not have any theoretical engagement; rather, SSs themselves have the inherent ability to relate their efficacy to social skills development, and hence, their effective use for children with autism.

The behaviourist theory of Skinner (1977), which states that in order to develop or enhance a behaviour, a stimulus-response link must be established, can also be related to the fundamental ideology of SS intervention. However, Skinner's theory fails to take into account the role of observation, which is an important process in learning a social skill (Bawazir and Jones, 2018).

In scientific research, where numerous promising interventions and strategies are explored to address particular behavioural or social skills, interventions are adopted. These interventions are adopted based on the literature and findings of scholars, including distinctive learning styles and specific deficits associated with autistic children. Prior pieces of research have shown that many researchers select interventions based on a defined or general theoretical conceptualisation of autism. Concerning this study, the structure for this research emerges from blending Bandura's (1977) SLT.

For neurotypical children, physical, play-based socialisation and interaction develop into verbal communication and interaction (Halle et al., 2016). For autistic children, this transition in development through social learning is quite challenging. In fact, autistic children manifest social isolation that contributes to the creation of further complications in their behaviour: e.g., they may not like to participate socially, show differences in learning, and have minimal use of language and words socially. Kasari and Petterson (2012) and Woods et al. (2013) describe a number of behaviours resulting from the social isolation and differences in autistic children, including challenging the awareness of others and their surroundings, and difficulties in joint attention (i.e., poor coordination of attention between the person, the object and an event in a specific context). In addition, they may exhibit challenges in terms of joining in and playing in a group, or even sharing objects, thereby revealing difficulties with joint engagement and joint learning. In addition to this, autistic children are seen as distant from their surroundings and often play on their own if their socially isolating behaviour is left unaddressed.

From this perspective, SLT (Bandura, 1977) notes that a child with autism is likely to learn behaviours through cognitive adjustments, either by observing others, through direct instruction, or by modeling or imitation. In line with this view, many studies imply that autistic children are more responsive when their learning is through direct or structured prompts over a period of time (Taylor and Hoch, 2008; Halle et al., 2016); this coheres with the views of Bandura (1977).

Employing SS to develop social skills is congruent with SLT through modeling and reinforcement that further support the social learning perspective of social skills learning (Bandura, 1977). Being in a socially rich environment does not mean that the child will learn adequate social skills automatically, and bearing this in mind as an argument, Bandura (1977) argues that, in order for SLT to occur, it is essential to use models, which will influence the social behaviour of the child. On the other hand, Beaumont et al. (2017) argue that much more is needed to facilitate the social learning of autistic children and to change their problem behaviour due to their differences in social skills. Using specific behavioural and social skills interventions as a useful modeling tool, autistic children can be motivated and trained to socialise if appropriate attention is given to these social learning sessions (Bandura, 1977).



Hence, this research will test this connection and highlight the common roots between both SLT and SS intervention. This will be a major contribution to research as it will allow scholars within the field to relate SS as an intervention to an existing learning theory that has already been proven to be effective. Moreover, the contribution will allow researchers to use the findings related to social learning theory with the advantage of enhancing the intervention of SS.

Social learning is an ongoing and cumulative process spanning the whole life of an individual. During childhood, social learning starts from interactions with adults then observational discoveries are made that lead to playfulness, emotions, and communication (Osher et al., 2018). Winner (2019) uses a tree analogy, highlighting that profound social learning involves acquiring an array of social thought processes that become the core of the social mindset. This is like a trunk and root system which produces healthy branches and leaves.

Joint attention, emotional reciprocity, and ToM are at the root of social learning, then executive functioning and cognition come next, followed by language. These cognitive functions perform in isolation and have an interdependence that determines an individual's social learning effectiveness, while these root functions enable an individual to develop the 'trunk', i.e., demonstrate understanding towards others. Following this, the branches reflect the social knowledge of the individual that is demonstrated in different interactions and expressions.

In relation to children with autism, their challenges in social understanding can be treated through the social learning tree perspective by addressing the problems at the root level first (cognitive function) and then facilitating improvement at a trunk and branch level in a step-by-step approach (social function).

Behaviourism, as stated above, focuses on the notion that behaviours are acquired through conditioning (McLeoad, 2015), whereby the acquired behaviour is encouraged through reinforcement (Walker, 2017). Some interventions used for shaping behaviour make use of operant conditioning, an idea conceived by Skinner (1959), who suggested that conditions to shape desired behaviour are achievable. As mentioned by Kaplan (2018), behavioural theorists have also emphasised that, in order to influence a certain behaviour, different techniques may

serve as a trigger. For example, classical conditioning endorses a stimulus to induce a particular response while, in operant conditioning, reward and consequences are used to reinforce and condition certain behaviour. Alsedrani (2017) extends his views on how positive reinforcement can be linked to direct the behaviour of autistic children, emphasising that, through individualised positive reinforcement approaches used by teachers in a classroom in a specialised environment (aided by a certain intervention/programme), the desired behaviour of an autistic child can be facilitated and motivated. Moreover, the motivation to learn and behave in a certain way is an internal state that is powered by intrinsic and extrinsic factors. In this case, operant conditioning is linked to the extrinsic motivator (any reward) that is usually linked to stimulating the child to behave in a certain way. Hence, linking the learning and desired behaviour with a reward will encourage the child to learn and repeat the behaviour to obtain a pleasant reward. This relates to the underlying concept of Skinner's (1974) theory of behaviourism: that the positive reinforces any behaviour that produces pleasure, and similarly, that negative reinforcers strengthen any behaviour that lessens or terminates it, resulting in the increased probability of the desired behaviour being enacted in future (Pritchard, 2017).

In light of this research, the use of SS to improve social and behavioural skills in children with autism can be related to the stimulus-response hypothesis of behaviourism by evaluating the antecedent skills and behaviour of autistic children and then helping them shape new skills. In this case, the SS will serve as a stimulus for a new skill or behaviour by engaging participants in a learning activity. To keep the child conditioned with the newly learned behaviour, conditioned reinforcement is usually endorsed: i.e., strategies to keep the child, directed towards doing something that may be making them participate in the learning activity by distributing tangible rewards (chocolates) or verbal praise (Singh, 2016). However, the strength of behaviourist theory to support the role of the SS is not adequate as it may or may not lead to social skills acquisition (Jones, 2018), and it fails to explain the role of observation in learning a new behaviour, so the lack of explanation concerning the role of observation limits the effectiveness of this theory in terms of SS.

However, a perspective that helps to explain social learning development is SLT (Bandura, 1971), which emphasises the role of observational learning, stating that modeling new behaviour

involves observational learning playing a role through symbolic modeling stimuli and strengthening the representation in memory through verbal and visual codes. This is followed by transformations of those symbolic codes into the desired behaviour or action that can later be retrieved and applied in real-life situations.

SLT serves as a link between behaviourist theory and cognitive perspectives of learning theories, facilitating the notion of observational learning through modelling (Wilson, 2013). Stressing the role of different collaborative processes of social learning, the theory elaborates on the function of observation, modelling, retention, and motivation in developing and then sustaining that behaviour across an individual's lifespan (Bandura, 1971). According to Telzer et al. (2018), SLT works on the notion that social cues and norms are learned and internalised through already-learned programmes in the early years, usually preschool learning. However, it does not shed light on why autistic children possess differences in learning and internalising these social norms. The underlying phenomena of SLT (i.e., the observation, imitation, and modeling of others) have the potential to direct autistic children to learn by using relevant interventions and programmes. Palmer et al. (2020) outline how SLT links to the parental perspective in terms of helping their autistic child. Through child-centred parenting techniques, parents can enhance the behaviour of their autistic child and help them to learn through positive reinforcement (i.e., positive comments and child-led play activities). Linking it to the operant conditioning perspective, Palmer et al. (2020) also note that SLT can be linked to positive reinforcers used in line with behavioural intervention in a parent-child context so that the behaviour of the autistic child is improved by modifying these parenting behaviours, thus improving the parent/child relationship. Furthermore, O'Connor et al. (2013) add that this also enhances the sensitivity of parents' responses to their autistic child and improves his/her social tendencies, while Foti et al. (2014) support the interactions of these behavioural functions in developing the social skills of children of different ages and abilities.

The findings of Habib et al. (2018) highlight another dimension, which can be related to how SLT is relevant to SS and highlight that the participation of learners of all ages and abilities can increase, showing that children with autism can experience a positive impact on their physiological, cognitive and social development if structured learning exercise routines are

carried out specifically in a non-academic context that involves their physical and mental attention.

### 2.11.1 SLT's Alignment with SS

Social Story™ (SS) intervention for children with autism spectrum disorder (ASD) aligns well with Albert Bandura's (1977) social learning theory (SLT) in several fundamental ways. This alignment provides a strong theoretical basis for using Social Stories™ as an effective intervention tool for autistic children.

One of the core tenets of SLT is observational learning, where individuals learn by observing the behaviours, attitudes, and outcomes of others' actions. Social Stories™ are crafted narratives that provide detailed descriptions of social situations, including how others might behave in those contexts, and by reading or engaging with SS, children with autism can learn how to act in similar situations through observation and imitation of the modelled behaviours within the stories.

Bandura (1977) emphasises the importance of modeling in learning new behaviours, and Social Stories™ serve as a model for appropriate social behaviour, demonstrating specific social skills that children with autism might struggle to understand or execute. These stories often include role models (characters within the story) who exhibit desired behaviours, which children can then emulate in real-life social interactions (Sansosti, Powell-Smith, & Kincaid, 2004).

For learning to occur in SLT, the learner must pay attention to the model, and Social Stories™ are designed to capture the interest and attention of children with autism by relating to their experiences and presenting information in a clear, engaging, and often visual format (Gray, 1995; Sansosti et al., 2004). This is then reinforced by giving the autistic children the chance to draw or even choose the name of the main character, which ensures that the child focuses on the critical elements of the social interaction being taught (Klinger & Dawson, 1992).

SLT posits that the observed behaviours need to be remembered or retained to be later acted upon. Social Stories™ aid in retention by repetitively presenting social scenarios in a structured

format, often supplemented with visual aids that help solidify the memory of the behaviours and sequences described (Sansosti et al., 2004). The narrative and visual components of Social Stories™ make them memorable and easier for children with autism to recall when needed.

After observing and retaining the behaviour, the individual must be able to reproduce it. Social Stories™ provide a step-by-step guide to specific behaviours and social interactions, allowing children with autism to practice and reproduce these behaviours either in controlled environments or during actual social interactions (Leaf et al., 2016). This practice can be facilitated by caregivers or educators who help the child enact the behaviours, which can be observed by the educators and caregivers, which is part of the reason why inputs from parents and teachers (home and school, respectively) were taken into consideration.

According to SLT, motivation is a crucial factor that influences whether an observed behaviour is imitated, and Social Stories™ often include positive outcomes and reinforcements that encourage children to mimic the desirable behaviours (Bandura, 1977; Gray, 1995). These narratives highlight the benefits of specific social interactions, such as positive feedback from peers or adults, which serve to motivate the child to engage in the modelled behaviour.

Bandura (1977) noted that behaviours reinforced by positive outcomes are more likely to be repeated. Social Stories™ can be used alongside positive reinforcements provided by parents or teachers to further encourage the adoption of the behaviours detailed in the stories, and positive reinforcements, such as praise or rewards, can be explicitly tied to the behaviours modelled in the Social Stories™, reinforcing the learning and application of new skills (Sansosti et al., 2004; Leaf et al., 2016).

Overall, SS intervention for autistic children not only incorporates but also actively leverages the principles of SLT.

## 2.12 Research Questions

In the context of this study, the research prioritised addressing its overarching research question, i.e., *How does the use of Social Story™ (SS) intervention influence the development of the social*

*and behavioural skills of children with ASD?* The overarching research question will be pursued through three specific research questions/objectives, expanded below.

First, *What is the impact of SS intervention on the social skills of children with ASD?* This question is answered through the quantitative and qualitative data collection methods employed. Quantitatively, the researcher distributes the SSIS-RS questionnaires to participating teachers and parents, where they rated their respective student/child based on their observations of the child's social skills. The rating is done twice – the first one before the intervention and the second one after – and the teachers' and parents' ratings before and after provide the data to determine the progress of each participant. Meanwhile, qualitatively, the researcher conducts semi-structured interviews with the parents and teachers, again, before and after the intervention. The answers to the questions provide the perceptions of the teachers and parents concerning the progress made.

Second, *What is the impact of SS intervention on the behaviour of children with ASD, particularly externalising, bullying, hyperactivity/inattention, and internalising?* This question is answered through the collection of quantitative and qualitative data using an SSIS-RS questionnaire and semi-structured interviews, pre-and post-intervention. Like in the first research question, teachers and parents rate the participating students (quantitative) and provide their observations through their answers in the interviews (qualitative). Their responses provide the data to determine the extent of progress made by students after the intervention.

Third, *What is the impact of SS intervention on the individual characteristics of the participants with ASD?* This question is answered quantitatively, as the researcher assesses and analyses the descriptive statistics of the six participants to identify the impact of SS intervention on their individual ASD characteristics.

The need for a mixed-method approach in this Saudi context research is driven by the questions posed, as this method, combining qualitative and quantitative techniques, allows for a comprehensive understanding of both the breadth and depth of the issues. Qualitatively, it is ideal for exploring how the SS intervention addresses various challenges faced by participants

with ASD, enhancing awareness among teachers and parents, and reducing autism-related stigma. It also seeks to understand participants' perspectives on the intervention's implementation and any changes in views before and after the intervention. Quantitatively, it is useful for examining relationships between variables, such as age, gender, and academic performance, and their effects on different participant groups. The mixed-method approach in this research will integrate these aspects, offering a well-rounded analysis through data collection, analysis, and reasoning (Fadil et al., 2023).

Both the quantitative and qualitative data will be triangulated in order to determine the impact of SS intervention with children with ASD. The specific research questions will assist this study in establishing the SS intervention's impact, whether positive or negative, on the six participating schoolchildren, particularly on their social skills, behaviour, and other individual ASD characteristics.

The following chapter highlights how the theoretical framework of the study will be addressed through the qualitative, exploratory, in-depth case study approach (Yin, 2016) as this will provide an in-depth exploration of the research questions of this study.

### 2.13 Summary

In summary, Chapter 2 of this thesis has provided a comprehensive review of the literature surrounding autism spectrum disorder and the various interventions employed, with a particular focus on Social Story™ interventions. Through a detailed examination of definitions and characteristics of autism, and the evolution of intervention techniques, this chapter has established a robust framework for understanding the complexities and nuances associated with ASD. The review has underscored the significance of culturally sensitive adaptations of interventions like Social Story™, highlighting how these can significantly influence the efficacy and acceptance of such methods within different cultural contexts. As this research progresses into examining the application of Social Story™ interventions in the Saudi Arabian context, the groundwork laid here will facilitate a critical analysis of the intervention's impact on enhancing social and behavioural skills among children with ASD. This, in turn, will ensure that the research findings are not only grounded in comprehensive theoretical knowledge but also aligned

with practical outcomes, thereby bridging the gap between theory and practice in the field of autism interventions.



## CHAPTER 3 – METHODOLOGY

### 3.1 Introduction

This chapter offers a detailed description of the research methodology and reflects on the impact of Social Story™ (SS) intervention on the social and behaviour skills of autistic students in the Saudi Arabia context. Keeping in view the purpose of the research, which is to investigate the SS intervention's impact, this study aims to add to the knowledge base regarding the effectiveness of this intervention for children with autism, adding valuable findings and perspectives in a different context (Curry, 2015). This study's focus is based on its overarching research question, which is *How does the use of SS intervention influence the development of the social and behavioural skills of children with ASD?* Additionally, the study reflects the development of cross-cultural methodology, i.e., adapting Western methodologies within a Saudi Arabian framework, showcasing the unique challenges and insights gained from cross-cultural academic methodological exchange.

Although the SS intervention is used widely, its methodological design is questioned by some researchers (Leaf et al., 2015), which is mainly due to the steps in the intervention process that each researcher plans based on the factors of the particular study, e.g., geographical location, age and gender (Marshall et al., 2016; Wright et al., 2016; Smith, 2017). Moreover, owing to the great extent of variation in the educational literature (Slocum et al., 2012) and varying review criteria, the prior literature on SS intervention produces different conclusions. For example, the methodological design review of SS by Leaf et al. (2015) reveals that the majority of studies used a multiple baseline method (19 studies in their review); the next most frequent was reversal design (one study used either an ABA, ABAB or ABABAC design) and only nine used a single case study methodology. On the other hand, Hardin (2015) is found to use different scales to assess studies with social and behavioural dimensions. These were pre- and post-test interventions, such as the Social Behavioural Assessment Inventory (SBAI) rating scales (Kalgotra and Warwal, 2019) questionnaires and informal teacher and parent interviews, used to determine the child's progress after the SS was implemented (Acar et al., 2017). However, no matter the methodological design used by both Hardin (2015) and Leaf et al. (2015), or others

within their studies, it has been reported that SSSs are effective and are recommended for use with children with autism.

Therefore, based on the above, it is concluded that multiple methods are recommended to record the results of an SS intervention, because, as Leaf et al. (2015) declare, the methodological rigour of the potential research assessing SS has been very weak. Multiple methods are also employed in intervention-based studies when two or more settings, such as home and school, are involved and also when the intervention attempts to measure the different behaviours of two or more participants, when a stepwise approach with different data recording methods is effective in yielding appropriate and reliable findings. As the literature has projected, there is only a small percentage of studies incorporating a single-subject methodology that have reported sufficient results from SS interventions (Bozkurt and Vuran, 2014; Khantreejitranon, 2018).

In order to present a clear discussion of the methodology used for this study, this chapter continues with a discussion concerning the philosophical foundations for this research.

### 3.2 Research Philosophy

The success of a research investigation hinges on the chosen methodology, which includes philosophy, design, and specific methods that ensure the study's credibility (Creswell, 2016). Pragmatism, particularly influential in this study, promotes a problem-centred approach, allowing the use of diverse techniques to address research questions (Creswell, 2014) and supporting the compatibility hypothesis, whereby qualitative and quantitative methods are seen as complementary rather than opposing, as proposed by Maxcy (2003) and Johnson and Onwuegbuzie (2009) and in contrast with the incompatibility hypothesis (Liu, 2022). The current study adopts a pragmatic approach, integrating mixed methods to explore complex questions in the development of SS interventions, as suggested by Yardley and Bishop (2017), and this integrative methodological approach is critical for the nuanced exploration required in complex interventions like SS.

#### *Epistemology*

Epistemology investigates the nature of knowledge, distinguishing between belief, opinion, and true knowledge (Gettier, 1963), evaluating the sources from which knowledge and belief stem (Dancy, 1985), and dealing with the methods that validate or justify knowledge claims (Popper, 1972). In other words, epistemology refers to how a researcher explores truth and knowledge, as well as what appropriate criteria are adopted to justify the theoretical basis of knowledge. When researchers engage in an investigation, they make a series of assumptions concerning truths and knowledge, how these can be obtained or collected, and how reliable or dependable they can be with their findings. Bearing these in mind, epistemology can help the researcher clarify, justify, and strengthen these assumptions, thus making the research process more robust and findings more reliable.

Creswell (2014) notes that educational and scientific research takes into account one of the three types of paradigms under epistemology: 1) post-positivism or positivism, 2) constructivism/interpretivism, and 3) pragmatism. These three philosophical paradigms – positivism, constructivism, and pragmatism – are widely debated in the literature (Bryman, 2012; Rubin and Rubin, 2012; Creswell, 2013, 2014). Positivists believe social reality is objective and can be explored using standardised instruments (Rubin and Rubin, 2012), while constructivists, also known as “interpretivists” (Creswell, 2013, p.8), “naturalists”, or “anti-positivists” (Bryman, 2012, p.30), think that knowledge is multifarious and subjective, formed from prior encounters with multiple realities (Creswell, 2013). However, pragmatists recognise objective, subjective, and inter-subjective truths to promote pluralism (Bryman, 2012).

According to Morgan (2014, p.26), pragmatism is “a philosophy in which the meaning of actions and beliefs is derived from their consequences”, while, according to Creswell (2014, p.10), pragmatism “emerges from actions, situations, and consequences rather than antecedent conditions”. These definitions emphasise actions as a central component of pragmatism, which is best understood in relation to a particular context. Pragmatists view the essence of truth differently than positivists and interpretivists. Positivists/post-positivists consider research as objective and differentiate between researchers and participants, whereas constructivists view it as subjective, with researchers and participants forming social realities (Teddlie and Tashakkori, 2009). Relative to these views, pragmatism abstains from any particular ontology or

epistemology (Weaver, 2018). Therefore, it embraces positivism/post-positivism and constructivism in methodology, ontology, and epistemology and renders objectivity and subjectivity as a continuum (Teddlie and Tashakkori, 2009). Furthermore, pragmatism uses “what works” to address research issues, using different methodologies and valuing both objective and subjective information (Creswell and Plano Clark, 2018, p.39).

As stated before, the main objective of this study was to investigate the impact of the Social Story™ (SS) intervention with six children with autistic spectrum disorder (ASD) in Ajyal Al Watan Centre, Riyadh. Specifically, the study focused on studying the overall impact of SS intervention on the social skills and behaviour of the participating students as well as the impact of the intervention on the participating students’ individual ASD characteristics. To achieve this goal, the study focused on the relationship between Social Stories™ (SS) and the children for whom they are implemented. Recognising the need for a deep understanding of the underlying principles, it was assumed that human socialisation patterns, shaped by customs, morals, principles, and upbringing, play a crucial role in shaping the social environment. Consequently, the perspectives and experiences of teachers and parents in using SS in educational settings, as well as their impact on home environments, were deemed valuable sources of information for this research. Additionally, the study involved observing the behaviour of children with ASD in school settings and how these behaviours were influenced by the use of SS by teachers, along with gathering insights from the experiences of parents and guardians at home.

The research was anchored in the pragmatic paradigm, emphasising the primacy of research questions as the central focus. This approach was selected because it accommodates both objective and subjective elements, which are necessary to comprehensively address the research questions of the study. Moreover, pragmatism allows for a continuum between positivist and constructivist perspectives, offering a more versatile framework than either approach alone could provide.

Since the pragmatic paradigm adopts mixed research, it allows researchers to get a holistic and in-depth understanding of the research problem, which is basically suited for the context of this study in getting the broader perspectives of the teachers and parents/guardians concerning the

impact of SS intervention. In other words, by employing mixed methods in this research, the researcher was able to gain a more comprehensive understanding of the specific subject matter. This approach was instrumental in fulfilling the primary objective of creating a detailed picture of the interactions, experiences, and perspectives of teachers and parents regarding the effective use of Social Stories™ with children with ASD. This exploration was specifically contextualised within the setting of Ajyal Al Watan Centre in Riyadh, and there were various other factors that needed to be kept in consideration in terms of aligning the research context and methodological design, such as the specialised setting chosen to conduct the intervention sessions individually, following the precedent of studies that prioritised controlled environments (Utley, 2017; Kahraman and Tekşen, 2019; Strickland et al., 2020). Another important aspect relevant to mention here in light of methodological design and study context is the inclusion of both teachers and parents, particularly in the culturally sensitive context of Saudi Arabia, to mitigate stigma and stereotypes associated with ASD and to foster a collaborative environment for enhancing the effectiveness of the SS intervention.

The following section elaborates on the stance further.

### **3.2.1 The Pragmatist Paradigm**

The researcher presumed that reality is inferred differently and is influenced by situational and contextual elements among teachers and parents of autistic children (Jacobsen, 2021). Moreover, for these reasons, the current study also employed a convergent mixed-methods design in which data was collected concurrently through a questionnaire, a semi-structured interview with teachers and parents, and observation of the participants to synergistically address the research objectives (Creswell and Plano Clark, 2018). Pragmatism “considers the problems under study and the specific research questions as [being] more important than the underlying philosophical assumptions of the method”, according to Giacobbi et al. (2005, p.21). Thus, data collecting and analysis strategies that best answer study questions were chosen (Scott, 2016).

Pragmatists argue in favour of researchers employing the most effective method(s) available, recognising the value of both quantitative and qualitative methodologies (Teddlie and Tashakkori, 2009). As a result, the concept of pragmatism is frequently linked to the practice

of mixed-methods research (Creswell and Plano Clark, 2018). Pragmatists argue too that the integration of many research methodologies within a single study is not only valid but sometimes indispensable (Gray, 2018); therefore, the study employs a mixed-methods design. Moreover, pragmatism affords a broader and more in-depth understanding of professionals' perspectives on the use of social stories or individuals on the autism spectrum. In other words, pragmatism encourages a holistic examination, while some paradigms might restrict researchers to studying either objective outcomes or subjective experiences. This can be critical for understanding the full impact of Social Stories™, both in terms of measurable outcomes like social and behavioural change and qualitative outcomes like parents'/guardians' and teachers' perspectives (Biesta, 2010). Additionally, adopting a mixed-methods approach grounded in pragmatism allows for the integration of various worldviews, making it especially suitable for studying groups as diverse as children with ASD, who have distinct individual experiences as well as capturing the varying perceptions of teachers and parents, which is essential in a culturally sensitive context (Morgan, 2014). This framework is apt for adopting a culturally sensitive approach that acknowledges and respects the unique cultural dynamics of the research context, i.e., Saudi Arabia.

Moreover, the current study used a mixed-method methodology to answer research questions, following the pragmatist worldview. Using a multiple-method theoretical view of pragmatism, this study explored how autistic children can be improved, in terms of their social skills and challenging behaviours, through the SS intervention. In addition, this paradigm ascertained that both singular and multiple realities exist, so they could test hypotheses (positivist paradigm) and explore multiple perspectives (constructivist paradigm) (Creswell and Plano Clark, 2018); therefore, different underlying concepts were assessed and discussed, including the importance and development of the social skills of autistic children and how, through the use of the SS intervention, the different contexts of learning (i.e., school and home) can improve the social skills and challenging behaviours of these children. Hence, through the pre-and post-intervention data collection from the SSIS-RS questionnaire, and the post-intervention in-depth interviews with guardians/parents and teachers for their feedback, the context-specific data would offer both objective and subjective information. This placed the research into the category of pragmatism by generating narratives emerging from actions, situations, and consequences rather than antecedent conditions that realistically reflect the experience of teachers and guardians/parents

regarding SS as an intervention to address the social and behavioural differences of children with autism.

However, critics of the pragmatist philosophy raise concerns about the generalisability of knowledge obtained through this approach and the way truth is conceded through the pragmatist approach. Despite this fact, the rationale cultivated through the pragmatist approach to use mixed methods is quite meaningful. Pragmatism as a research paradigm has associations with mixed-method research (McBeath, 2023) focusing more on research goals and questions than the methods used, and the underpinning concept of pragmatism places value on research objectives and questions that further prioritises the methods chosen. Pragmatism also focuses on the practical outcomes since pragmatism is an action-oriented approach that seeks solutions to real-world issues, and this focus aligned with the context of this study, with the aim of finding whether SS intervention is effective as an intervention for autistic children (Mayton et al., 2013; Golzari et al., 2015; Bordoff-Gerken and Asaro-Saddler, 2021). In this light, pragmatism not only means conducting research for the sake of knowledge but also deals with the research's positive contributions to the participants and the communities at large (Rorty, 1999).

### 3.3 Research Design

This study adopted a mixed-methods approach, combining individual case studies (a total of six separate cases) with qualitative methods to investigate interventions for autistic children. This robust framework enabled a comprehensive analysis of both behavioural changes and the subjective experiences of participants, including their families and educators.

The quantitative foundation of this research was built on a single-case experimental design, which is particularly valued in special education for its focus on individual behavioural patterns and outcomes (Barlow et al., 2009). This design, applied to autistic children aged 4 to 17 years, facilitated detailed observations of the effects of Social Stories™ (SS) on enhancing social skills and reducing behavioural issues, and, using an ABA design, the study established a baseline (Phase A), implemented interventions (Phase B), and observed whether improvements were maintained or reverted to the baseline after the withdrawal of interventions (Creswell, 2012).

Complementary to the quantitative analysis, the qualitative component utilised semi-structured interviews to gather in-depth insights from the parents, guardians, and teachers of the participants (Smith, 2007). These narratives provided a rich context for understanding the quantitative findings and added depth to the overall impact assessment of the interventions. By integrating quantitative and qualitative methods, the study not only tracked causality and changes in individual behaviours but also captured the nuanced experiences of those involved with autistic children, and this dual approach ensured a holistic view of the intervention's effectiveness and the socio-emotional dynamics at play (Smith, 2007; Barlow et al., 2009). Further enriching the methodology, design-based research (DBR) was employed to iteratively develop and refine the SS intervention, which is a particularly effective approach for real-world settings, allowing for continuous adjustments based on feedback from participants and observations during the study (Anderson and Shattuck, 2012; Trimmer, 2020). DBR supported the theoretical underpinnings of the intervention with social learning theory (SLT), enhancing the practical and academic rigour of the study (Mintrop, 2019).

In addition to the primary methodologies, a comparative analysis of different SS intervention methods highlighted the variability and potential biases in existing studies (Leaf et al., 2015; Garwoid and Van Loan, 2017). This review supported the use of multiple baseline and reversal designs while advocating for the robustness provided by DBR in understanding and applying SS interventions effectively across diverse settings.

To ensure reliability, the study incorporated bias-reducing techniques such as blinded observations and the use of multiple observers to minimise subjective influences (Kazdin, 2011; McCambridge et al., 2014), and extending the study period and incorporating 'warm-up' sessions helped the observation of more naturalistic behaviours, reducing the effects of novelty and participant reactivity (Rosenthal and Rosnow, 2009; French, 2013). Detailed overviews of this design are given in the next section.

### **3.3.1 Design-Based Research (DBR)**

Design-based research (DBR) is a systematic and hybrid research design that is termed "agile", which makes it a potential approach to pursue (Anderson and Shattuck, 2012; Ørngreen, 2015). An agile research approach is structured to facilitate the continuous iteration of development and



testing throughout the process (Anderson and Shattuck, 2012; Trimmer, 2020). Regarding the current study, the DBR approach was pursued to determine the theoretical goal and incorporated multiple research methods and procedures (i.e., questionnaires, interviews, pre- and post-intervention), detailed designing, exploration, enactment, evaluation, and redesign (Trimmer, 2020), which was done to validate educational intervention, i.e., Social Story™ (SS) intervention and theoretical framework, which is the social learning theory (SLT) of the underlying study (Mintrop, 2019), and made it a rigorous process that added to the overall validity of the study. Another strength of using DBR was the active involvement and collaboration of the researcher with the participants and relevant practitioners, thereby maintaining the flow of the study in a real-world context. Through the use of such a refined and systematic research design, the researcher was able to implement an intervention to influence practice (Martinez et al., 2019), and such an approach was advocated because it blends design and practice with empirical steps (Brown, 1992; Anderson and Shattuck, 2012), as well as facilitating the research process through different data resources and connecting them through targeted and attained outcomes.

In the context of this thesis, the design-based research approach is utilised, integrating mixed methods, to explore the effectiveness of social story intervention for individuals with autism in the Saudi context. This method, as highlighted by Golf and Getenet (2017), allowed for the combination of research-based theoretical and educational foundations, and the design-based approach was particularly suited for this study as it enabled a dynamic and iterative process of investigation and implementation. Such an approach was instrumental in influencing practice, as it facilitates the development and refinement of interventions specifically tailored to the unique needs of autistic participants within the distinct cultural context of Saudi Arabia.

Being systematic and flexible, this design method took into account real-world settings grounded in the relevant context and, by being interactive, iterative, and flexible, it allowed the researcher and the participants to maintain constant collaboration. Furthermore, the DBR facilitated the use of mixed methods, a free flow of analysis, design development, and execution so that context-oriented design principles could be generated through this approach.

An integrative model of DBR put forward by Plomp (2013) is a detailed depiction of how this design goes beyond the design of an intervention by considering problem analysis, solution development (keeping in view specific theoretical claims), iterative execution and implementation, and finally a reflection on the relationship between theory and designed artefacts and practice. Figure 2 below is reflective of the current study as it entailed three main aspects, i.e., design, theory, and practice, e.g., development of interactive social stories, diversified data resources (data input using different instruments (questionnaire) and measures (interviews)) followed by findings that exhibited the gap to be addressed in real-world contexts, which were classrooms and homes.

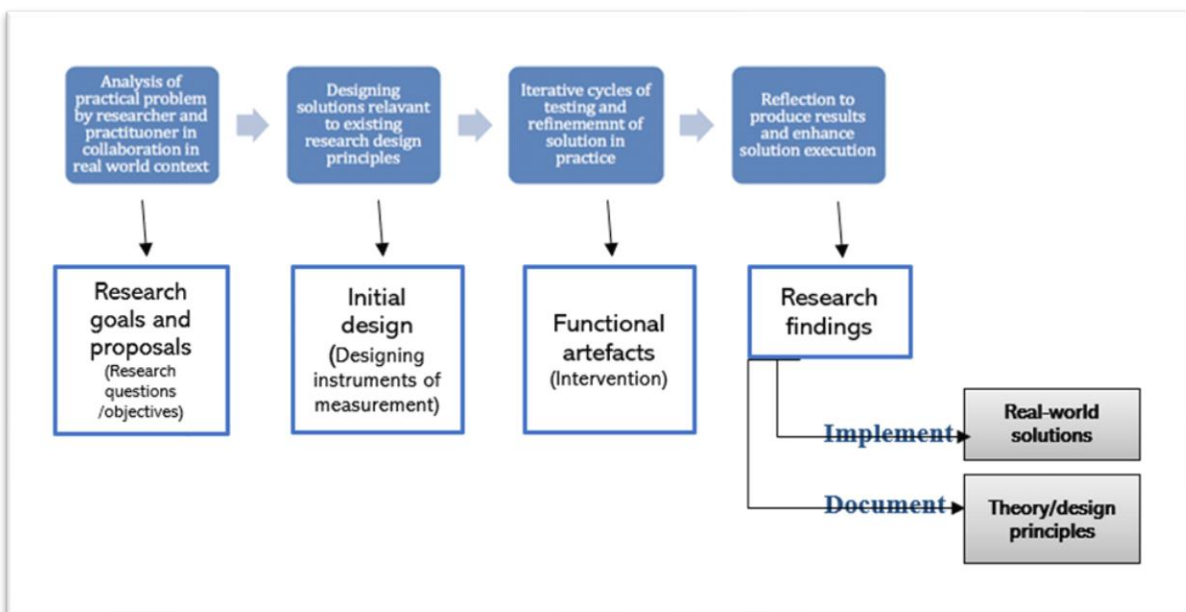


Figure 2. Design-Based Research (adopted from Papavaslopoulou et al., 2019)

### 3.3.2 Comparative Analysis of Intervention Methods

Social Stories™ (SS) interventions have been widely adopted in the field of autism education, yet the methodological designs of these interventions have been subject to scrutiny. Critics, such as Leaf et al. (2015), point out that the variability in intervention processes – shaped by factors like geographical location, age, and gender – leads to inconsistencies in research outcomes (Marshall et al., 2016; Wright et al., 2016; Smith, 2017), and the educational literature reflects considerable variations in how SS interventions are reviewed and evaluated, contributing to disparate findings (Slocum et al., 2012). Garwoid and Van Loan (2017) suggest that the

reliability of intervention outcomes can be enhanced through reviews of meta-analyses, which help to mitigate methodological flaws and assess the fidelity of social skills training research for autistic children.

An extensive review by Leaf et al. (2015) indicates that most studies prefer the multiple baseline method, followed by the reversal design, with fewer studies utilising more complex designs such as ABA, ABAB, or ABABAC. Meanwhile, Hardin (2015) employs various scales, including the Social Behavioural Assessment Inventory (SBAI) and informal interviews, to assess the progress post-SS intervention (Stephens and Arnold, 1992). Despite the diverse methodological approaches, however, the efficacy of SS interventions is generally upheld across studies, underscoring their value in autism education.

The review highlights a significant trend; the integration of multiple methodologies in SS intervention studies tends to yield more reliable and applicable findings, especially in settings involving diverse participant behaviours and environments, such as home and school (Leaf et al., 2015). A methodologically rigorous approach, combining various data collection methods, is advocated to enhance the depth and reliability of research findings (Bozkurt and Vuran, 2014; Khantreejitranon, 2018).

The decision to adopt a mixed-methods approach in this thesis was thoroughly justified by the complexities and variability inherent in Social Stories™ (SS) interventions. Given the critiques and the evident disparities in methodological designs, as highlighted by Leaf et al. (2015) and others, a singular methodological approach might have failed to capture the nuanced outcomes of SS interventions across diverse settings and populations. By integrating multiple methodologies – quantitative assessments through experimental designs and qualitative insights through case studies – this research design aligned with the best practices identified in the literature for enhancing the reliability and depth of findings. Such a comprehensive approach ensured that the research not only adhered to rigorous academic standards but also remained sensitive to the practical realities of implementing educational interventions in varied real-world contexts. This methodology was, therefore, instrumental in advancing a balanced, in-depth understanding of the effectiveness and impact of SS interventions in the field of autism education.

### 3.3.3 Bias-Reducing Methodologies

Part of the comprehensive research design was adopting methodologies to ensure that the data collected were robust, reliable, and free from observer biases as much as possible.

The study was designed to span an extended period, which helped in observing the evolution of behaviours in a more naturalistic setting, and this method reduced the novelty effect associated with observational studies (French, 2013). Additionally, ‘warm-up’ sessions prior to formal data collection helped in reducing participants’ reactivity to the research environment, aiming to mitigate the Hawthorne effect (Rosenthal and Rosnow, 2009), and these ‘warm-up sessions’ occurred during the week of class observations.

## 3.4 Research Methodology

This study adopted an in-depth multiple case studies approach, employing various methods to optimally answer the research questions. Considering the investigation of Social Story™ (SS) interventions across six autistic students, it was crucial to utilise multiple case studies due to the distinctiveness of ASD manifestations in each individual. These unique characteristics necessitated tailored interventions, making the multiple case study framework appropriate for capturing the diversity in experiences and responses to these interventions.

The value of multiple case studies in educational research lies in their ability to provide a detailed exploration of complex phenomena. Stake (2006) highlights that multiple case studies offer diverse perspectives that enrich the inquiry process by illustrating a variety of instances from which broader insights can be drawn. Similarly, Eisenhardt (1989) argues that this method supports theory development by enabling the iterative comparison of empirical results with theoretical ideas, thereby refining and expanding existing frameworks, especially in fields like education and psychology where behaviours and outcomes can significantly differ among individuals.

Yin (2014) supports the utility of multiple case studies for conducting cross-case analyses, which are pivotal for deepening understanding and confirming the validity of the findings, while Baxter

and Jack (2008) further contend that exploring the diversity within cases enhances the generalisability of the research outcomes, making the findings more applicable to a broader context.

The practical implications of using multiple case studies are particularly pronounced in settings like education, where interventions must be adaptable to varied needs (Baxter and Jack, 2008; Yin, 2014). Through examining different instances of SS interventions among children with ASD, educators and therapists can identify the most effective strategies and understand how to customise these interventions to better cater to individual requirements (Stake, 2006; Hyett et al., 2014).

The case of the Ajyal-Alwatan Centre was specifically chosen for its potential to yield rich data through a mixed-methods approach, thus providing comprehensive insights into the effects of interventions from the perspectives of participants, educators, and guardians (Hyett et al., 2014). This approach aligns with the recommendations by Portney and Watkins (2000) regarding multiple data collection points, which in this study included baseline, during-intervention, and post-intervention phases to meticulously track changes in targeted behaviours.

Additionally, the study leveraged an applied behaviour analysis (ABA) design to rigorously test the efficacy of SS interventions. Data collection incorporated a variety of tools, including the SSIS-RS questionnaire, observation frequency charts, and semi-structured interviews with teachers and parents, and this mixed-methods strategy not only facilitated a thorough evaluation of the intervention's impact on social skills and behaviours but also adhered to the rigorous standards for establishing substantial effects, as outlined by Kratochwill et al. (2010).

The multiple case studies approach adopted in this research provided a robust framework for a comprehensive examination of the interventions, enabling a detailed understanding of their effectiveness and the potential for broader application in similar educational contexts.

### 3.5 Participants and Research Context

This section offers a detailed description of the research participants' selection of the sample, its size, and the mechanisms for protecting participants under ethical guidelines.

### 3.5.1 Research Context: The Ajyal Al Watan Centre

The Ajyal Al Watan Centre was chosen to conduct the current research with the cooperation and participation of students, teachers, and parents/guardians. The centre is a pioneer in providing high-quality support services to children with developmental disabilities (moderate and severe) and cares for females between 2 and 45 years of age and males aged between 2 and 12 years. Moreover, the centre strives to pursue a mission “to transform the lives of children with developmental disabilities and their families through their distinctive inclusion model, and through holistic diagnostic, educational, therapeutic, and vocational service delivery models” (Saudi Aramco, 2019, p. 15) and holds classes and learning sessions for autistic children five days a week, from 8 am to 1 pm. Classes are conducted according to the needs of specific students, so the classrooms are specially designed for children with autism with each class accommodating up to a maximum of six students.

The centre was chosen, firstly, because of its high rating of A+ as the best care centre in Riyadh according to the Ministry of Social Development, and secondly, owing to the convenience of its location as it is situated in the capital city of KSA, Riyadh, and researching in the capital city was more convenient as parents/guardians tend to be more cooperative and open to research. The underlying reason for this relates to more facilities being available in the special education system, and the capital city has more support from government agencies in supervising the special education programmes (Aldabas, 2015). Therefore, parents here are more aware and open about the facilities and support being given to their children to overcome their specific learning and developmental challenges. Thirdly, it is a school exclusively for special education and has a high proportion of children with ASD. Lastly, being a tutor in the centre in 2010 gave the researcher another advantage as she was already familiar with its systems and procedures and she managed to develop a good rapport with the teachers and officials there. Having said this, it is also pertinent to mention that the findings of this study include limitations resulting from some unexplored sources of bias, e.g., selection bias of this centre, and this has implications for future research to include a broader study context and setting with diverse participants so that it could be generalised to other settings too.

### 3.5.2 Participant Selection Criteria

At the Ajyal Centre, six classes are designated for autistic children, with each class consisting of 4–6 children. Purposive sampling was chosen to recruit an appropriate sample of participants (eligible to be part of the study), and this was further supplemented by convenience sampling to increase recruitment and yield a maximum response rate. The researcher kept different inclusion criteria for a participant, including (a) age, (b) diagnostic history, and (c) whether or not the participant had partaken in any intervention before. After obtaining the eligibility confirmation from teachers, record files, and parents, further appointments for pre-intervention tests were determined with teachers and parents/guardians. Additionally, an eligibility checklist was maintained to highlight each participant’s characteristics, and the checklist was completed using information from students’ record files. The intent of the checklist was to further identify appropriate participants for the research, and it was further used to identify each participant’s characteristics and record them correctly (e.g., frequency behaviour chart). In addition, the checklist maintained contained information on the frequency of students’ behaviour at home and in school, which was monitored on the basis of the number of times a behaviour was exhibited (frequency), duration (length of the observed behaviour), and rate of behaviour (obtained by dividing frequency and duration). Table 1 below further illustrates the inclusion and exclusion criteria for participants of the study.

<b>Inclusion Criteria</b> for participant groups (children and parents/guardians)	<b>Exclusion Criteria</b> for participant groups (children and parents/guardians)
Clinical diagnosis of child’s autism	Cannot participate if had used Social Stories™ in past 6 months
Aged between 4 and 6 years	If a student was to move to any other school during the intervention period
Exhibits social skill difficulties and behaviours that led to problems in school and home as reported by teachers and parents	Parents/Guardians or teachers had been part of any interview or focus group or even the Autism Spectrum Social Stories In Schools Trial Assist prior to this intervention before, in order to avoid replication of responses.

Parents/Guardians of the child are able to complete and understand the research instrument/measures (with assistance, if necessary).	
They have not previously been involved in any SS intervention.	

*Table 1. Inclusion and Exclusion Criteria for Participant Groups*

### **3.5.3 Level of Social Skills and Exhibition of Challenging Behaviour**

The selection of children with autism for the study was determined by their social skill competencies and their displayed behaviours. Before the intervention, information about the children's social behaviours and skill levels was collected through the SSIS-RS questionnaire, which was filled out by their parents/guardians and teachers. This was complemented by informal interviews with parents/guardians and teachers, providing additional insights into the children's social interactions and behavioural challenges. Additionally, the researcher reviewed school records to assess the children's autism severity, with all participants noted to have moderate autism according to their medical documentation. The children's social skill levels ranged from low to moderate, and the intensity of their challenging behaviours varied from low to high, as detailed in Table 2. The researcher also conducted classroom observations and used an observational frequency behaviour chart in the week leading up to the intervention, and it was confirmed that none of the participants had been part of a Social Stories™ (SS) intervention or any similar programme prior to this study.

### **3.5.4 Sampling**

Considering the sample size, purposive sampling (based on the participants' characteristics and the study's objectives) was adopted with the intent to select the characteristic cases of the population by limiting the sample to required cases. As the autistic student population is highly variable, purposive sampling serves the purpose of including representation from a relevant small sample of participants (using the eligibility criteria).



This also made effective use of limited resources (since the researcher had limited time to complete the doctoral degree and fulfil certain sponsorship conditions). Furthermore, the intervention plan was complex and needs direct, one-to-one contact with each autistic child.

The selection process began with a convenience sample by contacting administrators of Ajyal Al Watan Centre via telephone. The Ajyal Centre is the first of its kind in the KSA and offers efficient therapeutic and educational services to autistic children of all ages, and being familiar with the details and norms of the Centre made it more convenient for the researcher to approach students who had not been exposed to the SS intervention before.

According to Gaus (2017), for research to produce efficient results, there must be a sufficient number of participants, a suitable location, and appropriate activities to answer the research questions. Boddy (2016) notes that, in qualitative research, the sample size is determined contextually; it is also partially dependent upon the scientific paradigm under which the investigation is taking place. In a similar vein, Creswell (2014) argues that a sample size of 5–15 is adequate and that this should enable the researcher to obtain adequate information. Keeping the sample size small is vital in qualitative methods as they lead to a detailed understanding of complex issues. Moreover, a criterion for suitable sample size can be determined by saturation, with Palinkas et al. (2013) adding that saturation is reached at the point when new data is not producing any new insight or understanding of the research process.

Relevant to the context of current research is the point of view asserted by Friese and Ringmayr (2014) that the measure of an adequate sample is the intensity of contact with the participants. Based on these postulations, a total of six children with ASD and their six guardian families were recruited for the research based on purposive sampling. As Kaghora et al. (2012) state, purposive sampling is fundamental in producing crucial information to address the research problem and questions. The participants were chosen according to certain selection criteria:

**a) Registered students**

Registered students of Ajyal Al Watan Centre were recruited for this research, and it was ensured that each participating child was formerly diagnosed with autism by a registered official local doctor in KSA.

**b) Age and gender**

The children participating in this research were between the ages of four and six years and were being provided with special education services. The reason for choosing this age group was that the behavioural patterns, and similarly the social challenges, were at the onset stage of development in the children with autism and were, therefore, most evident (Edward and Stoppler, 2017). Moreover, evidence has revealed that the average age at which autism is fully diagnosed is 4 to 6 years, as the regression of skills noted in diagnosing autism starts at this age (Edward and Stoppler, 2017). Moreover, selecting an early intervention group is more likely to yield major long-term effects on the targeted skills and behaviours (Reichow and Wolery, 2009; Dawson et al., 2010; Zwaigenbaum et al., 2015; NICHD, 2017). In the same context, Fuller and Kaiser (2019) elucidate the gains of early interventions for autistic children, i.e., younger autistic children make greater gains even from lower-intensity programs, with Towle et al. (2020) adding the “earlier the better” and asserting that early intervention could contribute greatly to highly specialised experience for shaping and improving neural patterns being formed at quite an early age, from birth to three years. Smith et al. (2015) point out too that the younger the autistic children are subjected to intervention, the more responsive they are to the treatment. This response shaped at a young age was even manifested throughout older to younger samples, and these prior studies therefore support the need for increased access of autistic children to intervention at earlier ages.

Both genders were targeted and, of the six participants, three were male, and three were female. The targeted participants were recruited after gaining the informed consent of their parents/guardians and before the intervention was conducted. Based on Karal and Wolfe’s (2018) literature review on the effectiveness of SS, most previous studies had used male participants only and had used a minimal number of participants, not exceeding three. Thus, the current study presented a higher number of participants with both genders considered, indicating the value of the research to extant literature.

As per anecdotal statistical data, the number of male cases of autism outnumbers that of females, with 31 percent in males and 4 percent in females from a reported total of 437 (Almandil et al., 2019). However, this does not mean that the female proportion can be ignored (Alnemary et al.,

2016). Hence, to generate a theory, this sample size was necessary, and both genders were assessed.

### **3.5.5 Description of the Participants**

The following narratives provide a description of the participating students in this study.

#### **STUDENT A**

Student A was a five-year-old male clinically diagnosed with autism at the age of three. The teacher and guardian/parent reported that A exhibited challenges in prompting and answering within social contexts and issues concerning the initiation of conversations and interactions, and following observations of his behaviour in the classroom, the area of focus for the intervention was initiating and interacting in conversations. In terms of the DSM-V criteria for the severity of social communication impairments, Student A was classified at level 1, indicating that he needed assistance to start and sustain social interactions.

#### **STUDENT B**

Student B was a five-year-old female clinically diagnosed with autism at three years old. According to the parent/guardian and teacher, B had interaction challenges, particularly, sharing and interacting with friends. In order to initiate her response, she needed frequent opportunities to practice social and interaction skills in a structured setting. Following interviews with B's guardian/parent and teacher, as well as observations of her behaviour in the classroom, the area of focus for the intervention was to engage in sharing toys with her classmates and initiate interaction. Under the DSM-V criteria for the severity of social communication issues, Student B was placed at level 1, indicating she needed support to address her challenges with sharing, interactions, and social engagement.

#### **STUDENT C**

Student C was a four-year-old autistic male. As reported by the teacher and guardian/parent, C demonstrated challenges relating to social engagement and required extra attention from the parent/guardian and teacher to remain engaged on a task. He was further reported to show behavioural issues, such as aggression, shouting, and throwing things across the room to get

attention, resulting in pressure among C's classmates and family members. The area of focus that was selected for the intervention was being polite with others and reducing aggression levels. According to the DSM-V categorisation of the severity of social communication challenges, Student C was assessed at level 2 because, beyond his difficulties with social engagement, Student C also demonstrated challenging behaviours. Consequently, Student C necessitated considerable support to manage and guide these challenging behaviours effectively.

### **STUDENT D**

Student D was a six-year-old female, facing challenges in terms of interacting with peers as reported by the parent/guardian and teacher. Most of the time, she exhibited very little to no response to the requests of her peers, and she also faced challenges regarding following classroom rules and routines and expressing herself. D was a highly desired partner in numerous activities by her peers, but she frequently declined or ignored the repeated requests to participate in group activities, either verbally or non-verbally. She had the tendency to jump repeatedly from chairs to the ground. The area of focus for the intervention was developing social engagement and social interaction skills. Under the DSM-V framework for classifying the severity of social communication challenges, Student C was placed at level 3 due to her marked unresponsiveness, disregard, and reluctance to engage in communication and interaction, as well as difficulties in adhering to classroom instructions. This level was considered distinctive because it described individuals who rarely initiate interaction and tend to respond only to direct social approaches.

### **STUDENT E**

Student E was a five-year-old male reported to have social interaction problems and identified as often needing assistance, encouragement, and prompts from time to time to actively participate with peers in classroom activities. The parent/guardian also disclosed that appropriate engagement with his siblings continued to require critical support. Following interviews with Student E's parent/guardian and teacher, as well as observations of his behaviour in the classroom, the target behaviour that was selected for intervention was engaging him in classroom activities. Student E was categorised under level 2 because of the severity of his social communication challenges as per the DSM-V standards, which was due to the fact that, in

addition to needing help with social engagement, he also required regular external support and prompting to facilitate his interaction and participation.

### **STUDENT F**

Student F was a six-year-old female who appeared to have issues sustaining social interactions and appeared to have challenges with attention, hyperactivity, and social skills. It was also observed that she required external support from the teacher or parent/guardian relative to engagement. Following observations of her behaviour in the classroom, together with input from the teacher and parent/guardian, the area of focus selected for the intervention was accepting orders and waiting for her turn to speak. Student F was assessed at level 2 severity for social communication challenges, according to the DSM-V. This rating reflected her need for considerable support from teachers and parents to stay engaged in social interactions and her inflexibility in behaviour.

Table 2 below provides further details concerning the participants of this study.

#### **3.5.6 Previous Exposure to Intervention**

It was ensured that the selected autistic children had not been previously exposed to an SS intervention in any context, i.e., school and home settings. This was ensured using their record files from schools as well as the pre-intervention interviews with the participants' respective teachers and parents/guardians.

#### **3.5.7 Teachers' and Parents/Guardians' Participation**

In addition to the participating autistic children, the participating teachers and parents/guardians of the children and a research assistant (chaperone) were selected. A total of 13 participants were involved: 6 teachers (Ajyal Al—Watan had 2 teachers in each of 3 classrooms), 6 guardians, and one chaperone. Particularly, the teachers refer to the individuals who were mainly responsible for teaching the participants in school during the school year. The parents/guardians, on the hand, refer to individuals who were responsible for providing the critical care of the participants in all

settings, specifically at home. The chaperone refers to the selected teaching assistant of the school, whose main responsibility was to be present in all of the intervention sessions to ensure

<i>Participants' Descriptive Information</i>						
<b>Participant's Research Code</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>Age</b>	5	5	4	4	6	6
<b>Gender</b>	M	F	M	F	M	F
<b>Diagnosis</b>	Autism	Autism	Autism	Autism	Autism	Autism
<b>Level of Autism</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>	<b>Moderate</b>
<b>Level of social skills interaction (high/moderate/low)</b>	<b>Low</b> Lack of prompting and answering in social contexts and avoided the initiation of conversations and interactions	<b>Low</b> Lack of prompting and answering in social contexts and avoided the initiation of conversations and interactions	<b>Low</b> He avoided interaction.	<b>Moderate</b> Dealing only with people she liked	<b>Low</b> Avoided communication and delay in his response	<b>Moderate</b> Not following instructions and delay in responding to communication
<b>Level of behaviour (high/moderate/low)</b>	<b>Low</b>	<b>Low</b>	<b>High</b> Shouts and throws things across the room to get attention	<b>High</b> Taking toys, shouting, throwing things around	<b>High</b> Hyperactive, aggressive and showed bullying behaviour	<b>High</b> Very hyperactive – running around and shouting
<b>Target social skills</b>	To initiate and interact in conversations	To initiate and interact in conversations	To be polite with others and listen to instructions.	To learn how to listen and communicate politely with others.	To initiate conversations and follow teacher's instructions.	To learn how to follow instructions
<b>Target challenging behaviour</b>	None	None	To lower levels of aggression	To lower levels of aggression	To lower levels of aggression	To lower levels of hyperactivity

Table 2. Participants' Demographic Information

the participant's safety and security. More importantly, the respective teachers and guardians/parents who interacted and were in direct contact with each child were selected for the study.

They were requested to contribute by:

- a) Pinpointing the requisite social skills and the challenging behaviour that needed improvement
- b) Completing the SSIS-RS scale pre- and post-intervention
- c) Participating in a semi-structured interview session to reflect on the effectiveness of the SS intervention administered to the autistic child.

The selection of these participants was made based on the pre-determined criteria of the study:

- Teachers selected for the post-intervention interview and the SSIS-RS questionnaire pre- and post-intervention were teachers who were directly involved with the selected autistic children.
- The chaperone assisting the researcher in the intervention phase also took part in the pre- and post-intervention interview session and the SSIS-RS questionnaire.
- Parents/guardians who participated in the SSIS-RS questionnaire pre- and post-intervention and post-intervention semi-structured interviews were selected on the basis that they had direct contact with the child.

Table 3 below presents the demographics of participating teachers.

The role of parents/guardians was significant in gathering the clinical and developmental history of each student participant. Table 4 below provides a tabular presentation of the characteristics of the participating guardians.

The composition of parents/guardians and teachers as exclusively female in this study reflects the cultural setting of Saudi Arabia. Notably, in the Saudi context, traditional gender roles are highly patriarchal, with women traditionally taking responsibility for the domestic space and nurturing of the family, including the education and care of children as indicated in Hofstede's cultural dimensions theory cited by Evason (2022). In other words, the study's setting indicates the adherence to tradition, underscoring the patriarchal structure of Saudi society, where women are custodians of domestic life and child development.



<b><i>Teacher's Descriptive Information</i></b>					
<b>Participating Teachers</b>	<b>Age</b>	<b>Gender</b>	<b>Education</b>	<b>Experience with autistic students</b>	<b>Prior participation/ designing/ execution in SS</b>
Teacher A	30	Female	BSc Special Education	8 years	No
Teacher B	35	Female	BSc Business Administration	7 years	No
Teacher C	40	Female	Bachelor in Special Education MA in Autism	10 years	No
Teacher D	29	Female	Diploma in Education	5 years	No
Teacher E	30	Female	PhD in Education	6 years	No
Teacher F	35	Female	MA in Autism	9 years	No
Chaperone	27	Female	Bachelor in Special Education	4 years	No

*Table 3. Teachers' Demographic Information*

<b><i>Parent/Guardian's Descriptive Information</i></b>				
<b>Participating Parent/Guardian</b>	<b>Age</b>	<b>Gender</b>	<b>Relationship Status with the Participating Student</b>	<b>Prior Participation in SS Intervention</b>
Parent/Guardian A	32	Female	Mother	No
Parent/Guardian B	41	Female	Mother	No
Parent/Guardian C	27	Female	Mother	No
Parent/Guardian D	28	Female	Mother	No
Parent/Guardian E	30	Female	Mother	No
Parent/Guardian F	29	Female	Mother	No

*Table 4. Parents/Guardians' Descriptive Information*

Moreover, the selection of the participants was carried out in accordance with clear ethical considerations which conformed to the university's ethical regulations; these were also in line with the ethical guidelines of the British Educational Research Association (BERA), as explained below.

### **3.5.8 Chaperone's Participation**

The role of a chaperone in research, particularly when involving vulnerable populations or sensitive settings, is crucial for maintaining ethical standards and ensuring participant comfort and safety. According to Smith and Jones (2015), chaperones serve as impartial observers who provide a safeguard for the physical and emotional well-being of participants (Smith and Jones, 2015). Furthermore, Brown et al. (2018) emphasise that the presence of a chaperone can enhance the credibility of the research process by ensuring adherence to ethical guidelines and fostering an atmosphere of trust and security. These roles are especially significant in educational settings where interactions may be more personal and sensitive.

In this study, the chaperone, a 27-year-old female educator serving as an assistant teacher, was integrally involved throughout the various phases of the intervention, aligning with the principles highlighted by Smith and Jones (2015) and Brown et al. (2018). Her primary responsibilities included ensuring the safety and security of participants during all sessions and supporting the structured implementation and integrity of the intervention processes.

During the one-to-one attention sessions detailed in Phase Two (3.8.2) and throughout the implementation of the SS intervention (3.8.3), the chaperone accompanied the researcher, providing a comforting and supportive presence that allowed the children to interact naturally and freely. This non-intrusive support was crucial for maintaining a conducive environment for the participants, which was essential for the authenticity and effectiveness of the intervention.

The chaperone also played an essential role in the evaluative aspects of the research, participating in both the pre-and post-intervention interviews and completing the SSIS-RS questionnaires. Her involvement in these processes provided consistency and additional insights into the progress and outcomes of the intervention.

A critical aspect of the chaperone's role was to ensure treatment fidelity and integrity. She was responsible for completing fidelity checklists during the intervention sessions, as outlined under Phase Three (3.8.3), and these checklists were crucial for verifying that each step of the intervention was executed correctly. The chaperone monitored the intervention process, ensuring adherence to the planned procedure and making immediate corrections when necessary, and this oversight included directing the researcher to adjust the intervention steps if they were missed or improperly implemented and reminding the researcher of the next steps if any additional adjustments were needed.

To uphold ethical standards and maintain a balanced power relationship between the researcher and the participants, the chaperone's presence was critical (3.6.4). Her role as an observer and an assistant ensured that the participants felt secure and that their consent to participate was respected throughout the study, and this arrangement was vital for preserving the integrity of the research and fostering a sense of trust and safety among the participants.

### 3.5.9 Researcher's Training Background

The researcher received comprehensive training in the creation and application of Social Stories™ (SS) through the Basic Training for Social Stories 10.2, facilitated by Dr Siobhan Timmins on 4 February 2019. This training, conducted in collaboration with Carol Gray, the founder of the Social Stories™ method, provided a practical and in-depth approach to understanding and crafting Social Stories™. The course emphasised not only the theoretical underpinnings of the SS framework but also offered hands-on experience, as participants, including the researcher, were guided through the process of writing their own Social Stories™, with direct support and feedback from the trainers. This experience was crucial in mastering Carol Gray's specific techniques and rules for effective Social Story™ creation. Following the training, the researcher adapted the principles learned to fit the cultural and situational context of Saudi Arabia, developing customised Social Stories™ that were culturally resonant and appropriate for the local setting. This adaptation was vital in ensuring that the Social Stories™ were relevant and effectively communicated the intended messages to the children involved in the study, enhancing the intervention's applicability and impact.

### 3.6 Ethical Considerations

It is recognised that educational research must address the ethical issues and perspectives associated with researching in a meaningful way (Taub et al., 2017). Moreover, an ethical framework is a means of safeguarding the participants in the research (i.e., both respondents and researchers) to as great an extent as possible during the research process and until the research's publication (Fox and Mitchell, 2019).

Ethics refers to the multidimensional guidelines that must be considered in order to ensure the ethical acceptability of the research process (Rumrill et al., 2020). Other essential ethical procedures have been followed to ensure that this research maintained an ethical direction. Among these were the shielding of participants' anonymity and confidentiality, data protection, and avoiding any deliberate deception or wrongdoing with regard to the use of data. Thus, every precaution was taken to protect the participants from harm or negative consequences, especially participants such as special needs children, who are vulnerable (Rumrill et al., 2020).

#### 3.6.1 Protection of Vulnerable Groups

According to BERA's ethical guidelines (2019), the more vulnerable the participants, the greater the responsibility of the researcher to protect them. Vulnerable groups of participants include those whose capacity, age, and other factors limit their ability to understand the concept of voluntary participation. In the current study, the age group and autistic profile of the children marked them as vulnerable. Hence, the researcher asked for the consent of their guardians by sending home a consent form. A copy of the consent form is attached in Appendix 2 (translated into Arabic). The consent form ensured that no video recording of the child would take place, and no pictures that showed their faces would be used. Guardians were assured of their right to withdraw their child from the research at any time they chose, and the anonymity of all the participants was confirmed, assuring them of confidentiality as their real names would not be disclosed in the research.

### 3.6.2 Participants' Approval and Consent

In a research context, it is generally accepted that the informed consent of participants must be obtained before the research begins, and the researcher must allow all participants the choice of whether to continue participating or to withdraw their consent at any point during the research (Chapman et al., 2020).

In the context of the study, an ethical proposal was documented and circulated for review by the university's Ethical Committee. After the required approval was sought (see the Ethical Approval Form in Appendix 1), permission from the Ministry of Education (MoE) and the Head of the Centre (Ajyal Al-Watan) (Appendix 2) was obtained to conduct the research. The consents of teachers (Appendix 3) and parents/guardians (Appendix 2) were then obtained through letters sent by the Director of the Centre. Secondly, the consent form was communicated to them before the start of the research to inform them of the SSIS-RS pre- and post-questionnaires, together with the respective timeframe for completion of the questionnaires: i.e., within two weeks of their receipt. The consent of guardians was obtained for them to participate in an interview before the completion of the SS intervention to give their feedback, and the teachers and guardians were informed that they could withdraw their interview answers within one week of the interview session and, from the questionnaire session, within three days of answering. If they chose to do so, it was promised that their response record would be discarded, and the guardians were assured they would have full access to an anonymised copy of the overall findings. All teachers were asked to return their consent directly to the researcher via a sealed envelope to keep their consent to participate confidentially.

In regards to the participating children, the researcher considered it essential to get the assent of the participating children whenever the intervention was provided. The researcher, prior to every instance of the intervention, ensured that each of the participating children showed no distress, that each child felt comfortable in doing the activity, and that they showed interest and enthusiasm in participating. The researcher was very vigilant of the child's behaviour and ensured that each was happy to participate. Correspondingly, consent from parents/guardians to let their children participate was also obtained to ensure that the SS intervention is being executed with beneficial prospects in the context of the underlying research.

### 3.6.3 Pseudo-Anonymity and Confidentiality of Participants

Confidentiality and anonymity for participants are fundamental and consequential in terms of the ethical framework of any research. Moreover, the researcher is responsible for ensuring that participants are accorded their rights regarding privacy and confidentiality, and the security of data is another important parameter that must be considered to avoid a breach of agreed confidentiality and anonymity. Keeping this in mind, the current study assured participants that their responses would be anonymous. However, they were made aware that the name of the school, Ajyal Al Watan Centre Riyadh, would be used but the researcher would utilise pseudo-anonymity, replacing identifiable information with a pseudonym or code for all the participants. It was explained that in the context of this study, their identifiable information would be coded alphabetically, i.e., A, B, C, D, E, and F.

The use of pseudo-anonymity is well supported in the field of research in terms of enhancing both the quantity and quality of data collected and obtaining the trust of the participants (McAreevey and Das, 2013). Wiles et al. (2008) also argue that pseudo-anonymity can enhance data integrity and reduce bias because, without identifiable information, researchers do not have the opportunity to unconsciously favour or discriminate against any participant. Additionally, pseudo-anonymisation is advocated by the General Data Protection Regulation (GDPR), under Article 4(5), as a measure of complying with the data protection requirements (Voigt and Von dem Bussche, 2017).

Therefore, all the identities of all those participating in the SSIS-RS questionnaire and the interview sessions were concealed, ensuring pseudo-anonymity, and the participants and centre authorities were assured of data privacy as all data were kept in secure premises, on the researcher's personal laptop equipped with a personal password only known to the researcher, and on the university's One Drive, accessible only using a password known only to the researcher. The data security protocols, i.e., automated secure backups of data, password-protected files, and encryption, were used to avoid inadvertent disclosure and uncertain device loss. Similarly, the whole disk-encrypted laptop and secure servers were maintained to keep data protected.

### 3.6.4 Dual Role and Power Relationship

Another ethical consideration that must be acknowledged is that the researcher should ensure a balanced power relationship with the participants; there should be a balance to maintain power equality within the research. In the context of the given study, the researcher being in contact with the ASD students assured the university's Ethical Committee of power balance during the research, referring to their previous work experience with ASD students in the same institution. Moreover, to avoid any discrepancy regarding the role, a chaperone (i.e., an assistant teacher) accompanied the researcher in the classroom while implementing the SS intervention as a safety precaution. In addition to this, participants were free to choose to participate, and they were free to withhold their consent as explained under the section 3.6.2 – *Participants' Approval and Consent*. Therefore, the researcher ensured a balanced power relationship with the participants and maintained a rapport in the study based on power equality.

Additionally, the research approach was meticulously designed to address sensitivity, recognising the cultural nuances and potential emotional weight of discussions with parents and teachers. Utmost care was taken in crafting and communicating questions to ensure they were respectful and considerate of potentially delicate subjects, as the researcher's strategy aimed to establish rapport, communicating empathetically to affirm a shared understanding with the parents and teachers, without imposing any sense of obligation or discomfort.

### 3.7 Measurements/Instrumentation

This study's SS intervention utilised different instruments/measures to assess and record the pre- and post-intervention levels of the children's social and behavioural skills development. The intent of using various measures was to assess the level and dimensions of social skills and challenging behaviour pre-intervention and then compare them with post-intervention data to determine their effectiveness, and in alignment with the foundational research questions, a multifaceted array of instruments – notably, the Social Skills Improvement System Rating Scales (SSIS-RS), informal and semi-structured interviews, and behavioural frequency charts – was deployed. These tools were instrumental in gauging the baseline and subsequent advancements in the participating children's social and behavioural skill sets, thereby evaluating the improvement in their overall social competencies and the mitigation of challenging behaviours. It is important

to note that the researcher's reflective notes and school files are classified as research events and not research methods.

### 3.7.1 SSIS-RS Questionnaire

The Social Skills Rating Scale (SSRS) questionnaire was developed by Gresham and Elliot in 1990, but in this study, the revised version of the SSRS was used: i.e., the Social Skills Improvement System-Rating Scales SSIS-RS (Gresham and Elliot, 2008) questionnaire, which was further enhanced in 2018. The SSIS-RS is a commercially available questionnaire developed rigorously in research studies, designed and administered to screen students with impairment in their social skills, further assisting by designing interventions to improve those challenges (Cheung et al., 2016). It comprises two scales: the social skill scale and the problem behaviour scale.

The social skills scale measures and organises behaviour into the following seven subscales: namely, communication, cooperation, empathy, assertion, self-control, engagement, and responsibility. To attain a raw score or to determine the level of an individual's social skills, one of three behaviour levels will be used: below average, average, and above average. The below-average level of any social skills behaviour indicates the need to address that skill through an intervention/instruction.

As mentioned above, the SSIS-RS questionnaire includes the problem behaviours scale, which assesses behaviours that may hinder the development of positive social skills. This scale measures various types of problem behaviours, including externalising problems like aggressive acts and poor temper control, internalising problems such as sadness and anxiety, and hyperactivity, which encompasses behaviours like fidgeting and impulsiveness. It is important to note that in this study, the term "challenging behaviour" is used in place of "problem behaviour" to reduce stigmatisation and avoid negative implications. This scale pertains to a comprehensive range of challenging behaviours, some moderately mild and more frequently exhibited by the individuals, and some frequently observed with more severity. Like the social skills scale, the challenging behaviour scale also has three levels: below average, average, and above average. Scores of any challenging behaviour that fall in the above-average category specify that the



individual is exhibiting the challenging behaviours more than his/her peers/classmates. Hence, this triggers the need for an intervention designed to alleviate the challenging behaviour.

The items' rating scale is used to score the responses of teachers and parents to rate the frequency/belief for all items in the social skills and challenging behaviours. A four-point scale will be used to indicate the frequency with which the student exhibits relevant social skills and/or challenging behaviour, which will be indicated with never (0), seldom (1), often (2), and almost always (3). Additionally, below is a breakdown of the specific details of both social skills and challenging behaviours that are measured by this scale.

## 1. SOCIAL SKILLS

### a) Cooperation

- Follows your directions and completes tasks without bothering others
- Participates appropriately in class
- Pays attention to your instructions
- Ignores classmates when they are distracting
- Follows classroom rules

### b) Assertion

- Expresses feelings when wronged
- Says nice things about herself/himself without bragging
- Asks for help from adults
- Questions about rules that may be unfair
- Stands up for herself/himself when treated unfairly
- Says when there is a problem
- Stands up for others who are treated unfairly

### c) Self-control

- Stays calm when teased
- Responds appropriately when pushed or hit

## d) Responsibility

- Takes care when using other people's things
- Respects the property of others
- Is well-behaved when unsupervised
- Takes responsibility for her/his own actions
- Acts responsibly when with others
- Takes responsibility for part of a group activity

## e) Engagement

- Joins activities when they start
- Invites others to join
- Makes friends easily
- Interacts with peers
- Participates in games and group activities
- Start conversations
- Introduces himself or herself to others

## f) Empathy

- Tries to comfort others
- Forgives others
- Feels bad when others are sad and shows kindness to others when they are upset
- Is nice to others when they are feeling bad
- Shows concern for others

## 2) CHALLENGING BEHAVIOUR

## a) Externalising

- Shows temper tantrums
- Argues with others
- Disruptive
- Is aggressive with others
- Overlooks rules and requests

## b) Internalising

- Feels lonely
- Appears lonely
- Acts sad
- Shows social anxiety

## c) Hyperactivity/Inattention

- Acts without thinking
- Gets distracted easily
- Fidgets/moves around a lot

The SSIS-RS was administered as a pre-and post-SS intervention treatment using the teachers and parents/guardians' scale in line with this study's first and second research questions. Hence, both the teachers' and parents/guardians' versions of the questionnaires were purchased and administered pre- and post-intervention, and the results obtained from the pre-and post-intervention highlighted the reliability change index for each subject data on the SSIS-RS Scale to determine whether the magnitude of change obtained during pre-and post-intervention was statistically significant or not. The data from both parents and teachers for the pre- and post-intervention reflected the improvement or deterioration in social skills and challenging behaviours as rated by both teachers and parents.

The analysis of the standard score for each subject data followed together with, most importantly, the calculation of the percentile rank with a view to establishing how the score for each student deviated from the scores of the other students combined. The SIS-RS has been utilised in various studies as a tool for screening and evaluating treatment outcomes, as noted by Oord et al. (2005), while according to Gresham et al. (2011), the SSIS-RS is designed to measure social skills across several domains, including communication, empathy, engagement, self-control, and responsibility. Additionally, the problem behaviours scale within the SSIS-RS assesses behaviours that might impede the development of these positive social skills as stated above. The SSIS-RS for preschool includes parent and teacher rating forms that can be used separately or in

combination, and the SSIS-RS was used as a teacher and parent/guardian rating form consisting of 40 items in order to measure participants' social skills, their tendencies to follow directions, engage and interact with others, and their ability to demonstrate positive behaviour. Keeping the purpose of the study in mind, only the social skills and challenging behaviours subscales were employed, excluding the academic competence scale in the cumulative score, as the SS intervention was not intended to address academic challenges in autistic children.

The SSIS-RS has been a frequently used scale due to its capabilities to use multiple informants, multiple settings, robust psychometry, and significant evidence of reliability and validity, as well as its linkage to intervention design (Hajovsky et al., 2021). Being a standardised behavioural rating scale, it capitalises on informants' observations in the child's natural setting, assessing information concerning the targeted student's social well-being and competence (Crosby, 2011; Vaz et al., 2013). An exhaustive study based on the teacher- and parent-based version of SSIS-RS has validated the convenience of its administration across multiple informants (teachers, parents) and in different contexts, as its scale allows school-based teacher ratings and home-based parent scoring (Vaz et al., 2013). Furthermore, it aligns effectively with assessment needs for ASD and develops and reinforces the link from assessment to intervention (Gresham et al., 2011; Caemmerer and Hajovsky, 2022) with the further aim to identify children with autism susceptible to or displaying social behaviour difficulties, before it selects target behaviours for intervention (Gresham and Elliot, 2008; Klaussen and Rasmussen, 2013). Moreover, the attributes of this scale have been noted positively by prior research (Cheung et al., 2016) as it is acknowledged to assist in the screening and investigation of children with autism between the ages of 5 and 18 years with social skills differences (Cheung et al., 2016). Moreover, it is said to be a promising instrument for caregivers and practitioners to distinguish between social skills and challenging behaviours in children with autism (Cheung et al., 2016).

The validity of SSIS-RS, demonstrated by prior evidence, made it a suitable instrument for adoption in this study, as it has been shown to be both feasible and successful with children with special educational needs (Anthony et al., 2021; Wu et al., 2019). Given the importance of reliability and validity, SSIS-RS has been shown by technically adequate empirical studies to be reliable and valid, with good agreement in subscales (Gamst-Klaussen et al., 2016; Wu et al.,

2019). In the same context, Klaussen and Rasmussen (2013) note that it had been assessed by prior literature, along with its psychometric properties (Cheung et al., 2016), with versions translated into different languages including Spanish, Norwegian, Portuguese, Hindi, Dutch, Iranian, Slovakian, German, Russian, Korean and Chinese (Gresham et al., 2011). Hence, several prior studies have supported its validity and reliability (Bjørnbekk and Howard, 2012; Klaussen and Rasmussen, 2013). The multidimensional scales and questions offered in the questionnaire used in this study enabled the researcher to obtain adequate baseline measurements, and keeping in mind the variables that were to be measured (i.e., social skills and behaviour), only the relevant subscales of SSIS-RS were used (i.e., the academic competence scale of the questionnaire was excluded) as the current study used SS intervention to investigate its impact on social skills and behavioural challenges of the participants.

Vaz et al. (2013) assert that evidence from prior research had assessed the internal consistency and reliability of each scale separately and, according to prior evidence, the internal consistency of SSRS-SSF (social skills factors) is  $\alpha = .83$ , which is the potential value for its independent use in research targeting autistic children (Diperna and Volpe, 2005; Vaz et al., 2013). Gresham and Elliott (2008) offer reliability of .85 to .97 for the social skills factor and .75 to .94 for behaviours. In addition, an internal consistency rating of .84 for social skills and .81 for behaviours were extrapolated on the teachers' form (Teague, 2014), while the parent form exhibited stronger test-retest reliability of .86 for social skills and .87 for challenging behaviour (Gresham and Elliott, 2008). Wang et al. (2011) provide support for the SSIS-RS by presenting the psychometric properties of items within SSIS-RS as having a significant internal consistency ( $r = 0.82-0.94$ ) and also state that, due to its significantly strong construct validity, SSIS-RS had been shown to be a technically adequate social-emotional and behavioural instrument. Another important dimension cited by Wang et al. (2011) related to SSIS-RS is that, for preschool autistic children, the social skills scale can serve to determine their levels of social competence.

In light of the above justifications, it is evident that the psychometric properties of SSIS-RS rendered it as a high-order construct (Wu et al., 2023) that directed the selection of this instrument for this study too. Gamset-Kalussan (2015) renders it a promising multi-rater instrument for evaluating social skills and problem behaviour to produce valid and reliable scores for the social behaviours of autistic children. Therefore, the internal consistency, structure

validity, and test-retest reliability coefficients (ranging between 0.75-0.85) manifest their good stability over time and prove it as an efficacious and standardised tool to be used for social skills assessment (Jiang, 2023).

Below is the test-retest reliability of the SSIS-RS.

	Teacher		Parent	
	r	Adj r2	r	Adj r2
Social skills	0.842	0.709	0.856	0.733
Cooperation	0.871	0.759	0.856	0.733
Self-control	0.748	0.560	0.774	0.599
Assertion	0.818	0.669	0.794	0.630
Empathy	0.818	0.669	0.752	0.566
Engagement	0.823	0.677	0.808	0.653
Challenging behaviour	0.768	0.590	0.826	0.682

*Table 5 - Test-Retest Reliability of SSIS-RS*

Notably, this study is a pioneer in terms of administering SSIS-RS in Arabic. The measure originally developed by Gresham and Elliott (2008) was used, and, as per the standards mentioned by the American Psychological Association (APA), the translation process adopted an iterative approach involving translation and back-translation of the SSIS-RS measure from English to Arabic. In order to avoid validation issues due to cultural aspects, linguistic (translation) equivalence was accomplished using back-translation. According to Klaussen and Rasmussen (2013), translation equivalence is not the only function of the quality of the translation of an item, but also of the smooth and natural sound of the second language, and for that, back translation was adopted. For that, an expert bilingual translated the instrument into the second language (forward translation), and then another bilingual translated it back to the first translation (back-translation). In this way, the construct equivalence of the instrument was also maintained, i.e., the construct of the measure remained the same in both languages. The careful process of forward translation and back-translation was entrusted to an Arabic translator of high proficiency, who was not merely a teacher but also possessed notable professional and practical experience in the field of special education, ensuring both linguistic accuracy and contextual

relevance in the translation process. Moreover, to keep check of the psychometric proprieties of the instrument, the researchers also worked both independently and collectively with the translator to compare the translated versions with the original version and made sure to avoid discrepancies until a consensus was reached that the revised and translated version of Arabic was inclined to be true to their intended meaning in Arabic.

### **3.7.2 Observational Frequency Behaviour**

The second measurement employed in the study was observational frequency behaviour, which consists of a list of descriptive information on a chart for each individual child. Participants were observed prior to intervention, during the intervention phase and post-intervention to identify the antecedents and consequences of the intervention, and these records served as a snapshot of the setting and the children's behaviour.

Kanakri et al. (2016) report that a benefit of utilising the observational method is to record behavioural frequencies, mentioning that the interior of a classroom or home setting, as well as other environmental characteristics, can be significantly important to the behaviour of the child. Thus, his/her behaviour should be recorded, and the connection between the class ambiance, noise, and other factors that link with their behaviour can be easily observed through this approach. Therefore, behaviours observed with greater frequency will add to the reliability of the findings and will also mitigate the validity issue.

Similarly, Cooper, et al. (2020) posits the need for clearly defined behaviours and how they should be recorded in a behavioural observation. In the context of the study, the behaviours of the participants are defined based on two categories: effective and ineffective positive social and behavioural interactions with teachers and parents/guardians. The operational definition for effective positive social and behavioural interactions includes improved attention and focus, initiation of a request, and prompting with class fellows. Ineffective, on the other hand, refers to inappropriate sounds and screams, unnecessary moving and running around, and negative reactions to initiations. These operational definitions laid out the specific behaviours that the researcher is observing, which assists in conducting consistent and standardised data collection (Baer et al., 1968). These specified behaviours are then recorded in terms of the frequencies that

such behaviours were manifested by the participants during the intervention. Based on the recorded frequencies, the calculation was made by dividing the behaviour/social manifestation frequencies by duration. Leko et al. (2023) explain the significance and role of using qualitative and quantitative measures – specifically, observation forms, charts, and schedules – to determine the change in frequency of behaviour being addressed and monitored in a comprehensive manner, further presenting a contrast of pre- and post-intervention progress. Numerous prior studies have adopted standardised scales or published observational scales, e.g., Autism Diagnostic Observation Schedule – ADOS (Lord et al., 1989), and modified observational protocols and forms to measure the changes in characteristics of ASD and other autistic behaviours. Palmer et al. (2021) mention the efficacy of using direct observational measures and protocols, where the researcher defines the items agreed upon by other researchers to depict the agreed level of reliability and reduced inter-reporter variability. Moreover, during different phases of intervention, the child-targeted behaviour of interest can be coded consistently by the assessors unaware of the level of the intervention status of the participant.

While most research on social skills group interventions has primarily employed standardised self-report measures to assess outcomes, as seen in studies by Laugeson et al. (2012) and Vernon et al. (2018), some investigations have incorporated behavioural observations to measure outcomes. This approach is exemplified in studies by Vernon et al. (2018) and Ko et al. (2019), which have focused on assessing a range of social behaviours, including initiations, responses, positive comments or topics, eye contact, mutual engagement, and facial expressions, as detailed in Ko et al.'s (2019) study (Vernon-Feagans et al., 2016). Owing to the effectiveness of using an observational protocol, the modified observational protocol is divided into three sections: a) social interaction skills/behaviour, b) number of occurrences and length (frequency duration), and c) comments/notes on any fluctuations. The narrative and idea for observation protocol as adopted from the behavioural event recording form of Azzato (2016) is shown in Appendix 4.

These social and behavioural variables were measured by the number/frequency of occurrences and length (frequency, duration) rate because the length of the session varied, and requesting was measured by frequency of occurrence. According to Kennedy (2005, p.97), behaviour event recording is described as the process of capturing “specific instances of a response or stimulus



over a designated period of observation”. The current observation began with the initiation of trial one and concluded with the completion of trial five for each session between week 0 to week 5, which enabled the comparison of progress in social and behavioural interaction skills.

<b>INSTRUCTIONS:</b> Write a definition of social skills and challenging behaviour being observed. Use the tally mark to record the number of social skills and behavioural occurrences for each participant during each time period. Calculate the rate of each behaviour/social skill by dividing frequency by duration.			
<b>Section1: identifying information</b>			
<b>Child's name:</b>			
<b>Gender:</b>			
<b>Time-period/activity</b>	<b>Social interaction skills/Behaviour</b>	<b>Number of occurrences and length (frequency, duration)</b>	<b>Comments/Notes Factors that may fluctuate</b>
	<ul style="list-style-type: none"> <li>▪ Exhibit involvement and enjoyment in groups</li> <li>▪ Responds to the teacher during group instructions and sessions</li> <li>▪ Talks and responds to others at appropriate times</li> <li>▪ Demonstrates flexibility in tasks</li> <li>▪ Interacts with peers and adults in a positive way</li> <li>▪ Follows class rules and instructions</li> </ul>		
	Impulsiveness Unusual sounds and movements		
	Lack of attention		
	Hitting		
	Negative reactions to initiations, i.e., screams or pulling of hair		

Table 6 - Sample Frequency Behaviour Chart

### 3.7.3 Interviews

The third instrument in this research was pre-and post-intervention interviews, which took the form of informal interviews through normal conversations and semi-structured interviews.

#### 3.7.3.1 Informal Interviews

Informal interviews in qualitative research are a method whereby the interaction resembles a natural conversation more than a structured interview, fostering a relaxed environment that can yield profound insights into participants' experiences and perspectives (Patton, 2015). This approach is particularly advantageous when exploring complex social phenomena or in culturally sensitive situations where establishing rapport is critical (Taylor et al., 2015), and the fluid nature of informal interviews allows researchers to probe deeper into topics as they emerge, offering a dynamic and responsive interaction that can uncover nuanced information not readily accessible through other methods (Bryman, 2016).

Informal interviews often result in data rich with detail and context, providing a more holistic understanding of the research subject (Seidman, 2013). Moreover, the conversational style can alleviate participants' apprehensions, especially in communities where mistrust of formal research processes exists (Smith, 2018). However, the success of this method hinges on the interviewer's skills in maintaining a balance between guiding the conversation and allowing the interviewee the freedom to express their thoughts fully (DiCicco-Bloom and Crabtree, 2006).

Despite their strengths, informal interviews may also present challenges, such as ensuring consistency across interviews and managing the extensive and diverse data they produce (Maxwell, 2012), and researchers must be adept at active listening and employ a reflexive practice to mitigate potential biases that could influence the interview process (Charmaz, 2014).

In the context of this study, the researcher opted to use informal interviews, particularly in the form of informal conversations with parents/guardians and teachers of participating students. The utilisation of informal interviews was a pivotal methodological consideration, especially within culturally sensitive contexts such as Saudi Arabia. The reticence often exhibited by parents, most

especially women (mothers) in such settings, necessitated a more nuanced approach to data collection (Almalki and Ganong, 2019), and informal interviews serve as a conduit to establish trust, a crucial element when engaging with participants who may be inherently apprehensive towards formal research inquiries (Alharbi and Smith, 2018). This trust-building strategy ensures the elicitation of genuine, candid insights into the children's social and behavioural skills (Alabdulkareem, 2020). Moreover, the consistency of the questions with those used in post-intervention semi-structured interviews underpins the reliability of the findings, while the conversational nature allows for culturally appropriate expression and interpretation, particularly when questions are conveyed in native Arabic (Al-Saggaf, 2016).

### **3.7.3.2 Semi-Structured Interviews**

Semi-structured interviews play a pivotal role in researching the impact of SS interventions on children with autism in the Saudi context, as this interview format provides a balance between the interviewee's narrative freedom and the researcher's thematic guidance, facilitating an in-depth exploration of personal experiences and perspectives related to the intervention (Gray, 2017). It allows parents and educators to articulate their observations on the effectiveness of Social Stories™ in enhancing the social behaviours of children with autism (Kokina and Kern, 2010), and this inherent flexibility enables probing into specific changes in behaviour while accommodating the individual's reflections on the intervention's broader impacts (Reichow and Volkmar, 2010). This method's value is underlined by its ability to elicit rich, qualitative data that can reveal the nuanced ways in which social stories resonate with the unique cognitive and emotional frameworks of children with autism (Norris et al., 2019). Consequently, semi-structured interviews are indispensable in gaining a multi-dimensional understanding of the intervention's effectiveness, aligning closely with the heterogeneous nature of autism spectrum disorders (White et al., 2018).

In the context of this study, the semi-structured interviews were carried out with teachers and parents/guardians after the implementation of the SS intervention. The interview consisted of questions that were tailored to ascertain the opinions of teachers and parents/guardians, and the interview questions were mainly administered to perceive their perceptions of the intervention's effectiveness with autistic students. The questions were designed to understand teachers' and

parents/guardians' points of view and their experiences concerning the effectiveness of SS in their specific context, and their opinions were critical as they were in direct contact with autistic children. The development of the semi-structured interview questions for this research was informed by an extensive review of existing literature on the use of Social Stories™ (SS) for children with ASD, and this literature review provided a comprehensive understanding of various aspects to consider when implementing SS. These aspects included practical methods of application, as well as factors influencing their use, such as the knowledge and training of teachers, as discussed by Alotaibi et al. (2016). Additionally, the national context of the study for employing Social Stories™ is addressed in another work by Alotaibii et al. (2016), and the integration of sensory modalities and multimedia in the design of Social Stories™ is explored by Sunagul et al. (2017), and both were considered when formulating the interview questions. More importantly, the interview questions were developed referencing the cultural perspective in light of the knowledge of the cultural and religious values and environment of Saudi Arabia. Due to the dearth of studies in the Saudi context pertaining to the execution of SS interventions, the reference material was missing, and the underlying study is anticipated to be among the initiating research efforts considering the cultural sensitivities in which an intervention is employed for children with ASD. As established in the literature review, there is a scarcity of research investigating the utilisation of Social Stories™, both in a general context and specifically with children with ASD, within the Saudi Arabian setting. Consequently, it was considered crucial to gather the perspectives of teachers as well as parents in Saudi Arabia on the implementation of Social Stories™, and devising the interview protocol initially enabled the researcher's basic understanding of teacher knowledge or perspectives about the use of Social Stories™. The researcher spent over five weeks conducting the interviews for the study, which did not include the duration required to obtain the necessary approvals and to establish contact with the schools and teachers involved in the research.

The qualitative data collected was then analysed thematically according to the guidance by Braun and Clarke (2006) in their seminal and highly cited article entitled "Using thematic analysis in psychology". The thematic analysis approach is aimed at identifying the main themes that constitute the main findings, which cannot be identified without examining the data (the texts), coding the meaningful statements in the texts, and then linking these codes to form subthemes

and then themes. The researcher used an approach to ensure the trustworthiness of the results by evaluating their input for potential bias, as recommended by Miles, Huberman, and Saldaña (2014). To achieve this, cluster analysis of sources was carried out in NVivo using the Sørensen–Dice similarity coefficient. According to Thorne (2016), the Sørensen–Dice similarity coefficient and the Jaccard coefficient compare the source files and determine the proportion of similar words and synonyms. To achieve this, all the function words such as articles, auxiliary verbs, conjunctions, prepositions, qualifiers, and question words are excluded (e.g., the, while, on, but). Only content words, i.e., those with lexical meanings, are used. The Sørensen–Dice similarity coefficient is determined by the number of similar content words and phrases divided by the total number of words (Glaser & Strauss, 2017). The corresponding cluster dendrogram is presented in Figure 3.

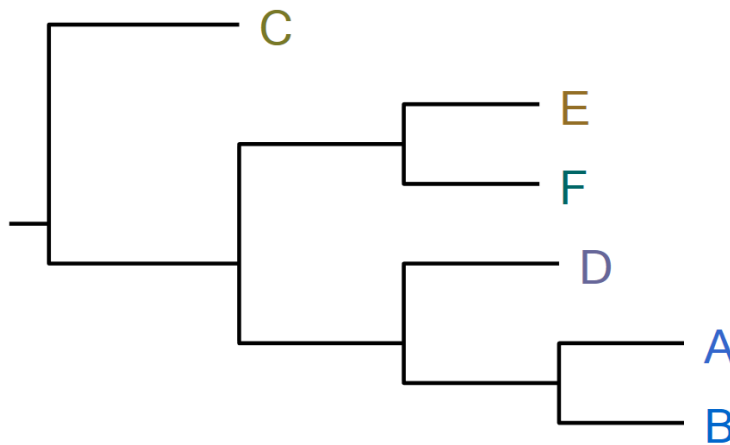


Figure 3: Cluster Dendrogram

From the findings above, the feedback from the interview participants was broadly clustered into two main dendrogram branches, suggesting a moderate polarization of views. The major discrepancy was found with Student C. However, the rest of the students were clustered together, with students E and F having strong parallelism and the sub-cluster comprising students A, B, and D.

In the thematic analysis process, the researcher adhered to the structured methodology mentioned above, which consists of several integral steps. Initially, the data required thorough familiarisation, achieved by multiple readings to fully grasp the depth and nuances present, and

this preliminary step ensures a solid foundation for the subsequent coding process. After gaining a comprehensive understanding, the researcher began generating initial codes and identifying patterns that corresponded directly to the research questions, as these codes acted as preliminary indicators for deeper analysis. A sample of the thematic mapping is provided to illustrate this, as shown in Figure 4 below.

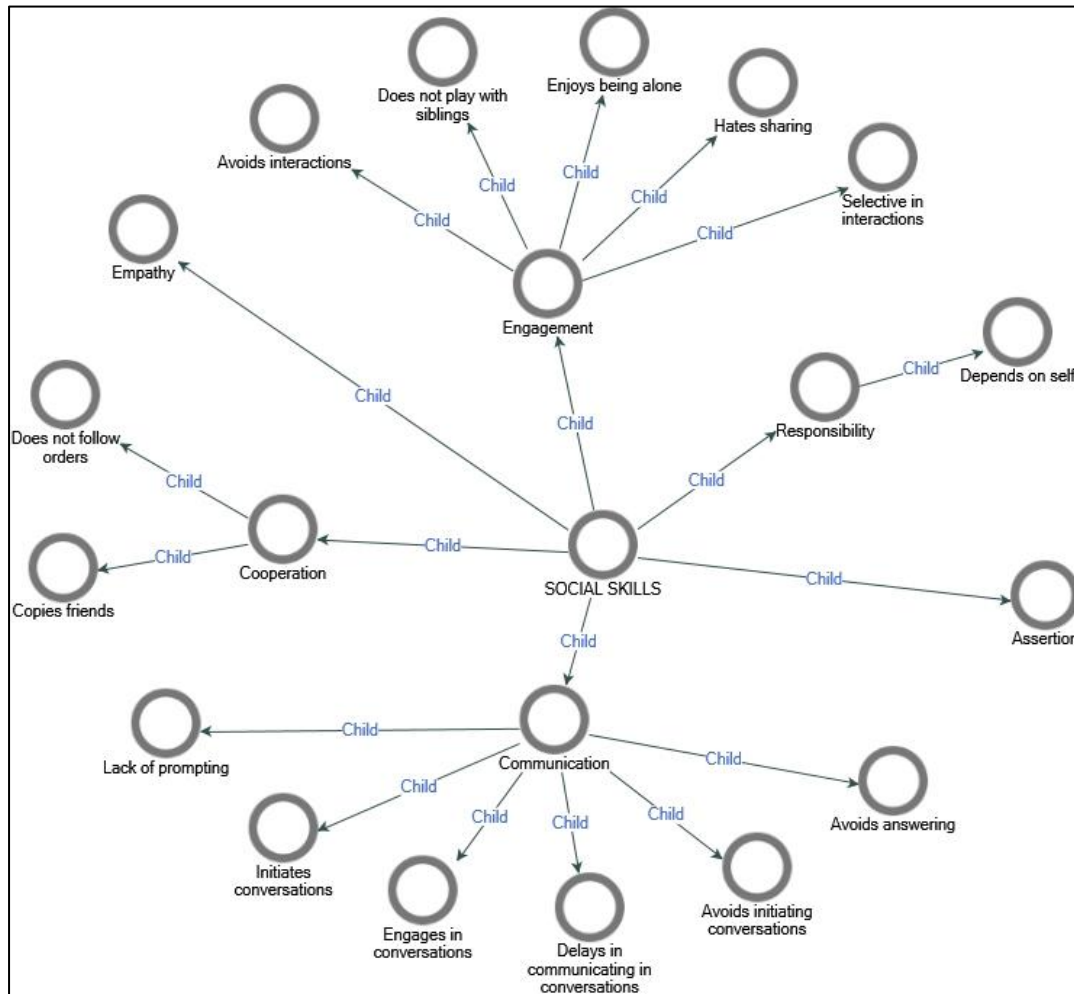


Figure 4: Thematic Map including the refined codes – Social Skills

The next stage involved the organisation of these initial codes into potential themes, which represented overarching ideas or concepts suggested by the data. Each theme was carefully reviewed and refined to ensure it aligned with the research objectives, and this iterative process of developing and refining themes was crucial for their accurate representation and relevance to the research aims.

After solidifying the themes, the task of defining and naming each theme followed, selecting descriptive titles that aptly captured their essence. For example, under social skills, communication and engagement were identified as the main themes, with sub-themes categorized under each. Similarly, for challenging behavior, hyperactivity, inattention, and bullying were classified as main themes, each with its respective sub-themes. The final step in Braun and Clarke's method involved crafting a coherent and substantiated narrative that articulated the themes and their significance in relation to the research goals. This narrative not only provided a conclusive analysis but also contextualised the findings within the broader research landscape.

Moreover, to enhance the efficiency of this process, the researcher utilised NVivo software, which supports the organisation of qualitative data, facilitates the search for specific texts and words, and simplifies the coding process by linking codes directly to corresponding text segments. It is important to note, however, that despite NVivo's capabilities in automating some aspects of coding, it did not replace the need for meticulous manual analysis as stipulated by Braun and Clarke. Furthermore, to ensure clarity and accessibility, the interview questions were initially crafted in English, then translated into Arabic, and subsequently re-translated back to English. This method, suggested by Brinkmann (2014), guaranteed that the data remain comprehensible and retain its original meaning throughout the analysis. To illustrate, sample coded data is provided below, detailing the entire six students' themes. However, the complete themes for each student are reflected in Appendix 9.

#### *Sample of the Coded Data Focused on Themes*

##### **Social Skills:**

1. Communication:
  - Parent A: Prefers to keep quiet and avoids eye contact.
  - Teacher B: Notices the child nodding or giving one-word answers.
  - Parent D: Reports improvement in using full sentences after intervention.
2. Engagement:
  - Parent B: Child avoids sharing toys with siblings.
  - Teacher C: Selective in choosing playmates, often engaging with specific peers only.
  - Parent E: Shows increased willingness to participate in family activities.

##### **Challenging Behaviour:**

1. Avoidance:
  - Teacher F: Child frequently avoids answering questions or engaging in group tasks.
  - Parent C: Child ignores instructions or engages in self-play instead of interacting.
2. Aggression:
  - Teacher D: Reported incidents of shouting and throwing objects before intervention.
  - Parent B: Reduced episodes of disruptive behavior at home post-intervention.

### **Intervention:**

1. Behavioral Adjustments:
  - Teacher A: Structured routines introduced to minimize hyperactivity.
  - Parent E: Encouraged consistent eye contact during family conversations.
2. Communication Strategies:
  - Teacher B: Use of social stories to enhance understanding of peer interactions.
  - Parent F: Role-playing activities to practice sharing and turn-taking.

### **Impact:**

1. Improved Social Engagement:
  - Teacher C: Child began initiating conversations during group activities.
  - Parent D: Reports of improved willingness to share toys with siblings.
2. Reduction in Hyperactivity:
  - Teacher E: Child shows better self-regulation during classroom sessions.
  - Parent A: Child sits calmly during family meals for longer periods.
3. Emotional Recognition:
  - Teacher F: Child identifies emotions in peers and responds appropriately.
  - Parent C: Acknowledges and verbalizes feelings like happiness or sadness.

### **Detailed Examples of Progress:**

1. Communication:
  - Teacher A: Child started raising their hand to ask questions.
  - Parent B: Increased use of polite phrases like 'please' and 'thank you.'
2. Behavioral Improvements:
  - Teacher D: Notable decrease in interruptions during lessons.
  - Parent F: Child asks for help instead of acting out when frustrated.

### **3.7.4 Instruments Implementation Plan**

The intended instruments were implemented in four stages, divided according to the intervention plan, with each stage covering a certain objective of the study. The timeline below exhibits how the intended intervention plan for the SS with provisional dates was executed.



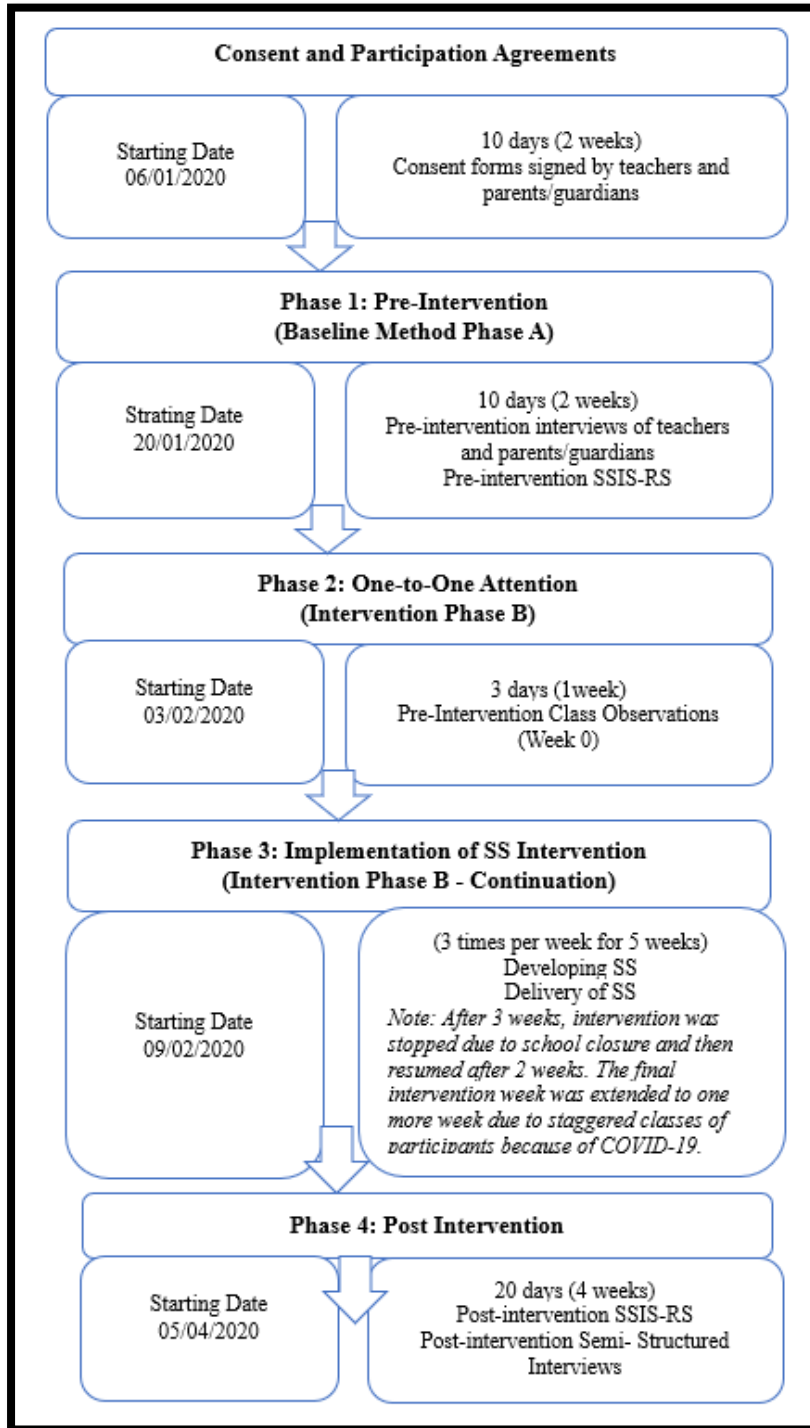


Figure 5 – Instrument Implementation Process

### 3.8 Intervention Procedure

In this research, a single-subject ABA research design was used to attain evidence-based results and to assess the impact of the SS intervention in developing social skills and in addressing challenging behaviour in participating students. The primary reason for using this design was to enable the researcher to gain reliable and consistent measurements using pre- and post-intervention tests, allow the measurement of the targeted skill or behaviour, which could be repeated if necessary, and enable detailed descriptions of the measurements and SS training sessions to be made. Hence, repeated attempts and follow-ups helped the researcher to track improvements more efficiently and to establish consistent patterns of behaviour. Moreover, adopting this approach enabled the research to answer the question, “Does the impact of the intervention persist beyond the period in which the intervention/treatment is executed?” (Engel and Schutt, 2012, p.212). To illustrate the intervention procedure, each phase is explained in more detail below.

#### 3.8.1 Consent and Participation Agreement

The initial step in the data collection process involved obtaining consent and participation agreements from parents/guardians and teachers. This phase commenced on 6 January 2020 and extended over a two-week period. The extended duration for collecting these agreements was necessitated by the absence of a specific day designated for this purpose; instead, consent forms were gathered as parents arrived at the school to pick up their children. This approach was adapted in response to the logistical challenges posed by the school’s implementation of stringent contact restrictions following the outbreak of COVID-19.

#### 3.8.2 Phase One: Pre-intervention (Baseline Method Phase-A)

The initial stage of the research, termed the baseline or pre-intervention phase, was instrumental in setting the foundation for evaluating the impact of the SS intervention. It involved gathering initial data to establish a reference point against which the effects of the intervention could be measured. Baseline assessments are essential as they allow for the monitoring and evaluation of outcomes both before and after the intervention, providing a metric for its effectiveness.

In this phase, which started on 20 January and lasted two weeks, interviews were conducted with teachers and parents/guardians, but the challenges posed by the COVID outbreak meant engaging with parents was difficult, whereas teachers who were more consistently present at school could be interviewed more readily.

### **Pre-Intervention Assessment of the Participants**

During this phase, detailed information and assessments of each participant were collected to serve as baseline data, which involved administering the SSIS-RS (Social Skills Improvement System Rating Scales) questionnaire, developed by Gresham and Elliot in 2008, to both teachers and parents/guardians. The purpose of the SSIS-RS was to assess the current levels of social skills and behavioural challenges of each child before the intervention, and participants had five days to complete this questionnaire, with opportunities provided to seek clarification if needed. In addition to the structured questionnaires, informal interviews were conducted to build rapport and trust, particularly given the sensitivities heightened by the pandemic. These conversations, aimed at gathering additional qualitative data, allowed for a deeper understanding of the participants' contexts. The discussions were planned to be less structured to encourage open dialogue, and the content of these conversations is detailed in Appendix 5. These interviews were completed within the same five-day window allocated for the questionnaires.

The data collected from both the SSIS-RS questionnaires and the informal interviews were analysed to establish a comprehensive baseline. This baseline data served not only to identify the initial levels of targeted skills and behaviours but also provided a critical foundation for comparing these parameters before, during, and after the SS intervention. According to Milne et al. (2020), such baseline assessments are pivotal in determining the effectiveness of interventions, and the comparative analysis of the baseline and post-intervention data, which includes graphical representations of skill changes, is discussed further in the findings section.

### **3.8.3 Phase Two: One-To-One Attention (Intervention Phase-B)**

Phase Two of the research began on 3 February and involved detailed classroom observations of the six participating students. Each observation session lasted between 30 and 45 minutes, and during these sessions, the researcher employed a frequency behaviour chart to record and tally the

behaviours exhibited by the students in a classroom setting. This initial observation was designated as Week 0, and the detailed data can be found in Appendix 6.

The observations were structured to build upon the baseline data collected during Phase One. The researcher utilised notes from the baseline assessments to refine and target the specific intervention goals tailored to each student's needs. The observations aimed not only to track behaviour but also to evaluate the students' responsiveness to the presence of the researcher, which is critical for the intervention's success. To address the Hawthorne effect, where individuals may alter their behaviour because of the awareness of being observed, these initial classroom observations also served as familiarisation and warm-up sessions. This approach helped the students acclimatise to the observer's presence, aiming to mitigate any initial behavioural changes caused by the novelty of being studied.

To ensure the comfort and cooperation of the children, an assistant teacher, acting as a chaperone, accompanied the researcher during these sessions, and this support was crucial in establishing a non-intrusive and supportive environment, allowing the children to behave naturally and interact freely with the researcher. This setup helped in assessing the feasibility and effectiveness of the personalised attention each student received during the intervention phase.

### **3.8.4 Phase Three: Implementation of the SS Intervention**

#### **(Intervention Phase B – Continuation)**

As Phase Three of the SS intervention began, we entered a structured five-week period, starting on 9 February, during which the refinement and implementation of tailored Social Stories™ continued. In the initial days of this phase, specifically from 9 to 10 February, consultations were held with teachers to finalise the goals for each participant and to discuss the implementation schedules. Following the approval of these schedules, set to commence on 16 February, the researcher was highly motivated and driven to complete the development of the Social Stories™. This period marks a crucial step in ensuring that the interventions were well-prepared and aligned with the specific needs and contexts of the participants.

### **Developing Social Stories™**

This phase of the project was initiated on 11 February, marking the commencement of the Social Story™ creation tailored to each participant's needs. The identification of new social skills and challenging behaviours to be addressed was derived from an initial phase of data collection, which included the SSIS-RS, informal interviews, and classroom observations. Input from teachers and parents/guardians also played a critical role in this process, ensuring that the stories were both relevant and targeted.

Guided by the recommendations of Gray and Garand (1993), the Social Stories™ were customised for each child, taking into account their unique behavioural and social requirements. O'Connor and Hayes (2019) further influenced the development by emphasising the necessity of maintaining high-quality content within the stories, and following their guidelines, the stories included two principal types of sentences: descriptive and coaching. Descriptive sentences aimed to highlight crucial but often overlooked details within specific contexts, while coaching sentences provided guidance on appropriate behaviours or responses tailored to elicit desired outcomes in various situations.

To engage the children and maintain their focus, illustrations were incorporated into the stories. Additionally, to ensure the validity of the findings, feedback was systematically collected from teachers, assistant teachers, and parents/guardians for subsequent analysis and refinement of the social stories.

Crucially, cultural elements relevant to the participants were woven into each story to enhance their social learning and relevance, which included incorporating customary greetings, a fundamental aspect of Arab culture, where both the act of greeting and the manner of response are imbued with high cultural significance, reflecting respect and social etiquette.

A comprehensive account of the social story development process, along with a sample narrative, is detailed in Chapter 4. The complete narratives tailored for each participating child are available in Appendix 1.

### **Treatment fidelity and integrity**

To ensure the interventions were implemented consistently across participants, treatment fidelity checks were implemented, as the chaperone who helped during intervention sessions completed the fidelity checklists during the intervention sessions to ensure that the intervention was completed and that the procedures were implemented correctly. To measure the integrity checklist, it took into account the details of all the steps of the intervention. Data for treatment integrity for each participant were collected once a week by the chaperone and researcher interchangeably, using the devised checklist that entailed the steps of the overall intervention process, which consisted of (a) reading out of the story, (b) asking the comprehension questions, (c) performing the role play of the target behaviour, and (d) delivering prompts or positive reinforcement following each comprehension question and at appropriate times during the role play.

The number of steps completed correctly by the participants was divided by the total number of intervention steps and multiplied by 100 with the standard scores obtained revealing the overall treatment integrity. If the score was less than 100 percent, the researcher corrected any gaps before the execution of the next session. The treatment fidelity checklist is reflected in Appendix 10.

In the case of any missed steps or inappropriate implementation, the researcher was notified and redirected by the chaperone or teaching assistant to complete the step immediately. Likewise, if any additional step was added to the intervention, the researcher was reminded by a chaperone to move to the right step. This was done by keeping a fidelity of intervention checklist, as shown in the appendices.

### **Delivery of the SS Intervention**

The delivery phase of the SS intervention, initially scheduled to unfold over four weeks beginning 16 February, encountered significant disruptions due to the COVID-19 pandemic. The intervention was structured to provide each participant with individual sessions three times weekly, lasting between 30 and 45 minutes – a format based on evidence from Wright et al. (2016), who suggested that four to six weeks is typically sufficient to establish a solid baseline and effectively implement a single-case design intervention.

Initially, the SS intervention was personalised for each participant, i.e., using the single case studies approach, considering their unique behavioural challenges and social skills. Stories were crafted to feature the participant as the protagonist, which facilitated better engagement and understanding, and the intervention was adaptable, allowing for modifications based on the participants' preferences, such as changing the protagonist's name or preferred activities. These details and the complete narratives of the interventions for each participant are documented in Chapter 4 and Appendix 1.

However, as the intervention progressed into the third week, the escalating COVID-19 situation led to a governmental mandate to close schools across Saudi Arabia. This happened on what was supposed to be the fourth week of the intervention, and this abrupt closure, intended as a precautionary measure to assess and mitigate the spread of the virus, significantly impacted the study's schedule. Schools were initially shut for two weeks and then reopened gradually with limited attendance, adhering to strict health protocols and reduced operating hours, and this shift necessitated extending the delivery phase of the SS intervention.

When schools were partially allowed to reopen after two weeks, the intervention resumed but under modified conditions. With the new schedule, some children attended classes alternately to comply with social distancing guidelines, which extended the intervention period by an additional two weeks. This adaptation, while necessary, posed challenges in maintaining consistent engagement and measuring intervention efficacy due to the irregular attendance and altered daily routines of the participants.

Despite these hurdles, the flexibility in intervention delivery and the robust response from educational authorities and families allowed the research to continue. The adjustments made during this period are critical to understanding the intervention's outcomes and are indicative of the potential need for adaptive strategies in future educational interventions during crises.

### **3.8.5 Phase Four: Post-Intervention Phase (Re-Executing Tests and Interviews)**

#### **Conducting SSIS-RS and Semi-Structured Interviews**

The final phase of the SS intervention involved re-administering the Social Skills Improvement System Rating Scales (SSIS-RS) and conducting semi-structured interviews to evaluate the impact of the intervention. This assessment took place over a 20-day period starting in early April, immediately following the intervention phase.

During this time, SSIS-RS questionnaires were redistributed to the six parents/guardians, one chaperone, and six teachers who were involved with the intervention. They were provided with 20 days to complete and return the questionnaires, and, to facilitate this process, despite varying schedules of parents picking up their children from school, teachers played a key role in ensuring the timely distribution and collection of these forms.

Concurrently, semi-structured interviews were scheduled with all participants, including six teachers, one chaperone, and six parents/guardians. Given the ongoing COVID-19 precautions, interviews were adapted to fit the availability and comfort levels of the respondents; four were conducted in person, while two were carried out via telephone calls to accommodate health and safety concerns. These interviews were instrumental in gathering qualitative feedback about the SS intervention's effectiveness and its influence on children with autism spectrum disorder (ASD). For those who consented, interviews were audio-recorded, and comprehensive notes were taken for those who preferred not to be recorded.

The qualitative data from the interviews supplemented the quantitative data from the SSIS-RS questionnaires, as this comprehensive approach allowed for a robust analysis of the intervention's outcomes. The feedback collected through both the interviews and questionnaires provided valuable insights into the perceptions of teachers and parents/guardians and offered them an opportunity to make recommendations for future interventions.

The findings from the post-intervention assessments were then compared with the baseline data collected during the pre-intervention phase. This comparative analysis was crucial for



determining the effectiveness of the Social Stories™ intervention and for identifying areas where the intervention had the most impact, as well as where adjustments might be needed in future applications.

### 3.9 Data Collection Challenge

The study faced significant obstacles due to the outbreak of COVID-19 in late 2019, which had a profound impact on the execution of the research, particularly during the observational and implementation phases. Initially, the research was designed to involve uninterrupted, on-site engagement within the educational settings at Ajyal Al Watan Centre. However, the pandemic prompted the widespread closure of educational institutions as a precaution against the spread of the virus, necessitating a swift and unplanned shift in methodology.

Before the disruptions, the data collection process commenced smoothly with an introductory meeting at the centre involving parents and school staff, where the short story intervention was introduced. Consent was sought from parents and teachers, with each teacher being assigned to a specific student. Preliminary data were gathered through questionnaires, reviews of student files, and observations of behaviours needing intervention.

As the pandemic emerged, the government mandated brief school closures to assess the situation, which happened during the third week of the SS intervention implementation. The final week of implementation was put on hold as total closures were in effect, then when schools reopened two weeks later, the centre operated under new conditions that included staggered classroom schedules and strict sanitation procedures. This arrangement saw students attending school in shifts to minimise contact, significantly altering the dynamics of the educational setting and the implementation of the SS intervention. Despite these challenges, the study progressed with modifications. The implementation of what was initially planned as the final week of the intervention was extended by an additional week. This adjustment was made to align with the new scheduling constraints and ensure that all children could participate fully, thus extending the final phase of the intervention to a total of two additional weeks. The intervention was adapted to the constrained environment, where face-to-face interaction was limited, and online interventions were less effective, particularly for students with autism who required more direct engagement.

The participants demonstrated remarkable flexibility and resilience, and teachers, often more available due to their required presence at school, became crucial in maintaining the continuity of data collection, although the increased stress and responsibilities they had to handle under the pandemic conditions posed additional challenges.

The unwavering support and cooperation from the school administration, teachers, parents, and guardians were pivotal. Their commitment and willingness to accommodate necessary adjustments enabled the research to continue in a modified form, allowing for the collection of valuable data and insights, and the study concluded with follow-up surveys and interviews to assess the effectiveness of the intervention and achievement of the desired outcomes for each child. Although allowances to the number of days were extended, given the restrictions implemented, in order to give the parents and teachers sufficient time to complete the questionnaires and interviews, in some cases, due to the challenges of meeting in person, some of the interviews were conducted through phone calls to accommodate the preferences of the guardians/parents.

This collaborative effort underscores the importance of flexibility and adaptability in educational research, particularly during unprecedented times.

### 3.10 Analytical Strategy

The participants in this study acted as the unit of data analysis that determined the research control (Mihas, 2019). During this research design, the researcher observed and recorded the pertinent changes in the social skills and challenging behaviours of the students that were targeted for improvement as a result of the SS intervention. This was done using the frequency observational table, which was reflected in the ABA design, and the baseline measurement enabled the researcher to observe and record how each participant performed with and without treatment and, consequently, to see the effect of the intervention on each participant.

Through the use of different research measures, i.e., SSRS-IS, frequency observation charts, and semi-structured interviews, the frequency of occurrences of the targeted social skills and

challenging behaviours were collected and then graphed. This resulted in a visual analysis of the three pre- and post-intervention phases of the study and presented changes in the level of social skills and challenging behaviours, and trends and variability in the data, which, in turn, finally led to an assessment of the effectiveness of the SS intervention on the development of social skills and behavioural improvement in autistic children.

The analysis section reflects on how the data collected via the different measures have been assessed and offers a series of graphs, tables, and narrative text. First, the section reflects on and presents a brief discussion of some general characteristics of the pre-intervention measures. Information about each participant's performance during the baseline, intervention, and post-intervention phases is provided for each targeted social skill and behaviour. The visual inspection of the data is also presented to illustrate the baseline and post-intervention improvements and meaningful changes in the participating children. Finally, an overview of the data concerning each research question and objective is offered.

Table 7 below offers a detailed view of the study's research questions and the corresponding data elements utilised for their resolution.

### **3.10.1 Analysis of SSIS-RS**

The analysis of the post- and pre-SSIS-RS questionnaire test was carried out first using the manual guide to the SSIS-RS. When buying the questionnaire, the researcher had access and eligibility to the manual scoring guide, which shows how to score the results manually or digitally. The scores were later plotted onto a graph for further analysis, forming a baseline assessment to plot any changes in behaviour. The baseline graph exhibited differences in terms of the targeted challenging behaviours and improvements in social skills. The pre- and post-test values of the SSIS-RS enabled the comparison of the pre-and post-intervention scorings of participating teachers and parents/guardians, which primarily highlighted the progress or improvement in the participating students' social and behavioural skills. These differences provide the answers to all the research questions of the study.

#	Research Questions	Data Elements
1	What is the impact of SS intervention on the social skills of children with ASD?	<ul style="list-style-type: none"> <li>▪ Pre- and Post-Intervention SSIS-RS Questionnaire Survey</li> <li>▪ Frequency Behaviour Chart</li> <li>▪ Pre- and Post-Intervention Interviews</li> </ul>
2	What is the impact of SS intervention on the behaviour of children with ASD, particularly externalising, bullying, hyperactivity/inattention, and internalising?	<ul style="list-style-type: none"> <li>▪ Pre- and Post-Intervention SSIS-RS Questionnaire Survey</li> <li>▪ Frequency Behaviour Chart</li> <li>▪ Pre- and Post-Intervention Interviews</li> </ul>
3	What is the impact of SS intervention on the individual characteristics of the participants with ASD?	<ul style="list-style-type: none"> <li>▪ Pre- and Post-Intervention SSIS-RS Questionnaire Survey</li> <li>▪ Frequency Behaviour Chart</li> <li>▪ Pre- and Post-Intervention Interviews</li> </ul>

*Table 7. Research Questions and Corresponding Data Elements*

### **3.10.2 Analyses of the Pre-Intervention Informal Interview and Post-Intervention Semi-Structured Interviews**

The interviews took two forms – (1) pre-intervention informal interview, and (2) post-intervention semi-structured interview. For the pre-intervention interview, informal conversations with parents/guardians and teachers of participating students were conducted, while for the post-intervention, semi-structured interviews with six teachers, one chaperone, and six parents/guardians were also conducted. The data gathered from both pre- and post-intervention interviews were analysed using thematic analysis because of the qualitative nature of the interviews, and the thematic analysis in this study involved the identification, analysis, and reporting of patterns or themes within the data, aiming to generate insights that addressed the research questions. The process began with open coding, as described by Saldaña (2015) and Thorne (2016), whereby codes were derived directly from the data in their most elemental form. This was followed by axial coding, a step outlined by Yin (2018), which involved organising these initial codes into tree nodes based on their interrelationships and similarities. Finally, selective coding was implemented, again following Yin’s (2018) guidelines, using specific

inclusion and exclusion criteria relevant to the study's context. This final step helped in filtering out data elements that were not pertinent to the scope of the research, while the informal and semi-structured, in-depth interviews generated rich data through the use of appropriate wording in the session. Moreover, interviewing the participants allowed answers to the SSIS-RS questionnaire to be clarified by asking for further information because the answers were scored on a four-point Likert scale (Walford, 2001).

All interviews were recorded using audio and note-taking. For the informal interviews, the researcher took notes of the participants' responses; however, for the semi-structured interviews, eight of the participants consented to the recording, while five did not. For those participating teachers or guardians who did not allow recording, written notes were taken, while any ethical concerns with regard to the anonymity or confidentiality of participants were duly addressed. The primary focus was to gather data and make the interviews convenient, so simple language was used to enable the participants to express themselves fluently (Brinkmann, 2014). The interview questions followed those of previous studies by scholars within the field (Gresham and Elliot, 2008; Social Skills Improvement System-Rating Scales), thereby ensuring the validity and reliability of the interview questions. At the same time, however, it was borne in mind that the questions must also give the participants the freedom to express their concerns and views about this intervention in detail. Importantly, this qualitative method also helped to assess how teachers and parents/guardians perceived the efficacy, applicability, and acceptability of the SS intervention after its execution, as well as what improvements (if any) the children with ASD were able to make in their behaviour.

The interview data were transcribed using thematic analysis, with data being identified, analysed, and reported based on particular themes and patterns identified inductively. The interview responses were coded based on emerging themes, particularly in terms of the SS contribution, the effectiveness of the SS, social skills development, improvements in challenging behaviour, and the benefits and limitations of SS. These were then reinforced with participants' comments to answer each research question. Audio recordings were fully transcribed and anonymised in order to organise the data.

In the context of this study, the framework analysis method was used, a recognised tool for supporting thematic (qualitative content) analysis. It is most suitable for interview data analysis because it takes into account a systematic model for managing and mapping the qualitative data and generating themes through comparison within cases. We have followed the detailed steps of the framework analysis method as used by Wright et al. (2016). Firstly, the familiarisation of data was accomplished as careful listening to interview recordings and written transcripts enabled the researcher to obtain key trends and emerging themes. Secondly, based on the research objectives, views, and responses of the participants, the thematic framework was established based on the themes generated. This was followed by the third step of indexing which was characterised by annotating data with codes from the thematic framework, followed by constant comparison of each item with the rest of the data to determine analytical categories. The fourth step was developing charts to compare and contrast themes; hence, a chart of data for each theme across individual participants was made and compared to see any discrepancy in data and fix it with an alternate explanation. This step was followed by the fifth stage, which was mapping and interpretation of themes in order to yield the results considering all aspects of themes. Throughout this analysis, a neutral approach was ensured to avoid any biases in the overall analysis. In the end, the findings from the interviews were integrated with the results from quantitative measures to cross-validate and illustrate how the effectiveness of SS perceived by teachers and parents was assessed numerically through different instruments. According to Creswell (2014), information obtained through multiple measures is triangulated to substantiate the conclusion and establish a point of reference to address the research questions.

### 3.10.3 Analysis of Frequency Behaviour Chart

The research involved a detailed observation schedule to assess the impact of the Social Stories™ (SS) intervention on students' social skills and challenging behaviours. Observations spanned six weeks, encompassing a pre-intervention week, four weeks of intervention, and a post-intervention week. The intervention was conducted every school day for four hours, totalling 20 hours per week and 120 hours for the entire period. Observations varied in timing, with two hours before and after the intervention during the four-week intervention phase, but were conducted continuously for four hours during pre- and post-intervention weeks. A frequency behaviour

chart, as detailed in Appendix 6, was employed to meticulously record the occurrence of specific behaviours.

The chart was instrumental in documenting behavioural changes and tracking any increases or decreases in frequency. The observations from Week 0 (pre-intervention) were particularly crucial, serving as a baseline for comparison with data collected during and after the intervention to assess the SS's impact, and these observations also informed the development of intervention goals and the creation of the SS. The data from Weeks 1 to 5 were averaged and compared against the baseline from Week 0 to evaluate changes in social skills and challenging behaviour. Additionally, interview data gathered before and after the intervention complemented these observations, providing further insights into participant behaviour and the overall effectiveness of the SS intervention.

### 3.11 Triangulation of Qualitative and Quantitative Data

A crucial tenet of a mixed-method study is the triangulation of data from a multitude of sources. The current study adopted triangulation of data, which is presented in Chapter 6, the discussion section, and the data for triangulation were obtained through quantitative formalised testing (SSIS-RS). Multiple qualitative measures (data obtained through log files, interview transcripts, behavioural observation checklist, and school files) completed during the study were used to gain a holistic view of SS intervention effectiveness for autistic students' social and behavioural skills in different contexts experienced by both teachers and parents. Triangulation occurred after the analysis of quantitative and qualitative data to add more insight and reflection on the factors that might impact the effectiveness of SS from the different perspectives of parents and teachers. It further allowed assessment of any discrepancies or varying patterns in the perceived effectiveness of SS in different contexts, i.e., school and home, and determine implications for the future to have a wider context to use SS intervention. The mixed-method triangulation design was adopted to best address the research problem and research questions, and using concurrent findings from quantitative and qualitative measures, triangulation was executed as a strategy to further strengthen the credibility and trustworthiness of findings (Fielding, 2012; Creswell et al., 2014) and to alleviate the chances of any biases.

### 3.12 Chapter Summary

The research methodology and design chosen for this thesis are deliberately structured to address the unique challenges inherent in studying interventions for autistic children. The mixed-methods approach is specifically tailored to capture the complex, multifaceted nature of behavioural interventions, as this approach allows for a detailed analysis of individual behavioural changes through quantitative methods while capturing the rich, contextual experiences of participants through qualitative methods. Such a dual approach ensures a comprehensive understanding of the interventions' impacts, balancing empirical rigour with depth of insight.

Furthermore, the adoption of design-based research (DBR) within this framework is justified by its emphasis on iterative development and real-world application. DBR is particularly suitable for educational research where interventions must be responsive to the dynamic and varied needs of participants. It supports the practical implementation of theories in actual settings, ensuring that the interventions are both effective and adaptable, and this approach not only enhances the ecological validity of the research but also facilitates the ongoing refinement of the intervention based on direct feedback from those it aims to benefit.

Additionally, this study's Social Story™ (SS) intervention employed a variety of instruments to assess and record the development of children's social and behavioural skills before and after the intervention. The main tools used were the Social Skills Improvement System Rating Scales (SSIS-RS), informal and semi-structured interviews, and behavioural frequency charts. The SSIS-RS, which includes scales for social skills and challenging behaviours, was used to identify and address areas needing improvement. These tools, combined with observational data and interviews with parents and teachers, provided a comprehensive evaluation of the intervention's effectiveness in enhancing social competencies and reducing challenging behaviours in children. The SSIS-RS was administered in both English and a culturally adapted Arabic version to ensure accuracy and relevance in this study's context.



## CHAPTER 4 - CREATION OF THE SOCIAL STORY

### 4.1 Introduction

The introduction of Social Stories™ by Carol Gray in 1991 as a tool for teaching social skills to children with autism spectrum disorder (ASD) gained widespread acceptance as an evidence-based practice beneficial to individuals with ASD in terms of acquiring skills that would allow them to navigate and interpret the social world around them (Gray, 2018). Gray's early works were fundamental in popularising Social Stories™ as an educational and therapeutic tool, which, in its early years, gained support from clinicians and educators (Crozier and Tincani, 2005). Consequently, educational psychologists and other professionals in the field began to incorporate Social Stories™ in their frameworks, which in turn provided validation for the effectiveness of the approach (Ali and Frederickson, 2006). Over the years, Gray developed and refined a set of guiding principles for creating Social Stories™ specifically designed to address the specific and unique learning characteristics of autistic individuals, and these guiding principles have since become a cornerstone of SS intervention, ensuring that the stories are well structured and written in a way that can be easily understood by individuals with ASD, utilising a wide range of elements. One of these key elements is the judicious use of language, which is both accurate and descriptive to ensure better comprehension by the target audience (Crozier and Tincani, 2005), while supportive illustrations augment the written narratives, which enhances understanding and engagement (Reynhout and Carter, 2011). Moreover, the social stories use motivational language, utilised to sustain the interest of the participating students, which leads to a more effective learning environment (Quirnbach et al., 2009). It has to be pointed out that the storylines are not merely instructional but also relatable and meaningful to ensure that the intervention is personally relevant to the participating student, thereby addressing the target goals identified for each of the participating students, which bolsters the positive impact of the intervention (Ali and Frederickson, 2006). The integration of these elements makes the Social Stories™ approach a recognisable and valuable education tool in terms of teaching children with ASD (Kokina and Kern, 2010).

The aim of this chapter is to provide a comprehensive understanding of Gray's principles and the processes undertaken in relation to the creation of the Social Stories™ for this study. In particular, it begins with an overview of Gray's (2018) principles and explores their relevance in the creation of the Social Story™ intervention for the six autistic children participating in this study. Additionally, this chapter highlights the process undertaken, guided by Gray's (2018) principles in the creation of Social Stories™ and implementation of the SS intervention. The process of how these principles were adopted in this study to create the Social Story™ is discussed in the following sections.

#### 4.2 Guiding Principles in the Creation of the Social Story™

The creation and development of the Social Story™ used for the intervention in this study were based on the principles outlined by Gray and Garand (1993), which were reflected in the 10 defining criteria that evolved with essential revisions and reorganisations leading to the creation of Social Story™ 10.2 (2014). The researcher used Social Story 10.2 (2014) as a guide in developing each Social Story™ for the six children, and to provide a better understanding of the SS creation, development, and implementation, the 10 defining criteria are discussed below with the researcher's input in terms of the criteria's general application to the study. In addition, within the discussion of the case study for each of the children, a detailed application of the criteria is discussed to provide a better understanding of the creation and implementation of the SS.

It has to be noted that Gray (2021) distinguishes the terms "author", referring to the creator of the Social Story™, and "audience", which refers to the child with autism for whom the Social Story™ is created. This study does not specifically use the same terms, but for clarification purposes, the researcher is the author who created the Social Stories™, and the audience refers to each of the six children with autism participating in this study.

The first of the 10 defining criteria refers to the SS goal, in which the author acts according to a well-considered method of sharing accurate, descriptive information that is judged as meaningful, beneficial, and safe (physically, emotionally, and socially) for the audience. The researcher ensured that this goal was considered in the creation and development of all of the SS.

Second, the author has to gather information following this two-step discovery; the first is enhancing the comprehension of the audience's situation or skill, and the second is determining the SS's topic and focal point. This criterion stresses that at least half of the SS should contain recognition of the audience's achievements. The researcher utilised a methodology of data collection (discussed in 5.1), which were the school files, field notes, interviews, and observations, to ensure that sufficient information was gathered regarding the audience before the creation of the SS.

Third, the author has to create an SS with a title and include the following three parts: introduction, body, and conclusion. These parts identify the topic, add details, and summarise, as well as strengthen the information about the audience to achieve the target goal. The SS in this study was created in a storybook format that had a title, introduction, body, and conclusion. However, the main focus of the SS was the body that contained information targeting the improvement of certain social skills or challenging behaviour.

Fourth, the author creates the SS format according to the unique abilities and personality of the audience, which could include his/her abilities, attention span, etc. The researcher specifically tailored the SS according to each child's abilities, particularly those requiring improvement and enhancement.

Fifth, the author has to consider the voice and vocabulary of the SS. Voice is defined as supportive and kind, while vocabulary is defined according to the following five factors: namely, first or third-person point of view, past, present and/or future tense, positive and patient tone, literal accuracy, and exact meaning. For this study, the researcher used the third-person perspective, present tense, infused with kind and positive language, that had an exact literal meaning for each of the words used. In some cases, the researcher had to adjust the words used in instructions for the child to fully understand the meaning of the sentence. In the implementation of the intervention, the researcher used a voice that encouraged children to participate.

Sixth, as indicated in the criteria, the author addresses relevant WH-questions, such as when (time), where (place), who (people), what (important actions), how (activities, behaviours), and

why (reasons). The SS in the study mainly answered the WH questions, most especially the who, when, where, and how, though in some cases, the why was also included.

Seventh, the author uses descriptive and coaching (optional) sentences. The researcher utilised descriptive sentences all throughout the SS, as these descriptive sentences helped reinforce the message that targeted the improvement of certain social skills or challenging behaviour.

Eight, the author ensures that the sentences are more descriptive rather than directing. As mentioned above, the researcher utilised descriptive sentences, while sentences that were direct or a command were not considered.

Ninth, the author considers constant review and the possibility of revising the draft of a Social Story™ in order to meet the 10-defining criteria. The researcher implemented this particular criterion. Regarding the draft, the researcher consulted with the teacher, reviewed the draft constantly, made some adjustments in language, and revised some of the aspects of the SS.

Tenth and finally, the author has to consider the ‘Ten Guides to Implementation’. In this aspect, the researcher did the following:

- (1) plan for comprehension: the researcher prepared for the possibility of adjusting the SS in terms of vocabulary, aiming for a better understanding of the six children participating in this study.
- (2) plan story support: the researcher prepared follow-up conversations for each of the illustrations for story support. For example, for Student A’s SS intervention, illustration card #4, where the student was assisting the teacher, the story support included the teacher’s appreciation of the student for listening to her instructions and praising his efforts to help.
- (3) plan for story review: all SS underwent a review and revision process in consultation with the teachers in charge .
- (4) plan for a positive introduction: the researcher ensured that introductions contained positive sentences and positive story support to motivate the children to participate.

- (5) monitor: the researcher wrote all the interactions during the intervention in a journal in order to monitor their effects.
- (6) organise the stories: the organisation of the SS followed Criterion #3, i.e., with title, introduction, body, and conclusion.
- (7) Mix and match to build concepts: this was taken into consideration when the need arose during the intervention.
- (8) Story re-runs and sequels to tie past, present, and future: as the SS was repeated numerous times, the researcher made exerted efforts in planning for story support tying up past, present, and future.
- (9) Recycle instructions into applause: many of the story's supports for each of the illustration cards included recycling the original instructions into motivating sentences praising and encouraging the student.
- (10) Stay current on social story research and updates: for this aspect, the researcher created a format and content for all the SS whereby the children could easily identify themselves in the story.

Following these guiding principles, the researcher observed, interviewed, and developed a Social Story™ for each of the six participating children in this study. A generalised descriptive summary of the process undertaken for all six participating students is discussed in the next section; however, the detailed descriptions and complete narratives of the processes undertaken for each of the participating students are reflected in Appendix 4.

### 4.3 Creation of the Social Story™ Process

Following Gray's (2018) guiding principles, the researcher employed the use of four stages for the creation and implementation of the SS intervention, discussed in detail in Chapter 3.

However, the discussion below provides a short explanation leading to the illustration of the process with an example. Therefore, to provide a clear illustration of each of the stages, a sample narrative, i.e., the narrative of Student A, is strategically placed in the discussion below.

### 4.3.1 Pre-Intervention

The first stage was the pre-intervention, which had the primary aim to gather information on each of the participating children. This was crucial as the information would inform the researcher of the target goals for the intervention, and the information gathering comprised details from the school file, the class observations, and interviews with parents/guardians and teachers. The student's school file provided details about the participating student in terms of the age, gender, and diagnosis of the specialist, indicating the level of the student's autism. Additionally, the researcher's class observations detailed information about the student's behaviour reflected in the field notes, including the frequency behaviour chart, detailing the number of times a certain behaviour was manifested. At this stage, the frequency behaviour chart (Appendix 6) was marked as Week 0. The researcher had informal conversations and interviews with parents/guardians and teachers of the participating children, highlighting their observations of the participating child's behaviour, and from all these data, the researcher identified the essential information that would help make an informed decision as to the target goal or goals for the SS intervention. This process was fully narrated for each of the students, as reflected in Appendix 5. It is important to note that the researcher consulted with the student's respective teacher in terms of the target goal(s) before proceeding with the SS draft. A sample of the pre-intervention stage is provided below.

#### **Student A**

##### *Pre-Intervention*

During this stage, the researcher collected data concerning Student A. The purpose of gathering information aligned with Gray's (2018) Criterion #2, the two-step discovery, outlining the need to better comprehend Student A and determine the focus of the social story to be used.

The first data gathered was Student A's school file, which indicated that Student A was a five-year-old male with moderate ASD, as diagnosed by a specialist. His chart also indicated that his level of social interaction skills was low as well as his level of challenging behaviour. In other words, Student A demonstrated a lack of prompting and answering in social contexts as well as avoided interactions and initiation of conversations. However, the low-level classification for

challenging behaviour indicates that Student A did not demonstrate any aggressive or hyperactive behaviour, such as screaming, shouting, or throwing things around. The chart also specified that the target social skills should be initiating and interacting in conversations while there was no target for challenging behaviour, since it was classified as low.

The second data came from the researcher's initial observation of Student A's class. Granting to the request to observe the class provided the researcher an opportunity to observe Student A's behaviour and social skills in class, and the observation of Student A for the pre-intervention (Week 0) is presented below.

*Based on my examination of Student A's file as well as my initial observations of his behaviour and social skills in class, I understood that Student A faced challenges in social skills, particularly in communicating and engaging with others. Specifically, Student A was a quiet person who ignored when his name was called. I remember when I was introduced, Student A refused to greet me or say hello. He preferred to stay quiet and did not participate. He preferred not to speak in class to teachers and classmates. He liked his own things next to him and disliked sharing. Additionally, his minimal interaction was demonstrated only when something happened in class, such as shouting or screaming. However, I noted that Student A did not demonstrate any aggressive behaviour or hyperactivity. Moreover, based on my frequency behaviour chart for Student A (Appendix 6), the total number of times Student A manifested social skill issues during the pre-intervention was the following: 27 times avoiding answering, 27 times avoiding initiating conversation, 27 times avoiding interaction, 18 instances disliking sharing.*

The third data set came from the researcher's field notes when they had an informal conversation with the teachers and parents, which was conducted during the collection of consent forms from them. The conversation was friendly, as discussed under 5.1, and during the informal talk, which lasted five minutes, the researcher managed to get the demographic profile of Teacher A, which is included below. Additionally, her responses pertaining to Student A are reflected in the thematic analysis discussed later in this section.

*Teacher A is a 30-year-old female who has been teaching autistic children for eight years. She has a Bachelor's in Special Education (BSc in Special Needs) and has completed 30 courses on autism. She expressed that she did not learn about any intervention theory while doing her Bachelor's degree except for*

*inclusive education, which is the recommended intervention to use in the Kingdom of Saudi Arabia.*

Part of the third data is the interview conducted with the parent. The researcher managed to conduct a face-to-face interview with the mother of Student A when she came to pick her child up after school. Unfortunately, the mother was busy because she had a job as well as other children to look after, so she was in a hurry. The interview lasted less than ten minutes, and the mother's accounts describing the history of Student A's autism are shown below. Her responses pertaining to Student A's social skills and behaviour are reflected in the thematic analysis discussed later in this section.

*Student A's mother discovered that Student A had autism when he was two years old. She noticed the difference between Student A and his brothers. The mother said that Student A acted differently, was always quiet at home, and did not initiate conversations with them or his siblings. They brought him to a specialist hospital in Riyadh, Saudi Arabia, and the doctor said that Student A has moderate autism. The doctor recommended taking the child to a special needs centre.*

In summary, the collected data on Student A comprised the school file detailing Student A's profile, the researcher's observation of the class before the intervention, and their field notes from the informal conversations with the parent (less than 10 minutes) and teacher (five minutes).

#### **4.3.2 Drafting of the Social Story™**

The second stage was the drafting of the Social Stories™. Following consultation with the students' respective teachers, the researcher developed the first draft for each of the participants based on the identified and agreed target goals. The SS was created following an illustrated storybook format where the main character was named after the student. If the target goal was related to interaction, then the story revolved around the student's participation in class activities. Each book began with a title page with four to five pages of illustration with a single sentence for each, all with the aim to teach and enforce learning concerning participation in class. Notably, all the SSs followed the guiding principles posited by Gray (2018). Once the draft was completed, it was presented to the student's teacher for revision and review. The student's teacher's feedback

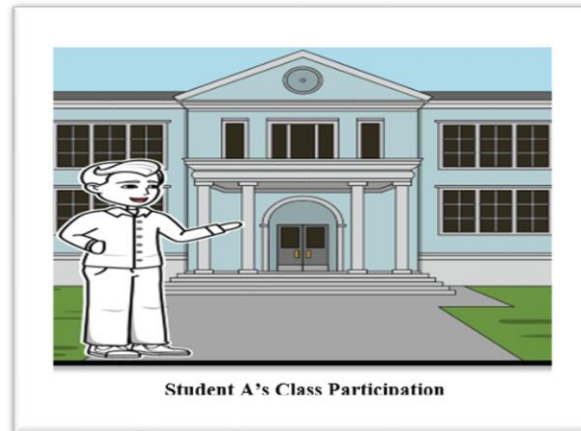


would prompt the amendments necessary before it was finalised for implementation. The complete narratives for each of the students under this stage are reflected in Appendix 5, marked with the heading 'Drafting of the Social Story'. A sample of the narrative for Student A under this stage is provided below.

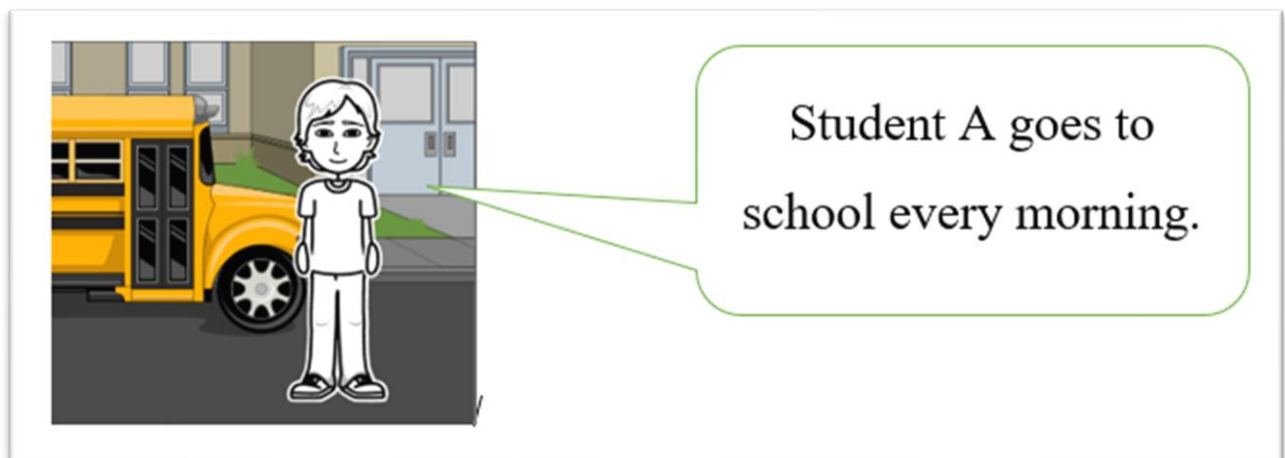
### *Drafting of the Social Story*

Following Gray's (2018) Criterion #2 (two-step discovery) was of great help to the researcher in identifying Student A's target social skills (initiating conversation and interacting in class) for the intervention. With the target social skills identified, the researcher brainstormed all the collected data and then planned for a well-defined process on how these data could be effectively utilised in the creation of the Social Story™ for Student A. Following this, the researcher started outlining a draft for the social story with Gray's (2018) SS Goal (Criterion #1) at the forefront of their mind, which meant that the SS would contain descriptive statements that are meaningful and safe for Student A. The researcher then consulted with Teacher A by presenting the SS draft, open to receiving feedback and criticisms, emphasising that the SS draft was tailored according to Student A's abilities, capabilities, and personality to enhance or improve identified skills or behavioural issues (Criterion #4). Teacher A agreed with the SS draft.

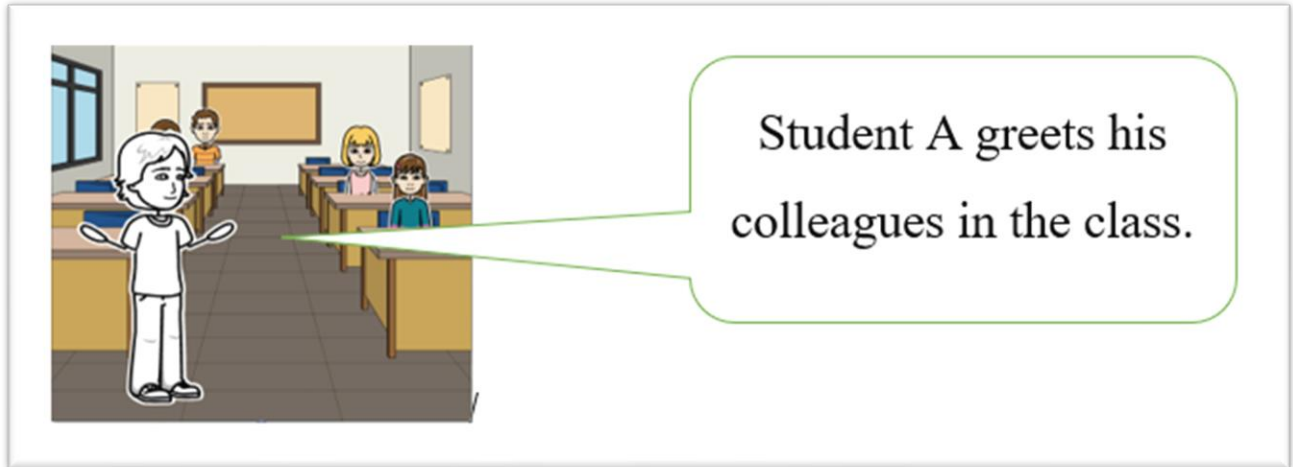
The SS was written and presented in a storybook format. Following Criterion #3, page one of the SS started with a title. The title, 'Student A's Class Participation', reflected the focal topic of the intervention since Student A's social skill issues focused on lack of participation and interaction in class. The illustration included a picture of a smiling boy, which was intended to be Student A, and a picture of a colourful school indicating the setting, which was important to establish in terms of reinforcing identification and imitation of actions.



Page 2 of the SS presented an illustration of Student A in front of the school bus, ready to go to school, which reinforced the idea that Student A needed to go to school every morning. This was considered the introduction of the SS because it introduced the setting (school) for Student A.

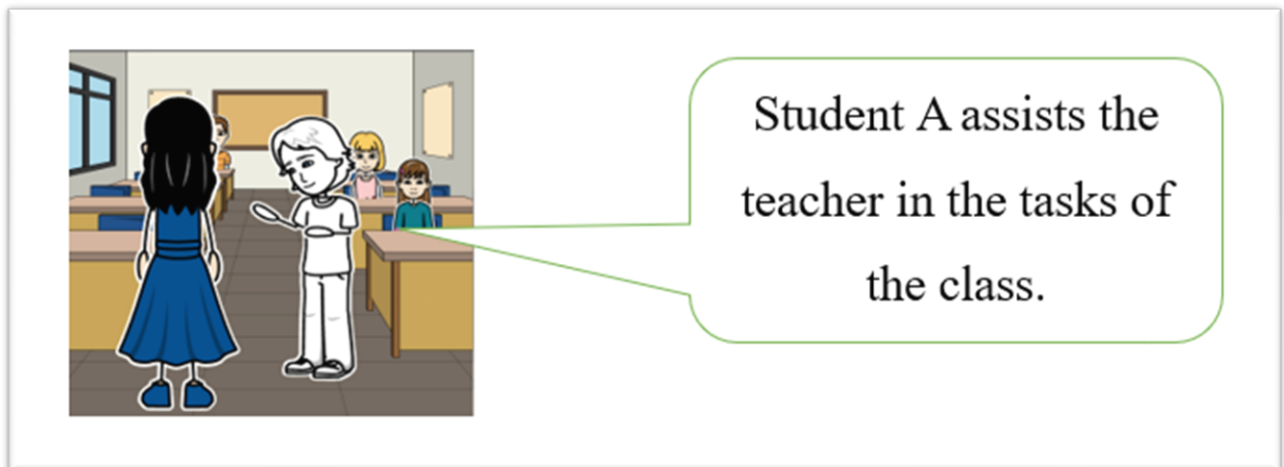


The next two pages (pages 3 and 4) were considered as the body of the SS, which reflected the target goals of the intervention. The illustrations on page 3 demonstrated Student A greeting his classmates in class, which was essential as it demonstrates the child arriving in class and greeting his classmates. Knowing that Student A was a quiet person and showed no interest in interacting and initiating conversation, the greeting in front of the class with other students seated would reinforce the idea that the place (school) was friendly and make him accept that it was okay to speak in such an environment. Additionally, Student A could begin to understand that it was polite and respectful to greet people, especially in the Arab culture.



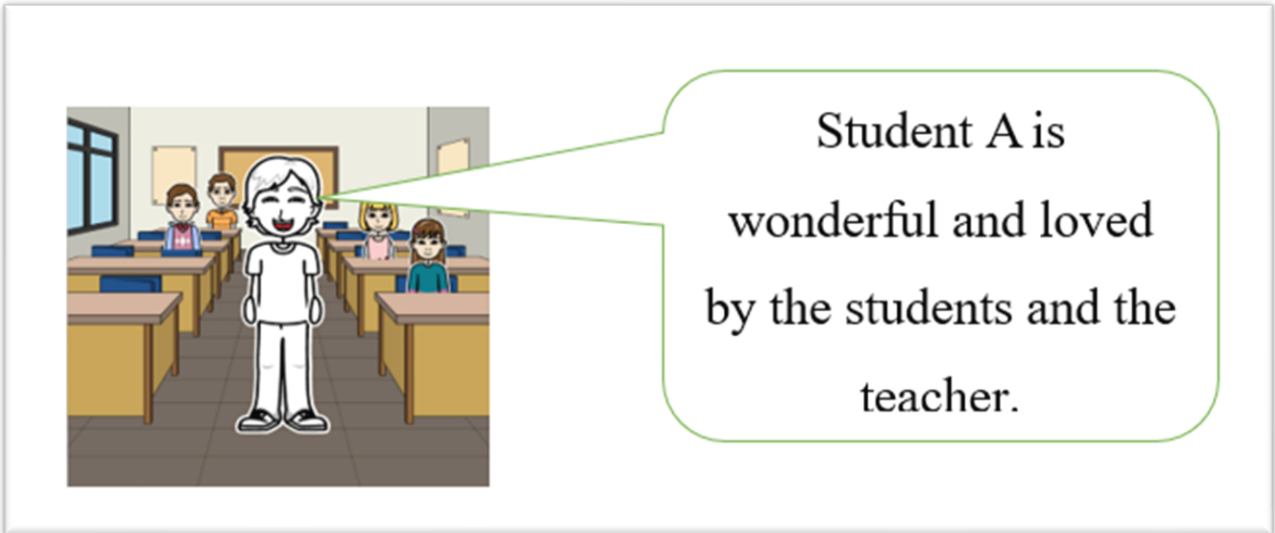
Student A greets his colleagues in the class.

The illustration on page 4 also reinforces the achievement of the target goal. Knowing that Student A found it hard to answer to questions and instructions of the teacher, the picture card illustrated Student A assisting the teacher doing some tasks for the class. It was designed in this manner to teach Student A that it was good to listen to the teacher, follow her instructions, and help her with class tasks. Student A was also expected to learn that it was important to answer the teacher' and follow what the teacher asked him to do.



Student A assists the teacher in the tasks of the class.

Page 5 of the SS illustrated that Student A was happy because he was loved by his classmates and his teacher because he greeted his classmates, answered the teacher's call, helped the teacher with the tasks of the class, and followed her instructions. The smile in the illustration showed that he was happy because what he did was all considered good.



It has to be noted that the five-page SS illustrations for Student A used the third-person perspective, sentences in the present tense, and descriptive as well as positive language that was kind in tone, with literal and accurate meanings for the vocabulary. In this aspect, the SS addresses the fifth Criterion, ‘Five Factors Define Voice and Vocabulary’ as well as applying Criterion #6, detailing the descriptive content by including answers to the WH questions, such as who (Student A), where (School/Class), what (interacting in class), how (greeting, listening to instructions, answering the call of the teacher, and helping the teacher with class tasks), when (every morning), and why (to be loved and consider him friendly). Next, the seventh and eighth criteria call for descriptive sentences, which, as discussed earlier, was the primary form of the sentences utilised. The coaching sentences, which were stated as optional, were not illustrated in the illustration cards but in the follow-up sentences that the researcher used as a form of encouragement for the student to perform better, and the researcher made sure that there were no sentences that were commands or direct. This SS also addressed the ninth criterion, which is reviewing and revising the SS draft, ensuring the application of the defining criteria, as the researcher reviewed the drafts several times, consulted with the teacher in charge, and revised where amendments were required.

Notably, to reinforce the idea that the boy in the picture is Student A, the researcher kept all of the boy’s images in white, giving the opportunity for Student A to colour them on each of the pages. Additionally, I provided the opportunity for Student A to draw the illustration cards and

read or narrate the story based on how he perceived it to reinforce the action and the message illustrated in the cards. However, it has to be noted that these tasks were not forced but included to be done according to Student A's preference.

### 4.3.3 SS Intervention

The third stage was the SS intervention implementation. The researcher remained vigilant of students' willingness to participate in every session and never enforced an activity until the participating student was ready, and for every session, a teaching assistant was present to ensure that participating students were safe. At this stage, the researcher presented the SS to the students and noted observations of their interactions, noting every detail of action and reaction of the participating children. These notes were narrated fully, as shown in Appendix 5, and together with these, the researcher counted the frequency of certain behaviour manifested by the participating student as reflected in the frequency observation chart, marked as Week 1 to Week 4. To illustrate this process, the complete narrative for Student A is provided below as an example.

#### ***SS Intervention***

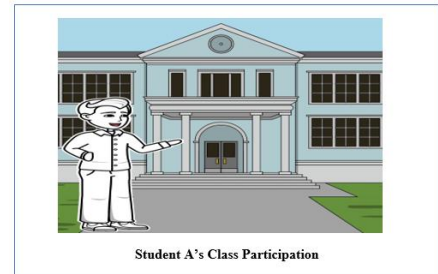
After the creation of the social story (SS) and undergoing review and revision, the SS for Student A was ready for implementation. Gray's (2021) Criterion #10 was taken into consideration before the implementation was initiated. With everything planned and prepared, the implementation plan included a schedule of a four-week duration with a three-time frequency, scheduled for Sunday, Monday, and Wednesday, giving me the opportunity to conduct the intervention for a total of 12 sessions, with 45 minutes for every session.

The SS intervention was then implemented, and the researcher's narratives reflected the events that occurred.

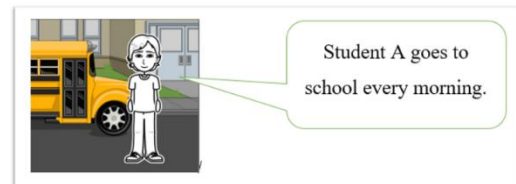
*The first week of introduction was an introductory week, where I demonstrated greeting him and asking him to do the same. However, Student A remained silent, and even when I called his name, he just ignored me. I extended the greeting by introducing my name. When I asked him to do the same, he remained silent. This week was spent with lots of greetings and introduction of*

*name repetitions. After the greeting and introduction, the student and I would sit together to start reading the social story prepared for him.*

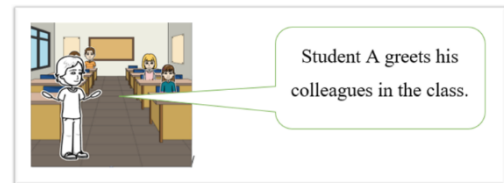
*I started reading the social story by presenting the SS title page. I asked him to read it for me, but he kept quiet. I repeated the title once more and coaxed him to say it with me, but again he remained silent. I proceeded to introduce the name of the boy in the picture, which was the name of Student A. I described the boy saying that he was five years old, which was the same age as Student A. Also, I described the school by stating how important it is to students. I also described the title and stated its importance, which is Student A's participation in class.*



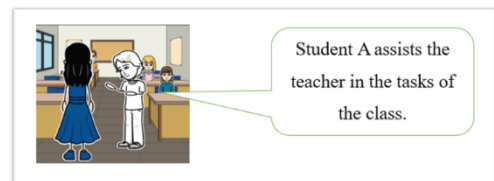
*Then I continued with the introduction by showing the second page. I described the picture of Student A, who was about to go on the school bus to go to school. I said that Student A goes to school every day. Then, I explained why it is important for Student A to go to school. I stated that going to school would make Student A good by learning new things and meeting new friends. While we were about to proceed to the next page, Student A burst into tears because he felt pressured, and he wanted his chaperone seated next to him. The teacher had to come in and calm him down. After he calmed down, we proceeded with the intervention. I also used coaching sentences verbally to encourage Student A.*



*I flipped onto the next page, which was the start of the body of the SS. I described the illustration stating that Student A was doing a great job greeting his classmates. I pointed out that Student A was in front of the class, and everyone was listening to him. I emphasised by repeating what the main character was doing in the picture, and every time I repeated, I supported with praises for the main character for doing so. The repetitions were important so that Student A would accept the action as important. I also explained that in his culture (Arab culture), greeting people was really vital.*

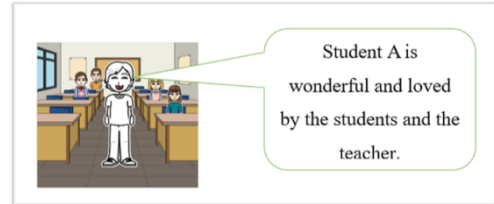


*The next page was also part of the SS body. I explained the illustration stating that the teacher called the main character's name, and he stood up and went to the teacher. The teacher gave him instructions to assist her in class, and the main character followed. I supported the SS by saying that the teacher was very happy with Student A*



*(main character) because he listened to her and followed her directions. I also stated that the teacher praised Student A for his efforts in front of the class. I explained that answering the teacher's call and listening as well as following her instructions showed respect, politeness and he would serve as a role model for the class to follow.*

*The fifth illustration card (page 5) was considered the SS conclusion. I explained that Student A (main character) was standing in front of the class smiling because his classmates and teachers loved him. I explained that they loved him because he greeted them, he answered the call of the teacher, he listened and followed her instructions. Because of that, his classmates thought that he was friendly and good. The teacher thought that Student A was really good because he assisted her. I repeated the reason why they loved the main character. I supported by saying that interacting by helping showed that he is a good person. I also stated that helping others is one of the things valued most in Arab culture.*



*For the first two days of the first week, I repeatedly asked Student A at the beginning of the session if he wanted to change the name of the main character in the story, and he gave me no reply. However, on the third day, when I asked him, he just said, "Student A", meaning he did not want to change the name of the main character. I interpreted this as a sign that Student A was willing to participate. For almost the entire week, Student A wanted me to do all the talking. The entire time he remained silent. As we were reached the last day of intervention for the week, Student A manifested a slight change, which was, telling me that he wanted to keep the same name for the main character, and he started to glance at me when I read the story.*

*As we entered the second week of the intervention, I started with the same routine. First, I asked if he wanted to change the name of the main character, and he said no, just "Student A". So I repeated the name of the main character, and he also did the same. As we proceeded with the pages, he was already mentioning and repeating the name of the main character. Then gradually, he was already introducing the name of the main character without me introducing the main character's name. When we reached illustration card #3, where the main character was greeting the class, I attempted to ask him to do the same thing, but he ignored me. So, I tried to give him reasons why it was good to greet people. It was also during this week that I was able to coax him to start colouring the pics of the main character. Also, he started attempting to do his best in drawing the SS together with me. However, there were a few times he asked if he could colour and not draw.*

*By the third week, we still continued our routine with the illustration cards. What was surprising was when Student A greeted me on the second day of the*



*week without waiting for me to ask him to do so. This was repeated on the third day of the intervention. Then, when I asked him to greet his classmates, he did it. I clapped my hand and showed him how happy I was that he had done it. I praised him for his efforts. Also, by this time, he was also reading with me by uttering some of the words, especially the name of the main character. When he uttered some words, no matter how few they were, I clapped my hands and praised him for his efforts in reading. However, by the end of the session, he indicated that he did not want to read anymore.*

*As we entered the fourth week, Student A managed to continue doing his greetings, with me, with his teacher, and with his classmates. I asked the class to clap their hands to show they were happy Student A did it. He had demonstrated improvement by overcoming his shyness. I was expecting that it would be a challenge to make him read with me because he wanted to stop reading by the end of the third-week intervention. However, when I did, Student A read along with me. Then as the week progressed, he read alone. I was surprised. By this time, it was also evident that Student A responded to the call of his name. When the teacher called upon his name and asked him to go and sit in his place, he listened and obeyed the teacher. Also, another noticeable thing was that he attempted colouring by himself. Another thing that happened was that he tried to memorise the SS, but when he forgot, he communicated the SS using his own words.*

*Even though he had shown some improvements in interacting, he still did not manage to engage or initiate conversations. However, he had shown improvement in responding to the call of his name. I believe that with continuous use of the intervention, improvement in Student A's social skills would further develop specific progress in initiating conversations.*

*It has to be noted that there were times I had to adjust or explain the vocabulary for Student A to understand the meaning. My explanation was usually using examples. For example, when I was explaining the importance of greeting in Arab culture, I asked him questions if he saw his father, mother, brother, or grandparents greeting other people. I explained that they did that because it was important and respectful. Additionally, it was noteworthy that my entire illustrations were prepared with a supporting story. The supporting story is within the context of the illustration aiming to achieve the target goal of the intervention. These are in line with Gray's (2021) Criterion #5.*

*My story support is laden with positive words and comprised of descriptive sentences addressing Criteria #6 and 8. My SS, especially the story supports, applauds achievements addressing Criterion #2. I also saw to it that coaching sentences, i.e., encouraging and motivating words, were used to prompt positive participation from the student (Criterion #7).*



*All throughout the SS intervention, I saw to it that my voice was always kind and patient, as stated in Criterion #5. I also used different voices to make it more interesting as well as get his attention and focus. Also, I never proceeded to the next activity when Student A wanted to continue drawing or colouring or even describing one illustration card. I gave him the freedom to continue at his own pace.*

Additionally, as mentioned earlier, the implementation also involves behavioural observations as laid out in the frequency behaviour chart for each participating student. This is an example of the behavioural observations for Student A.

#### *Frequency Behaviour Chart (Week 1 to Week 4)*

Student A's social skills were observed during this entire week of the implementation of the intervention, and the frequency behaviour chart during the SS intervention revealed that Student A manifested the following frequencies for social skills: a decrease in avoiding answering that started from 26 in Week 1 to 15 times in Week 4; avoiding initiating conversations from 27 times in Week 1 to 12 times in Week 4; avoiding interaction from 26 times in Week 1 to 13 in Week 4; and disliking sharing from 22 times in Week 1 to 12 in Week 4. Hence, Student A manifested a gradual decrease in his exhibition of social skills issues in class, which implies that the intervention had a notable impact in reducing the level of social interaction skills of Student A.

#### **4.3.4 Post-Intervention**

The fourth stage was post-intervention, which reflects the post-intervention interviews that the researcher conducted with parents/guardians and teachers. The researcher noted any observations that the parents/guardians and teachers mentioned and conducted class observations for the purpose of recording the frequency of students' behaviour, which was critical in order to get knowledge and insights into the improvement that the students manifested. The frequency observation chart for this week, marked as Week 5, was then compared with Week 0 in order to determine if certain behaviour demonstrated improvement. A sample narrative for Student A is provided below to illustrate this process, as well as a description of the frequency behaviour chart for Student A.

#### ***Post Intervention***

For the post-intervention interview, Teacher A conveyed positive expectations concerning the SS intervention, stating that she had witnessed the improvements with her own eyes and was confident that further improvement would happen if the SS intervention continued. Because of this, she recommended the SS intervention be used and expressed her desire to receive training in SS intervention.

Similarly, Student A's mother emphasised that she would like the centre to continue using the SS intervention and recommended its use because she had seen improvement in her child. She expressed her happiness with her child's improved behaviour.

#### *Frequency Behaviour Chart (Week 5)*

Student A's post-intervention frequency behaviour chart revealed the following frequencies for all the main themes identified. Student A manifested avoiding answering eight times, nine for avoiding initiating conversations, 10 times for avoiding interactions, and 12 times for disliking sharing.

To reiterate, the complete narratives for Students B, C, D, E, and F are reflected in Appendix 5.

#### **4.4 Summary**

This chapter meticulously details the development of the Social Story™, following Carol Gray's refined principles, and provides a rich insight into the custom creation of interventions tailored for each child participating in this study. The deliberate and thoughtful application of these principles in drafting the Social Stories™ underscores the rigorous approach taken to ensure that each narrative is both accessible and engaging for children with ASD. By adhering to a structured framework that emphasises descriptive language, a positive tone, and motivational elements, the stories crafted are likely to foster better understanding and participation among the students, and the process of drafting, reviewing, and implementing these stories, as outlined in this chapter, not only aligns with the educational goals set forth in the research but also reinforces the utility and adaptability of Social Stories™ as a powerful educational tool. As the research moves into the intervention phase, the foundational work detailed here sets the stage for examining the tangible

impacts of these personalised stories on the children's social skills and behaviours, linking back to the overarching research questions and aims of the study.

## CHAPTER 5 - QUALITATIVE RESULTS

### 5.1 Introduction

This chapter presents the key findings, focused on exploring the influence of the Social Stories™ (SS) intervention on the development of the social and behavioural skills of the six children with ASD from Ajyal Al Watan Centre Riyadh participating in this study. In particular, the study focuses on investigating the following: (1) the impact of the SS intervention on the social skills of children with ASD in terms of initiation and social engagement, and (2) the impact of the SS intervention on the behaviours of the children with ASD, precisely on externalising, bullying, hyperactivity/inattention, and internalising.

In this study, the results are presented sequentially, beginning with qualitative findings followed by quantitative findings, as suggested by Kajamaa et al. (2020). The qualitative data are reported first to offer a detailed, contextual understanding of the social story intervention's impact on autistic participants within the Saudi context, and this approach provides intricate insights that lay the groundwork for interpreting the quantitative results that follow. By establishing a qualitative foundation, the study ensures that the design and interpretation of the quantitative analysis are rooted in a solid qualitative context. This integration enhances the depth and insightfulness of the overall interpretation of the mixed-method results.

Notably, the findings were derived from the following qualitative data collected: (1) students' school files, (2) the researcher's pre-, during, and post-intervention observations of participants' classes, (3) the researcher's field notes from the informal conversations with participants' parents and teachers, (4) the researcher's observations of the SS implementation, and (5) post-intervention interviews of the participants' parents/guardians and teachers.

In particular, the researcher sought the permission of the school and parents through consent forms. While collecting the consent forms, the researcher was able to have approximately 10-minute informal conversations with each participant's parent/guardian and teacher, which comprised the data for the field notes. The data from the field notes were based on the pre-set of questions that aimed to gather the teachers' demographic profiles, the parents' accounts concerning the discovery

of their children's autism, and their responses concerning the participants' social interaction skills and challenging behaviours. Additionally, the researcher managed to get the permission of both parents and the school to access the participants' school files, which provided the participants' demographics and doctors' diagnoses. Moreover, the researcher gathered data from the frequency behaviour chart of each participating student derived from the observations conducted of the participants' social skills and challenging behaviour in class. The observations lasted for six weeks, starting at Week 0 for the pre-intervention observation, then the four-week (Weeks 1-4) observation during the implementation of the intervention, and finishing in Week 5 for the post-intervention observation. The frequency of the intervention was scheduled across all school days of the week, i.e., from Sunday to Thursday, for four hours each day. Hence, for each week, the researcher observed participants for a total of 20 hours, which meant a total of 120 hours for the entire observation period. For Weeks 1 to 4, the weeks for the implementation of the SS intervention, the observations were conducted at different times, two hours before the implementation of the intervention for the day and two hours after the intervention of the day was done. However, for Weeks 0 and 5, the pre- and post-observations were conducted for four consecutive hours. The researcher listed the frequency of the social skills and challenging behaviour manifested by each of the participants and created a frequency behaviour chart. The observations helped in the analysis of the participants that led to the decision of the intervention target goals, the creation of the SS, and the analysis of the findings study with regards to the impact of the SS. Notably, the comparison of the pre- and post-observations assisted in highlighting the improvement of the participants' social interaction skills and challenging behaviour, which in turn helped in determining the intervention's impact. Additionally, during the intervention phase, observations were conducted for the duration of four weeks, with a three-time frequency for each week, and a 45-minute implementation for each session, providing a total of 12 sessions for the SS intervention implementation with the main aim of observing the interventions' impact. Moreover, the qualitative data were further enhanced by the post-intervention interviews of parents and teachers, which aimed to collect teachers' and parents' observations concerning the changes or effects in the social interaction skills and challenging behaviours of the participating children.

The audio and written data from the observations, field notes, and interviews were first transcribed verbatim (Merriam and Tisdell, 2014). Since all of the interviewees' (parents and teachers)

responses and the researcher's observations were answered and written in Arabic, the data were translated into English by a qualified translator, who was a proficient speaker of English and Arabic. From the translated version, qualitative thematic analysis was carried out using QSR NVivo v1.3. Thematic analysis is an analysis approach that involves first reading through a data set then identifying patterns in meaning across the data, and these patterns are the ones that are used to develop themes, as illustrated and discussed below.

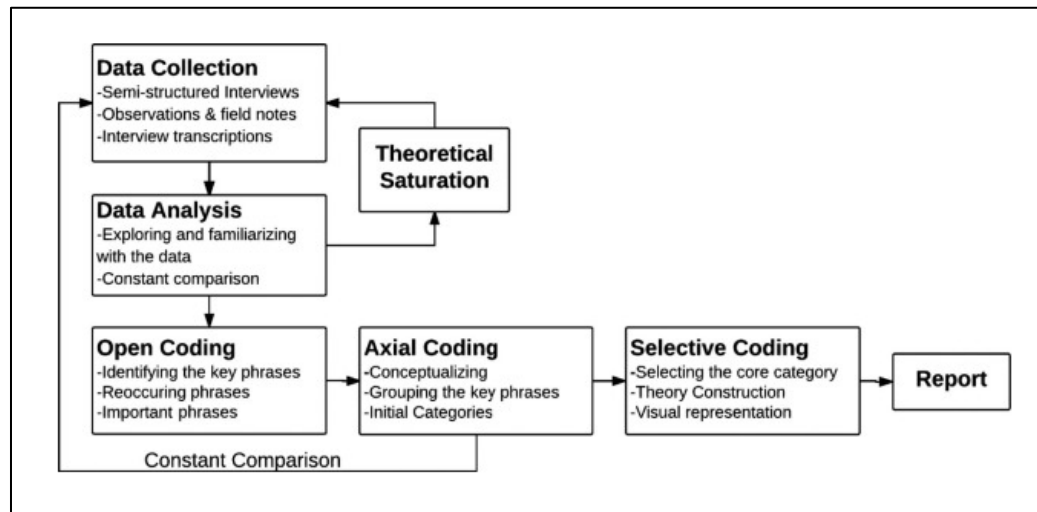


Figure 6. Thematic Analysis Process

The coding process was done manually within NVivo. The first process of the analysis was to explore the data, compare phrases, and become familiar with the data. The second stage was *open coding*, where the key phrases from the interviews were identified manually, which was done by identifying the most recurring phrases. The third stage was *axial coding*, where the key phrases were then grouped together into themes depending on the similarity and relatedness of the codes. In the final phase of thematic analysis, *selective coding* was implemented, which involved applying specific criteria for inclusion and exclusion based on the context to omit elements that were not relevant to the study's focus, as outlined by Yin (2018).

Notably, some of the pre-intervention questions in the informal conversations and all of the post-intervention questions asked in the qualitative data were taken from the SSIS-RS questionnaire themes. Moreover, Chapter 6 shows how this study utilised the SSIS-RS questionnaires to quantitatively explore the effects of SS intervention on the participants. Since both types of data sought to determine the impact of SS, the findings of both qualitative (Chapter 5) and quantitative

(Chapter 6) data were combined to conduct a triangulation of the key results, which is discussed in Chapter 7. The discussion of the significance of triangulation to this study was done in Chapter 3.

For a clearer presentation, the researcher decided to present the data and findings of each child separately as each of their cases is unique, as are their personalities, capabilities, challenges, and issues that determine the target goals of the SS interventions, which influence the creation and development of each SS. The creation of the SS for each child was guided by the 10 defining principles of Gray (2018) with the main aim of seeking improvement and progress on each child's social interaction skills, challenging behaviours, or a combination of both.

This chapter is presented in six key sections, the first being this introduction. The second section presents the assessment of the participants' demographic profiles, while the third highlights the overall findings from each student, and the fourth illustrates the discussions of the findings for all the students. The effects of the intervention are discussed in the fifth section, while the last, sixth section presents the summary of the findings, concluding all the key results.

## 5.2 Respondent Profiles

Qualitative studies are known to be subjective in nature. This alone presents challenges to the trustworthiness of the findings, so to address this challenge, this study employed the triangulation of the qualitative and quantitative data to create an in-depth analysis. Triangulation of data is combining different research methodologies with studying the same phenomenon so that the subjective nature of the qualitative data is balanced with the objective nature of the quantitative data (Saldaña, 2015). Specifically, to ensure that the trustworthiness aspect would be maximised, one strategy was used. The researcher purposively selected participants who had ASD (Tisdell and Merriam, 2015) based on the rubrics discussed in Chapter 3. According to Marshall and Rossman (2014) and Tisdell and Merriam (2015), such an approach could provide assurance that the findings would be anchored on a less biased sample, thereby maximising the credibility of the findings; however, it has to be noted that this study has limitations due to the study's small size and its being conducted in a single location. For ethical reasons, letters were used in lieu of their actual names for their identification, labelled Students A, B, C, D, E, and F. To provide a better

visual of the respondents' demographic profile, a resultant classification map was created and illustrated in Figure 7, summarising the respondents by gender and age.

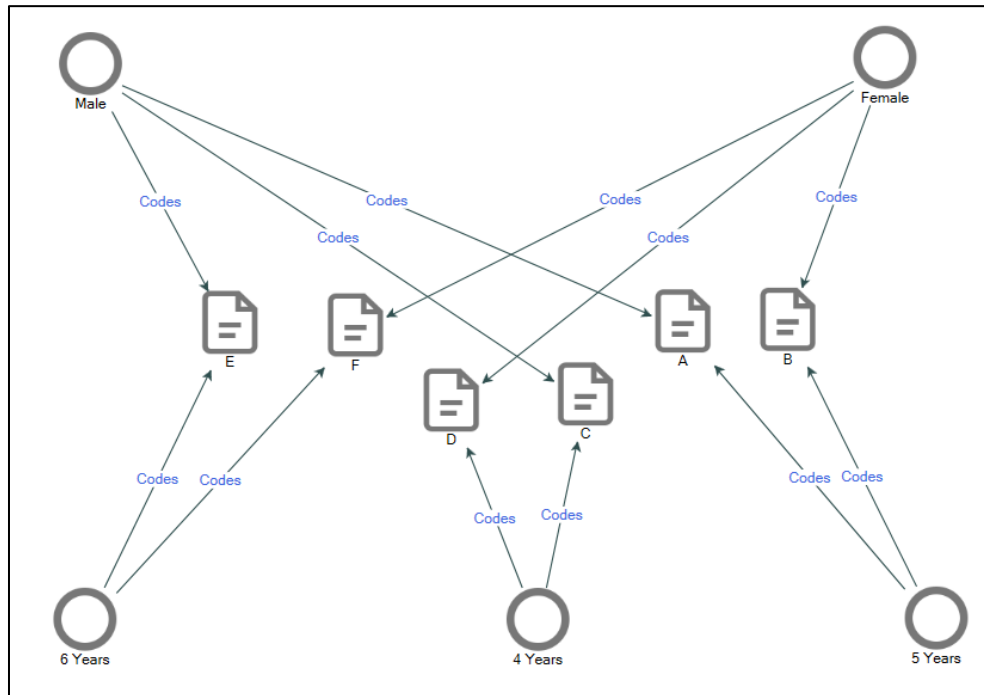


Figure 7. Respondents' Demographic Profile

### 5.3 Student Data Analysis

The qualitative data were collected from three different sources: (1) the school file, (2) the researcher's class observations, including the frequency behaviour chart, and (3) interviews of parents/guardians and teachers of participating students. These data were critical in identifying the target goals for each of the participating students as well as in the analysis to explore the impact of the SS intervention on the social and behavioural skills of the six autistic children. The complete narratives in collecting the data are shown in Appendix 5 and the responses for the interviews in Appendix 8. However, the thematic analysis derived from the collected data is reflected below.



### 5.3.1 Student A

To analyse the qualitative data collected, a thematic analysis was conducted in order to organise the collected data and identify essential information as well as relevant trends that would assist the researcher in selecting the target behaviour, the topic for the SS intervention, and the creation of the SS. Based on the parents' and teachers' responses to the questionnaire interviews and observations, the following key themes emerged from the analysis, as illustrated in Table 8 below.

Aspect	Main Theme	Sub-Themes
Social Skills	Communication	<b>Avoids answering</b>
		He shows a lack of prompting and answering in social contexts.
		<b>Avoids initiating conversations</b>
		He avoids the initiation of conversations and interactions.
	Engagement	<b>Avoids interactions</b>
		He avoids the initiation of conversations and interactions.
		He prefers to stay quiet and does not participate.
		He prefers not to speak in class to teachers and classmates.
		<b>Dislikes sharing</b>
		He likes his own things to be next to him and hates to share and interact if something in class happens.

Table 8. Key Themes - Student A

Based on the findings, Student A was mainly identified with social skills challenges, particularly under the main themes of communication and engagement discussed below.

## Theme 1: Communication

Under Student A's communication difficulties illustrated in Table 8, two sub-themes were identified: avoid answering, and avoid initiating conversation. For the first sub-theme (avoid answering), the parent highlighted this when she said:

**Parent:** *All of his brothers, as well as his father, initiate conversation and try to let him speak his mind. However, he prefers to keep quiet and answer with one word or sometimes ignores the whole question and plays with his hands, and does not make eye contact.*

It also emerged that the student avoided initiating conversations, which is the second sub-theme the parent cited:

**Parent:** *He is not like his brothers. He acts differently and always quiet, and does not initiate conversations.*

## Theme 2: Engagement

Student A also faced challenges concerning engagement. In particular, the first sub-theme identified was avoiding interactions, which was noted by the student's teacher, who said that:

**Teacher:** *He avoids the initiation of conversations and interactions. He prefers to stay quiet and does not participate, and he prefers not to speak in class to teachers and classmates.*

Apart from avoiding interactions, it was noted that the student also hated sharing, which was the second sub-theme, as cited by the teacher:

**Teacher:** *He likes his own things to be next to him and hates to share, and he interacts only if something in class happens.*

The researcher consulted with Teacher A and pinpointed that Student A clearly demonstrated a lack of social interaction skills by highlighting the following findings: (1) from the school file, (2) researcher's class observation; and (3) from the field notes based on the interviews with the

parent and teacher, in which Student A was described as quiet, not engaging in conversation with the family, and refusing to speak in class to the teacher or classmates. This consultation was done in order to get Teacher A's perspective on the target goal for the intervention. The researcher pointed out the importance of developing Student A's confidence in initiating conversation and interacting in class, which Teacher A agreed should be the target social skills for the intervention. Therefore, the SS for Student A was centred on class participation, beginning the story with going to school, greeting his classmates, assisting his teacher, and being praised by his classmates and teacher for his behaviour, and this account is fully narrated in Chapter 4, which was used as a sample for the SS creation process. It is noteworthy that from the interviews and observations, there were no behaviour-related issues identified.

### *Post-Intervention*

It was considered vital to learn what Teacher A and Student A's family observed concerning his behaviour in school and at home. Hence, the researcher conducted face-to-face interviews to get their feedback regarding Student A's improvement or lack of it. The interviews lasted twenty minutes each for the teacher and parent, and the findings of the interview were analysed using the thematic format, with the results discussed below.

### **Theme 1: Improved Communication**

Both the teacher and parent noted Student A's improvement in communication. Specifically, they noted Student A's slight improvement when it came to answering and listening instead of ignoring when he was called.

**Parent:** *Yes, he is answering fully and does not ignore as much as before.*

**Teacher:** *He also started listening to his peers and interacting with them. He listens to me and doesn't interrupt class. He shows eagerness to try new tasks.*

As illustration card #3 depicted Student A listening to the teacher, it was noteworthy that both the teacher and parent commented regarding Student A's listening to their instructions:

**Parent:** *He started to listen to his father and me when we spoke to him; he made more eye contact than before. He does not ignore as much as before and tries to answer in more than one word. He plays with his brothers and listens to them when they talk.*

**Teacher:** *Sometimes he concentrates, and sometimes he does not. He fiddles with his pencil case and prefers to draw while I teach. However, if I do call out his name, he leaves the pencil and tries to listen to the class. He does not cooperate if I ask for general help; however, if I call out his name to do a task, he stands up and comes to help.*

The teacher and parent also noted Student A's attempts in initiating conversations when they said:

**Parent:** *Sometimes, he started to ask for water or if he could go out to the garden to play with his ball.*

**Teacher:** *Yes, there is a big change in A's behaviour. He is starting to initiate conversations. I can see that he is starting to ask for help from me, but that is not always the case. For example, before the social story intervention, he used to stand up and walk towards the end of the classroom to play with the toys. However, after the social story intervention, he learned to ask before standing up and going to the toys. This is not always the case, but it is getting better. So, if we say he goes to the toys three times, he asks one out of three of those times.*

## **Theme 2: Improved Engagement**

Teacher A and the parent also noted improvement in Student A's engagement. Both parent and teacher observed that Student A engaged in telling them how he felt, indicating that he stopped avoiding interactions:

**Parent:** *Sometimes, he does express his feelings towards his father when he's done playing ball with him; he says he is happy. And sometimes, when his brothers do not want to play with him, he says he is sad.*

**Teacher:** *Yes, now he is telling us what makes him sad, what he likes, and what he does not. So, A is starting to show emotions and speak a word or two about his feelings, such as "I am sad" or "I am happy".*

Additionally, the teacher mentioned improvement in terms of sharing. Although it was not covered in the SS intervention, as there were no illustration cards specifically targeting such challenging behaviour, the observed behaviour of sharing his toys was a good indication of Student A's improved engagement.

**Teacher:** *A started to play with his peers and share toys with them.*

Overall, there was an improvement in Student A after the intervention. From the above statements, it seems clear that the intervention helped Student A slightly improve in initiating a conversation by asking for water or permission to go play with toys. Student A also demonstrated progress in listening, and he sometimes avoided ignoring when he was called. He also made eye contact when he was talked to. Furthermore, Student A demonstrated slight progress in interactions, starting to express his feelings to his family and to the teacher and interacting with his peers and sharing his toys with them. Student A's progress underscores how effective personal Social Stories™ are in dealing with individual ASD characteristics, and these results indicate that persistent and specific SS interventions are instrumental to the longstanding socio-skills improvement among ASD students across varying cultural settings.

### 5.3.2 Student B

Based on the data collected on Student B, the following key themes were extracted regarding Student B's social skills and challenging behaviour. There were two broad themes identified, and these included communication and engagement, as illustrated in Table 9 below.

Table 9 indicates Student B was experiencing difficulties with social skills, which were classified into two main themes (communication and engagement). Further explanations of the two themes are discussed below.

Aspect	Main Theme	Sub-Themes
<b>Social Skills</b>	<b>Communication</b>	<b>Avoids answering</b>
		She does not answer calls or follow instructions.
		There is a lack of prompting and answering in social contexts.
		<b>Avoids initiating conversations</b>
		She avoids the initiation of conversations and interactions.
		<b>Avoids interactions</b>
	<b>Engagement</b>	She avoids the initiation of conversations and interactions.
		She prefers playing with her doll rather than communicating with family members.
		Her mother says she also does not like to play with her siblings at home.
		She enjoys being alone. She does not like to be in pairs when given a task in class.
		<b>Dislikes sharing</b>
		Her toys are limited to one doll that she takes everywhere.

*Table 9. Key Themes - Student B*

### **Theme 1: Communication**

It was noted that Student B was having difficulties in communication, as noted by the teacher and parent during the interview and based on the researcher's observations. Student B was seen to be avoiding answering, which is the first sub-theme of communication, which was particularly evident in the way Student B dealt with people, as noted by her parent.

**Parent:** *I ask her to play with me or her sisters and even ask her to tidy up her room, but she will ignore me and will not say anything.*

Student B was also avoiding initiating conversations, the second sub-theme under communication, as cited by both the parent and teacher.

**Parent:** *She doesn't start conversations, and she does not answer when she is called or asked to do something.*

**Teacher:** *B prefers to keep quiet most of the time and nods her head with yes or no. She does not like to participate in conversations.*

## **Theme 2: Engagement**

The second theme for Student B referred to her difficulty in engaging with others. There were two sub-themes under the main theme of engagement, namely avoiding interactions, and hating sharing, and all of these were observed by both the teacher and parent:

**Parent:** *She doesn't share her toys. She prefers playing with her doll rather than communicating with family members.*

**Teacher:** *She enjoys being alone. She does not like to be in pairs when given a task in class. Her toys are limited to one doll that she takes it everywhere.*

Notably, no challenging behaviours were discussed. Therefore, the researcher consulted with Teacher B regarding the following findings: (1) according to the student file and pre-intervention observation, Student B was very quiet, a loner, ignoring instructions and calls of her name, disliked participating and engaging with others in the class, and played with her doll, which was also noted in Student B's frequency behaviour chart data for Week 0; and (2) according to the field notes, Student B was described as not engaging at home and school, expressed a preference playing with her doll, and disliked sharing. The consultation was conducted to get Teacher B's point of view regarding Student B's target goal for the intervention, in which the researcher pointed out Student B's issues with social skills, particularly engagement and communication. Teacher B agreed with the researcher that the target behaviour for the intervention was for

Student B to initiate basic conversation (communication) and interact with others (engagement). Hence, the SS for Student B focused on her class participation, beginning with going to school, greeting her classmates, joining her classmates in doing class tasks and how she was praised for her behaviour. The complete narrative is reflected in Appendix 5.

### ***Post-Intervention***

Following the intervention, there were improvements observed with the student, based on the two main themes, i.e., communicating and engagement.

### **Theme 1: Improved Communication**

Student B's improvement in communication was noted by the teacher, who cited that there was a slight improvement in her answering.

**Teacher:** *Not all the time, but I can see that she is better than before. Even though B prefers to keep quiet most of the time and nods her head with yes or no, I can see that there are times she joins in doing class tasks and listens to my instructions.*

Notably, the teacher and the parent mentioned Student B's progress in asking for help, which is also part of the communication.

**Teacher:** *Not all the time, but I can see she is better than before. She is starting to say please and waits for my answer to her question.*

**Parent:** *She is starting to bring short storybooks that are on the shelf to her father, myself, or his sister and ask us to read for her.*

The parent also noted that Student B interacted with people close to her and sought their help.

**Parent:** *Yes, she does ask selected people that are close to her for water, play, and says "please" and "thank you".*

There was also an improvement in initiating conversations, as the parent commented:



**Parent:** *After the intervention, she is starting to allow one of her sisters, the one she likes the most, to play with her doll and initiates the questions, such as “Do you want to play with me?”*

## **Theme 2: Improved Engagement**

The second theme is related to Student B’s improvement in engagement, and the teacher saw improvement in Student B’s cooperation, specifically in the context of sharing.

**Teacher:** *She is willing to share her toys and plays with her peers but not all of them. She is close to two of her female peers, and they are the only ones who she talks to and plays with. She ignores all the others.*

The teacher also noted the student’s improvement in behaviour when it comes to engaging with others and noted:

**Teacher:** *B is starting to follow the rules and asks her peers to do so by showing them. For example, she goes next to her peer, says “please”. She also does the intended ‘rule’ or ‘instructions’.*

The parent also noticed some improvements that they were happy about, which was Student B’s willingness to sit with them in the living room and that she tried to pay attention, did not bring her doll anymore and ignored them less than she usually did in the past.

**Parent:** *She is starting to sit with us in the living room and tries to pay attention. She does not bring her doll with her to play with and ignore us.*

Judged by the aforementioned, there was an improvement in Student B’s social skills after the intervention.

## **Other Improvements**

After the intervention, Student B manifested some progress in other aspects. One notable progress that Student B manifested was recognising emotions as noted by her parent and the teacher.

**Parent:** *Yes, she now tells us if she is happy or sad.*

**Teacher:** *She is starting to understand emotions. She relates a sad face to being sad and a happy face to being happy.*

In addition, the teacher noted a slight improvement in listening, although this was rather limited:

**Teacher:** *Yes, she is listening to my instructions but not to her peers.*

Overall, Student B showed notable improvements in social skills after the SS intervention. At first, Student B had a lot of difficulty in communicating and engaging with others. She was unable to respond to questions, start conversations or relate well with other children. She showed some slight improvements post-intervention, which included communicating better, asking for help and also starting conversations as well as interacting with her siblings more often. Furthermore, Student B began recognising feelings and expressing them as well as becoming a better listener, although this was still developing. These improvements demonstrate the viability of Social Stories™ as an intervention. The collaboration between parents and teachers during the development of this intervention is crucial as it assisted in determining the needs of Student B, leading to the tailoring of Social Stories™ according to her needs.

### 5.3.3 Student C

Based on the collected data, Student C, both in school and at home, demonstrated aggressive behaviour of shouting and screaming as well as not listening to the teacher's or parent's instructions. It was also inferred that due to being an only child and his father's absence during most of Student C's waking hours, his social interaction was limited to his mother in a home setting. Even though there were several classmates present in a school setting, Student C's aggressive behaviour usually caused slight signs of fear of him among classmates that could partly explain why there was low social interaction. To further analyse the data from the

researcher's observations and field notes, the following key themes emerged, as illustrated in Table 10 below.

<b>Aspect</b>	<b>Main Theme</b>	<b>Sub-Themes</b>
<b>Challenging Behaviour</b>	<b>Hyperactivity/Aggressiveness</b>	<b>Shouting</b>
		He was further reported to show behaviour, i.e., aggression, and shouting.
		Both Student C's classmates and family were afraid of his sudden change in mood.
		<b>Hyperactive/Throwing things</b>
		He throws things around.
<b>Social Skills</b>	<b>Engagement</b>	<b>Avoids interactions</b>
		His teacher and guardian reported that C exhibited a lack of social engagement and required extra attention from parents and teachers to remain engaged in a task.
	<b>Communication</b>	<b>Refuses to listen to instructions</b>
		He does not listen or answer instructions.

*Table 10. Key Themes - Student C*

Table 10 illustrates that Student C exhibits social skills challenges and behaviour issues. His social skills challenges are related to his interaction avoidance (engagement) and his refusal to listen to both the teacher and the parent (communication). In addition, Student C's behaviour issues are substantial evidence of his propensity to throw things around (hyperactive) as well as shouting and screaming (aggressiveness). These themes are explained below.

### **Theme 1: Communication**

Before the intervention, Student C had been observed with communication issues, and this was related mainly to avoiding answering as well as not listening, according to his parent and the teacher:

**Parent:** *Even if he sees me, he doesn't answer me; he only nods.*

**Teacher:** *Student C prefers to stay quiet and nods his head for a yes or no answer.*

## **Theme 2: Engagement**

The second theme under social skills for Student C was issues with engagement, particularly interaction avoidance, which was observed by the parent:

**Parent:** *Most of the time, he ignores me.*

However, the teacher did not mention or comment on Student C's engagement issues.

## **Theme 3: Hyperactivity/Aggressiveness**

Student C also demonstrated a high level of aggression and hyperactivity, which were detailed by the teacher and the parent:

**Teacher:** *He shows behaviour, such as aggression, shouting, and throwing things across the room to get attention.*

**Parent:** *He is an only child, and when I try to speak to him, he shouts and screams.*

Therefore, the student was coded under the main themes of hyperactivity, aggressiveness, engagement, and communication issues, with respective sub-themes as stated and discussed above. The target goal that was selected for the intervention was being polite with others and listening to instructions in terms of social skills, and lessening his level of aggression regarding the behaviour issues.

Before the creation of the SS, the researcher consulted with Teacher C concerning the findings of the collected data. The researcher stressed the aggressive and hyperactive behaviour of Student C as well as his refusal to listen to instructions, and Teacher C agreed with the findings and target goal for Student C's intervention (stated above). The focus of his SS was on him being polite and respectful, beginning with his going to school, greeting his peers, sitting in his chair during class, observing the class rules and listening to his teacher, and him being loved by his classmates and teacher for his behaviour. The complete narrative of the SS is shown in Appendix 5.

### ***Post-Intervention***

Following the intervention, the researcher conducted an interview with the teacher (lasting 30 minutes) and the parent (10 minutes) to determine the effects of the intervention on Student C. The responses are narrated below.

#### **Theme 1: Improved Communication**

According to the mother, the father of Student C commented on the behaviour of Student C when it came to communication, mentioning that their son demonstrated initiating conversations after the intervention.

**Parent:** *Yes, two days ago, Friday, he asked his father for water. The father was happy. Also, he stops and makes eye contact when he is being spoken to.*

**Teacher:** *Yes, he is starting to ask for help, especially when he wants to go to the toilet.*

The student also improved in answering, which was confirmed by the teacher:

**Teacher:** *C still prefers to sit alone; however, if asked or spoken to, he tries to lower his voice and answers in a polite manner. C still prefers to keep quiet and nod his head for no and yes answers.*

#### **Theme 2: Improved Engagement**

The teacher noticed improvement when it came to engagement as Student C was following her instructions:

**Teacher:** *He is starting to follow directions.*

The mother also commented on a slight improvement when it came to Student C listening to her.

**Parent:** *He listens to me more than before.*

Overall, there was a slight improvement in the social skills of Student C. However, there were still problems with Student C regarding answering, as the student did not fully participate in conversations, signalling the need for more intervention.

### **Theme 3: Slight Improvement in Challenging Behaviours**

The teacher and the mother noted improvements in Student C's behaviour, citing that the student was now less aggressive.

**Teacher:** *He is starting to know that aggressive behaviour is not allowed, and this harms his peers and teachers. He now understands that being aggressive can make others afraid and sad.*

**Parent:** *I saw changes in him; he is being less aggressive. He still shouts and screams but lesser now.*

Regarding hyperactivity, only the teacher cited an improvement saying:

**Teacher:** *He does not interrupt his peers in class. He respects personal space.*

### **Other Improvements**

It was noted that Student C manifested other desirable behaviour, especially when it came to recognising emotions. Both the teacher and the parent observed this.

**Parent:** *I guess he is starting to show emotions and acknowledge feelings. He hugged me after giving him chocolate.*

**Teacher:** *He is starting to understand emotions.*

Overall, Student C demonstrated minor improvements in social skills as well as a decrease in challenging behaviours. At first, Student C had major aggressive problems and hyperactivity issues, as well as difficulty communicating and participating in activities such as yelling, throwing objects, and not paying attention. After the intervention, however, there was a significant improvement in his communication skills including initiating discussions or making eye contact during conversation as well as improved engagement with tasks and decreased aggression. These findings indicate that the SS intervention was effective in targeting specific ASD characteristics within this context and promoting positive behaviour alterations. Parents' and teachers' participation in the intervention remained crucial as it helped determine the target goal as well as provide the necessary observations to gauge the progress made. Slight improvements suggest that continuous individualised Social Stories™ interventions should be mainstreamed into the regular curriculum for a sustainable impact.

#### 5.3.4 Student D

Based on the school file, observations, and informal conversations, the following key themes emerged from the analysis, presented in Table 11 below.

The results show that Student D has challenging issues concerning behaviours and social interaction skills, particularly engagement. Regarding the challenging behaviours, the main themes were hyperactivity, inattention, and bullying, and in terms of the subthemes under inattention, Student D ignored people around her and was also stubborn. Regarding the subthemes under hyperactivity/aggressiveness, it was evident that the child was loud, shouting in class, and throwing

things around, while the subtheme under bullying revealed that the student was in the habit of taking other students' toys. However, concerning social skills, it emerged that the main challenge was with engagement, where the student was selective in interactions (the sub-theme). These themes and sub-themes are discussed below.

<b>Aspect</b>	<b>Main Theme</b>	<b>Sub-Themes</b>
<b>Challenging Behaviour</b>	<b>Bullying</b>	<b>Taking other students' toys</b>
		She takes their toys.
	<b>Hyperactivity/ Aggressiveness</b>	<b>Loud</b>
		Student D was loud.
		<b>Shouting</b>
		She shouts when iPad is taken away.
		She seeks attention by shouting.
		<b>Throwing things</b>
		She throws things across the room to get attention.
		She seeks attention by shouting and throwing her friend's things across the class.
	She throws her pencil and papers around the class.	
	<b>Inattention</b>	<b>Ignoring</b>
		She does not like to be told to sit down and ignores all the teacher's requests to sit quietly in class.
The teacher needs to speak in a high tone in order for her to respond; she usually responds after three or four times of being warned.		
She ignores all her other classmates and speaks during their turn.		
<b>Social Skills</b>	<b>Engagement</b>	<b>Selective interactions</b>
		She has certain classmates that she is willing to mingle with.
		<b>Not socialising</b>
		She does not like to socialise.

Table 11. Key Themes - Student D



### **Theme 1: Engagement**

Student D's engagement issue focused on her selective engagement, which was dealing only with people she liked, which was noticed by the teacher:

**Teacher:** *She has certain classmates that she is willing to mingle with.*

The parent, however, stated that Student D did not interact because she refused to socialise:

**Parent:** *She does not like to socialise. She uses her iPad a lot. Always in her hands and playing with it.*

### **Theme 2: Hyperactivity/Aggressiveness**

Concerning hyperactivity/aggressiveness, Student D demonstrated the following challenging behaviours: being loud, shouting, and throwing things (first sub-theme). The teacher noted all these concerns:

**Teacher:** *Student D was loud. She seeks attention by shouting and throwing her friend's things across the class. She threw the pencil and papers around the class.*

The parent also observed the aggressive behaviour:

**Teacher:** *She gets angry and violent when you try to remove it [iPad].*

### **Theme 3: Inattention**

The second sub-theme under challenging behaviour was Student D's inattentiveness demonstrated by ignoring others and being stubborn, which was brought up by the teacher:

**Teacher:** *She does not like to be told to sit down and ignores all the teacher's requests of sitting quietly in class. The teacher needs to speak in a high tone in*

*order for her to respond; she usually responds after three or four times of being warned.*

#### **Theme 4: Bullying**

Student D was also classified as having the tendency to bully (third sub-theme) her peers, which she demonstrated by taking her peers' toys:

**Teacher:** *D has a habit of taking her classmates' toys.*

Based on the collected data, the researcher consulted with the teacher in charge concerning the following findings from the collected data: (1) selective engagement, (2) hyperactivity and aggressiveness, (3) bullying, and (4) inattention. The teacher agreed with the findings and the target goals for the intervention, which were (1) to listen and communicate politely with others (social skills), and (2) lessen her level of aggression (challenging behaviour). The focus of her SS was therefore on her being polite and respectful, and it began with her going to school, sitting in her chair during class, listening to the teacher when she talked and never interrupting her, not throwing things around the class, and how her classmates and teacher loved her for her behaviour. The entire SS narrative is found in Appendix 5.

#### ***Post-Intervention***

Following the intervention, the researcher conducted an interview with the teacher (lasting 25 minutes) and parent (10 minutes) to determine their observations concerning the changes in Student D's behaviour and social interaction skills. Their responses are shown below.

#### **Theme 1: Improved Engagement**

Concerning engagement, the teacher noted slight progress but still noted that Student D still demonstrated selective engagement.

**Teacher:** *Yes, much better but not with all students in the centre. She will interact only with students at her table but ignores others who are not during group activities.*

The teacher's observation still indicated selective interactions; however, it has to be noted that Student D's interaction was expanding in the classroom setting, which means that it was no longer limited to a fixed group of classmates but to a group that belongs to her table, whoever they may be.

## **Theme 2: Improved Behaviours**

Student D manifested improvement in her challenging behaviour, across all three main themes: hyperactivity, inattention, and bullying. For hyperactivity, the teacher commented,

**Teacher:** *She does not scream or shout so much now.*

The teacher's observation indicates that Student D managed to lessen her screaming and shouting, which in turn also means that she was less loud, demonstrating slight improvement in her hyperactivity after the intervention.

Additionally, both the teacher and the parent confirmed that the student, who was once hyperactive, could now sit still and had stopped jumping around.

**Parent:** *She doesn't jump from one chair to the other and can sit still for a while, unlike before.*

**Teacher:** *She does not stand and jump as frequently as before.*

For the theme of inattention, specifically ignoring others, Student D manifested progress as noted by the teacher and the parent:

**Parent:** *She changed for the better; she doesn't ignore as much when she is asked a question.*

**Teacher:** *She started to respond to my requests after a maximum of two times repeating the request.*

For the third theme, which is bullying, Student D had shown slight improvement as cited by the teacher.

**Teacher:** *I noticed she seldom takes toys from her classmates.*

From the aforementioned, it is evident that the student started listening and answering as well as minimising her propensity for screaming, shouting and taking the other students' toys.

### **Other Improvements**

The parent also noticed that Student D started recognising emotions.

**Parent:** *Yes, she tells me what she feels, i.e., if she is sad or happy. But not a lot.*

Overall, Student D had improved in social interaction skills and displayed less challenging behaviour after the intervention. In the beginning, Student D demonstrated signs of hyperactivity, inattention and aggression such as when she started shouting, throwing her things, or even forcibly taking other children's toys. She was able to improve her peer interaction skills, reduced incidences of shouting and throwing things and increasing her ability to respond to instructions, and these improvements demonstrate the effectiveness of SS intervention in addressing the challenging social and behavioural skills of autistic children. Additionally, these improvements illustrate that continuous personalised SS interventions should be included in regular curricula for sustainable results.

### 5.3.5 Student E

To further analyse the collected data, a thematic analysis was conducted, and the following themes and subthemes emerged from it, as illustrated in Table 12 below.

Aspect	Main Theme	Sub-Themes
<b>Challenging Behaviour</b>	<b>Bullying</b>	<b>Treats classmates roughly</b>
		He wants to be friends with his classmates but treats them roughly.
	<b>Hyperactivity/Aggressiveness</b>	<b>Hyperactive</b>
		Student E is hyperactive.
		He is hyperactive and wants to be friends with his classmates.
		He was reported by teachers as a hyperactive autistic male.
		<b>Interrupting</b>
He interrupts teachers and classmates.		
<b>Social Skills</b>	<b>Communication</b>	<b>Avoids initiating conversations</b>
		He does not like to initiate any conversation.
		He does not participate instantly in any conversation; he waits for a few minutes to reply.
	<b>Engagement</b>	<b>Does not follow instructions</b>
		He does not follow instructions.

Table 12. Key Themes - Student E

The results show that Student E experienced problems with both social skills and challenging behaviours. Regarding challenging behaviour, hyperactivity was the main concern, followed by bullying. Concerning inattention, the student was observed to be ignoring others, while for hyperactivity, the codes were aggressiveness and interruption of others. On the other hand, for social skills, it emerged that there were two challenges, i.e., communication and engagement. For

communication, there were delays as discussed earlier, while for engagement, the main concern that arose was that he did not follow instructions. These main and sub-themes are detailed below.

### **Theme 1: Communication**

Student E was identified as having issues concerning communication (first theme) before the intervention, and this was noted by both the parent and the teacher:

**Parent:** *Yes, we all do try to speak with him and give him a push to start conversations, but he prefers to be alone, not responding and most of the time just ignoring us.*

**Teacher:** *He does not participate instantly in any conversation; he waits for a few minutes to reply.*

The parent noted that the student avoided initiating conversations, while the teacher noted the student's delay in communicating.

### **Theme 2: Engagement**

The second theme is related to challenges in engagement. From the teacher's response, the key aspect that was noted was that the student did not follow instructions.

**Teacher:** *The student does not follow instructions.*

None of the related issues were extracted from the parent's response.

### **Theme 3: Hyperactivity**

The third theme was the student's hyper activeness, which was observed by the teacher:

**Teacher:** *He is hyperactive and wants to be friends with his classmates.*

#### **Theme 4: Bullying**

The fourth theme refers to Student E's demonstration of bullying behaviour. It was established that the student was interruptive and aggressive, with the teacher noting:

**Teacher:** *He treats other students roughly and interrupts them.*

However, not much was mentioned by the parent regarding this challenging behaviour.

Based on the discussions above, the target behaviour that was selected for the intervention for Student E focused on improving certain aspects of his social skills and challenging behaviour. In particular, the prepared SS intervention's target goals included the following: (1) initiate conversation and follow instructions for social skills, and (2) lessen aggressiveness for challenging behaviour. The focus of his SS was on him being friendly, and the story began with him going to school every morning, greeting his classmates, listening to his teacher, participating in class discussions by answering his teacher, and his classmates and teacher loving him. The SS narrative for Student E is shown in Appendix 5.

#### *Post-Intervention*

Following the intervention, the researcher conducted an interview with the parent (lasting 25 minutes) and teacher (30 minutes) to record their observations on the changes or improvement in Student E's social skills and challenging behaviour, which are detailed below.

#### **Theme 1: Improved Communication**

Both the parent and the teacher concurred that the student had slightly improved in communication:

**Parent:** *Yes, I can see the change; although it is minimal, there are improvements. He is starting to ask questions. He wants to know the answers. He still needs encouragement to speak, but he is better.*

**Teacher:** *Yes, sometimes, he is better now. He engages in the classroom as he tries to answer in class whenever I do ask him a direct question. However, he still doesn't initiate a conversation with his peers.*

The parent further noted improvement in listening when Student E was spoken to.

**Parent:** *He now listens better. He does fix his eyes onto mine and tries to make contact when spoken to.*

From the results above, it is evident that the student had started to answer questions. He had shown improvement in listening as well; however, there was still a need for further intervention to fully achieve the goal of enhancing his communication.

### **Theme 2: Improved Engagement**

In terms of engagement, the teacher noted improvement concerning following directions.

**Teacher:** *Yes, he is starting to follow directions.*

The results show that there was an improvement in engagement. However, findings indicate that there was still much room for improvement.

### **Theme 3: Improved Behaviours**

Lastly, both the parents noted slight improvements in challenging behaviours (bullying and hyperactivity/aggressiveness) and noted:

**Parent:** *He now respects his sister and does not throw her things everywhere in the house.*

**Teacher:** *Yes, he tries to be friendly with his peers; he tries not to treat them roughly.*



## Other Improvements

Both the parent and the teacher observed improvements in terms of Student E's recognition of emotions.

**Parent:** *Yes, he knows when his father or myself are mad. And if his sister is crying, he sits next to her and puts his head in her lap to soothe her.*

**Teacher:** *I have observed that he started to recognise emotions of sadness, happiness, or anger. The raised in the tone of my voice, he associated it with anger, so he usually follows my request.*

Overall, the SS intervention has been beneficial in changing the behaviour of student E and improving his social skills. Initially, Student D was very hyperactive, could not be attentive and used to bully other students: for example being overactive, treating classmates harshly, and not following instructions. His communication improved after the intervention through which he started asking questions, engaging in eye contact, and listening appropriately to directions while reducing aggression towards his fellow learners. These findings reveal that the SS intervention had been successful in dealing with individual ASD characteristics and driving positive behavioural change, and this improvement implies the need for continued personalised SS interventions as well as inclusion in the school curricula.

### 5.3.6 Student F

From the collected data, Student F seemed to experience no notable challenges when it came to communication in terms of engaging or initiating conversations, even though the parent stated that she engaged in minimal conversations with them; however, the prominent challenge appeared to be in her delay in responding to calls or questions. It should be noted that in the school setting, Student F seemed to be hyperactive with a great preference for shouting. One prominent characteristic observed was Student F's propensity for copying other students' actions. To further analyse the data collected, a thematic analysis was conducted, and the following themes and sub-themes emerged, as illustrated in Table 13 below.

<b>Challenging Behaviour</b>	<b>Hyperactivity/ Aggressiveness</b>	<b>Hyperactive</b>
		She is hyperactive.
		<b>Interrupting</b>
		She interrupts teachers and parents.
		<b>Running around</b>
		She runs around class.
		<b>Shouting</b>
She enjoys shouting.		
<b>Social Skills</b>	<b>Communication</b>	<b>Delays in communicating in conversations</b>
		She needs extra minutes to comprehend and answer back.
	<b>Engagement</b>	<b>Does not follow instructions</b>
		She does not follow instructions.

Table 13. Key Themes - Student F

Table 13 shows that the student had challenges in terms of both social skills and challenging behaviour. With respect to social skills, the first issue was communication, specifically, the delay of her responses, and concerning engagement, the student did not follow instructions. Student F's challenging behaviour referred to her hyperactivity, evident in her propensity for shouting, running around, and interrupting. These themes and sub-themes are further discussed below.

### **Theme 1: Communication**

Concerning communication, Student F demonstrated her capabilities in engaging in and initiating conversations, although it was limited at home, as noted by the parent.

**Parent:** *She engages in minimal social conversations with us.*

In a school setting, the teacher observed that Student F had issues in promptly replying to a conversation, indicating a delay in response.

**Teacher:** *She needs extra minutes to comprehend and answer back.*

## **Theme 2: Engagement**

Regarding Student F's engagement, the only issue raised was that the student did not follow instructions, which was noted by the teacher and the parent.

**Teacher:** *The student did not follow instructions.*

**Parent:** *She does not like to be told what to do.*

## **Theme 3: Hyperactivity**

The third theme, which was classified under challenging behaviour, that Student F was hyperactive was noted by both parent and teacher.

**Parent:** *She enjoys shouting and interrupting me.*

**Teacher:** *The student enjoys shouting, running around the class.*

Based on this thematic analysis combined with the data from the pre-intervention observations (frequency behaviour chart) and field notes, it can be established that Student F's main challenges include both social interaction skills and challenging behaviour. The identified target goals for Student F's intervention include lessening her hyperactivity (challenging behaviour) and learning how to follow the instructions (social skills).

Before the researcher proceeded with the creation of the SS intervention for Student F, she consulted first with Teacher F regarding the findings and the identified target goals for the intervention. The researcher emphasised Student F's hyperactivity and her refusal to follow instructions. Teacher F agreed with the findings as well as the target goals for intervention. Therefore, the SS centres on good behaviour, beginning the story with going to school, sitting on her chair in class, listening to her teacher, asking for the teacher's permission when he wants

something, and how he is loved by her classmates and teacher for her behaviour. The complete SS narrative is in Appendix 5.

### ***Post-Intervention***

After the intervention, the researcher conducted an interview with the teacher (lasting 25 minutes) and parent (20 minutes) of Student F to get their perspectives on Student F's progress. There were improvements observed in Student F's communication and engagement as well as improvement in challenging behaviour. They are discussed below.

#### **Theme 1: Improved Communication**

Concerning communication, it has to be noted that Student F's challenge was only in the delay of responding to conversations. Although both teacher and parent commented on the delay, they noticed that the response had become a little bit quicker than before.

**Parent:** *I can see that her response to the conversation has become a bit faster. Still, there were times it took a bit longer, but now mostly, she answers quickly.*

**Teacher:** *Yes, she does engage in conversations; she speaks with her friends and initiates conversations. One thing is clear that her answer when she communicates back takes time, although now it is a bit faster.*

Although the delay in response still persisted, it seems to indicate that the intervention effected some slight improvement in Student F's delay in answering the conversation.

#### **Theme 2: Improved Engagement**

The teacher and the parent noted progress in terms of Student F's listening to them and following their instructions.

**Parent:** *She started to listen to the family and accept different views or instructions. She also followed when I asked her to tidy her toys.*

**Teacher:** *She changes. She asks friends to play with her, and she is starting to accept me asking her to do things.*

The teacher further commented:

**Teacher:** *She started to listen to me and follow classroom rules.*

The above statements indicate improvement in engagement, specifically following instructions at home and in school.

### **Theme 3: Improved Behaviour**

Lastly, it was established that the challenging behaviour had also changed, and the teacher said:

**Teacher:** *Yes, she is starting to accept the fact she needs to wait to speak, i.e., until I call her name out. Although she sometimes shouts the answers without being called upon, she is better now.*

### **Other Improvements**

It is also worth noting that both parent and teacher observed improvements in eye contact and recognising emotions by Student F. Concerning eye contact, they noted that Student F started to make eye contact when she answered.

**Parent:** *She started to listen, follow directions, make eye contact when answering.*

**Teacher:** *A lot better, even her eye contact is better, and she looks at me when answering.*

Regarding recognising emotions, the parent's observations seemed to indicate that Student F has improved in this aspect.

**Parent:** *Yes, she acknowledges the emotions of all family members.*

Overall, Student F showed improvement in her social skills and less challenging behaviour following the SS intervention. Initially, Student F had a huge problem associated with over-activity, latency of response to conversations, as well as frequent shouting, running, and interrupting others. Her communication improved after the intervention with quicker responses in conversations and better engagement following instructions with reduced hyperactive behaviours. These indicate that SS intervention was effective in addressing specific ASD characteristics as

long as the Social Stories™ were tailored uniquely to the challenges and needs of each student. Hence, these improvements show that slow but continuous personalised SS interventions must be included in the regular curriculum for a wider impact.

#### 5.4 Overall Analysis of Themes

This section seeks to consolidate all the key findings across all the students. The first analysis is focused on the main and sub-themes identified for each of the participants, and a tabular summary (Table 14) is presented below to provide a clear visual of the themes identified.

Participant	Social Skills		Challenging Behaviour		
Student A	Communication	Engagement			
Student B	Communication	Engagement			
Student C	Communication	Engagement	Hyperactivity/Aggressiveness		
Student D		Engagement	Hyperactivity/Aggressiveness	Bullying	Inattention
Student E	Communication	Engagement	Hyperactivity/Aggressiveness	Bullying	
Student F	Communication	Engagement	Hyperactivity/Aggressiveness		

*Table 14. Summary of Main Theme*

Based on Table 14, it is evident that among the challenges faced by the students, social skills tended to be the most prominent one, followed by challenging behaviours. All of the six participants demonstrated low levels of social interaction skills, while only four of the participants were identified with high levels of challenging behaviour. For social skills, there were two main themes identified – communication and engagement. Of the two, issues with engagements were indicated to be the main challenges among all the participants, while communication issues only appeared to affect five of the six participants. Concerning challenging behaviour, four of the participants exhibited this type of behaviour, with hyperactivity/aggressiveness being the dominant themes for all of them; bullying and inattention were two of the minor themes identified. These main themes are further classified according to sub-themes, discussed below.

### 5.4.1 Social Skills

Regarding social skills, the main themes and sub-themes are illustrated in Table 15.

	<i>Student A</i>	<i>Student B</i>	<i>Student C</i>	<i>Student D</i>	<i>Student E</i>	<i>Student F</i>
<b>Main Themes</b>	<b>Sub-Themes</b>					
Communication	Avoids Answering	Avoids Answering				
	Avoids initiating conversations	Avoids initiating conversations			Avoids initiating conversations	
		Lack of Prompting	Lack of Prompting			
					Delay in communicating	Delay in Communicating
Engagement	Avoids interaction	Avoids interaction	Avoids interaction	Selective Interaction		
		Does not play with siblings				
		Enjoys being alone				
	Dislikes sharing	Dislikes sharing				
					Does not follow instructions	Does not follow instructions

Table 15. Summary of Main and Sub-Themes - Social Skills

To establish the most dominant themes, a summary of the main and sub-themes for social skills was created (Table 15), and the findings show that the most recurrent challenging social skill theme was engagement. The most dominant sub-theme was avoiding interaction, followed by dislikes sharing and not following instructions. Communication was also identified as challenging, with avoiding initiating conversations as the most dominant sub-theme followed by delay in communicating, avoiding answering, and lack of prompting. Overall, the results mentioned above confirm that, for social skills, the major challenges were avoiding interaction and avoiding initiating conversation.

### 5.4.2 Challenging Behaviours

For challenging behaviours, the main themes and sub-themes are illustrated in Table 16 below.

	<i>Student A</i>	<i>Student B</i>	<i>Student C</i>	<i>Student D</i>	<i>Student E</i>	<i>Student F</i>
<b>Main Themes</b>	<b>Sub-Themes</b>					
Hyperactivity/ Aggressiveness			Shouting  Throwing things	Loud Shouting  Throwing things	Hyperactive  Interrupting	Hyperactive  Interrupting  Running around  Shouting
Bullying				Taking other students' toys	Treats classmates roughly	
Inattention				Ignoring		

*Table 16. Summary of Main and Sub-Themes - Challenging Behaviours*

In the examination of challenging behaviours among students, Table 16 categorises them into three main themes: hyperactivity/aggressiveness, bullying, and inattention. Each theme encompasses distinct sub-themes, reflecting the varied manifestations of these behaviours.

The first theme, hyperactivity/aggressiveness, was observed in four different students, each exhibiting unique patterns. Student C demonstrated this through shouting and throwing things, a display of overt aggression, while Student D's behaviour was similar, with loud shouting and throwing things, indicating a higher intensity of aggression compared to Student C. Student E's hyperactivity was characterised by interrupting, which, while aggressive, was less physically disruptive. Student F exhibited a combination of interrupting, running around, and shouting, representing a more complex and multifaceted expression of hyperactivity and aggressiveness.

The second theme, bullying, was seen in two students. Student D showed bullying behaviour by taking other students' toys, an act of physical dominance over possessions. In contrast, Student



E's form of bullying involved rough treatment of classmates, indicating more direct physical aggression towards others.

The third theme, inattention, was singularly represented by Student D, who exhibited this through ignoring others or tasks. This behaviour differs markedly from the overt physical actions seen in the first two themes, as it involves a passive form of disengagement.

While there are overlaps in behaviours (notably in Student D, who exhibited characteristics across multiple themes), each student displayed a unique combination of behaviours. These differences highlight the varied causes and manifestations of challenging behaviours in a classroom setting. The similarities, particularly within the hyperactivity/aggressiveness and bullying themes, suggest common underlying factors, yet the distinct expressions of these behaviours point to individual differences in temperament, environmental influences, or other personal factors.

### 5.4.3 Post-Intervention - Improvements

Following the intervention, virtually all the participants registered improvements in both social skills and challenging behaviours. Table 17 below presents a summary listing of improvements observed in each of the participants based on the post-observation interviews of parents and teachers as well as the researcher's observations during the intervention.

<b>Particip ants</b>	<b>Post-Intervention Improvements</b>				
Student A	<p><i>Communication</i></p> <p>Answering when called and listening to instructions</p> <p>Initiating conversations</p>	<p><i>Engagement</i></p> <p>Telling parents and teacher how he felt</p>	<p><i>Other Improvement</i></p> <p>Started sharing his toys with peers</p>		
Student B	<p><i>Communication</i></p>	<p><i>Engagement</i></p>	<p><i>Other Improvement</i></p>		

	Slight improvement in answering as well as asking for help  Initiating conversations	Willing to share toys with chosen few  Following rules  Starting to join the family in the living room	Recognising emotions  Slight improvement in listening		
Student C	<b>Communication</b>  Initiating conversations  Answering	<b>Engagement</b>  Following instructions	<b>Hyperactivity/Aggressiveness</b>  Less aggressive  Stopped interrupting peers	<b>Other Improvement</b>  Recognising emotions	
Student D	<b>Other Improvement</b>  Recognising emotions	<b>Engagement</b>  Slight progress, but still engages in selective engagement	<b>Hyperactivity/Aggressiveness</b>  Lessened screaming/shouting and being loud  Stopped jumping around	<b>Bullying</b>  Lessened the taking of toys	<b>Inattention</b>  Ignores less now and responds to the request
Student E	<b>Communication</b>  Listens better and makes eye contact  Answering in class but no initiation of conversation	<b>Engagement</b>  Following instructions	<b>Hyperactivity/Aggressiveness</b>  Stopped throwing her sister's things around	<b>Bullying</b>  Stopped treating friends roughly	<b>Other Improvement</b>  Recognising emotions
Student F	<b>Communication</b>  There is a delay in answering, but it slightly improved.	<b>Engagement</b>  Started to listen to instructions and follow classroom rules	<b>Hyperactivity/Aggressiveness</b>  Sometimes shouts the answer but learned to wait for her turn to speak	<b>Other Improvements</b>  Eye contact and recognising emotions	

Table 17. Summary Listing of Improvements

In addition, the frequency behaviour chart details the improvement of each student based on the frequency of their manifested behaviour. Table 18 illustrates the comparison of the pre- and post-observations.

Themes	Student A		Student B		Student C		Student D		Student E		Student F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Avoid Answering	27	8	29	8								
Avoids Initiating Conversation	27	9	29	11					18	12		
Delays Communication											43	29
Avoids Interaction	27	10	28	9	28	23						
Dislike Sharing	18	12	23	12								
Selective Engagement							42	25				
Hyperactive: Throwing things/Shouting					54	21	59	29	79	27	59	29
Bullying							60	29	37	13		
Inattention							52	29				
Interrupting others									60	19	51	29
Not following instructions					27	20			40	13	42	25

Table 18. Frequency Behaviour Chart Comparison of Pre-and Post-Intervention Observations

Table 17 illustrates noticeable improvements in all participants after the four-week intervention. Student A showed progress in communication, initiating conversations, answering calls, listening to instructions, telling parents and teachers about his feelings, and sharing his toys. Moreover, Table 18 details a more notable decrease in the manifestation of the social skills issues, even though he did not completely stop manifesting those issues. Based on these, it could be inferred that the intervention had an impact on achieving the target goal (to initiate and interact in conversation) set.

Student B, with almost the same challenges and target goals as Student A, was observed to manifest improvements in initiating conversations, following rules, and joining the family in the living room, which basically indicates achieving the target goals illustrating the positive influence of SS intervention on Student B's case. Student B was also observed demonstrating slight improvement in answering and seeking help. Additionally, the frequency behaviour chart comparing the pre- to post-intervention observations indicates a very notable decrease in the exhibition of the social skills issues, implying that Student B was now demonstrating a significantly increased level of social interaction skills due to SS intervention.

Student C demonstrated slight progress through observed improvements in following instructions, initiating conversations, and being less aggressive (shouting and throwing things around), basically achieving all the target goals (to be polite and listen to instructions and lessen the level of aggression) set. The frequency behaviour chart indicated a slight progress in all identified sub-themes for social skills and challenging behaviour, as illustrated in Table 18. Even with Student C's slight improvement, it is evident that the SS intervention impacted his social interaction skills and challenging behaviour. Given the chance that the SS intervention could be extended or implemented for a longer period, the trend of improvements in four weeks indicates a positive result of progress in Student C's social interaction skills and challenging behaviour.

Student D was the only participant that did not demonstrate issues with communication; however, she was identified with challenges in engagement and three areas of challenging behaviour (hyperactivity/aggressiveness, bullying, and inattention). Her target goals for the intervention were learning to listen and communicate politely as well as lessening the level of aggression. From the observed improvements based on post-intervention interviews, it seemed to indicate that the intervention managed to lessen the challenges in social skills and challenging behaviour. This was corroborated by the frequency behaviour chart based on the frequencies of challenging behaviours and social skills exhibited, which were a decrease of 22 times for hyperactivity, 20 times for bullying, 26 times for inattention and 9 times for selective engagement. Nevertheless, the findings still indicate the slight impact of SS intervention on Student D's social interaction skills and challenging behaviour. In other words, it could be inferred from the lessening that the

intervention had some influence, and with a continued intervention, it could positively impact Student D more.

Student E demonstrated improvement in all the target areas based on the Frequency Behaviour Chart, which is similar to the parent/guardian and teacher's observations, except for initiation of conversation. The teacher noted that he did not show any initiation (no improvement), yet the researcher's Frequency Behaviour Chart noted a slight improvement with a decrease of avoiding initiating communication of 6 instances. However, the results of the Frequency Behaviour Chart for the other remaining themes corroborate with the observations of the parent and teacher, such as Student E's following instructions, where parent and teacher observations noted an improvement, which was the same as the Frequency Behaviour Chart, indicating a decrease in the manifestation of this challenging behaviour by 13 times. These data indicated that, to some extent, the SS intervention had an influence on most of Student E's social skills and challenging behaviour.

For Student F, the parent's and teacher's interviews revealed that there was a very slight improvement in her communication, a slight progress in hyperactivity, and an improvement in following instructions. These results were supported by the frequency behaviour chart, where the results indicated a minimal decrease of 14 times in the frequency of the delay in communication, a slightly greater reduction (31 times) in the manifestation of Student F's hyperactivity, and a decrease (25 times) in not following instructions. These results indicate that the SS intervention had an influence on Student F's challenging behaviour and social interaction skills.

In summary, the findings indicate that all participants were impacted by the SS intervention to some extent. Some, such as Students A, B, and C, illustrated progress in their challenging behaviour, suggesting the good positive influence of the SS intervention. The other students (D, E, and F) still manifested slight improvements since their issues were lessened to some extent. This is still indicative that the SS intervention influences their respective challenging behaviours and social skills, which suggests that when the SS intervention is extended for more than four weeks, a higher level of impact might be expected.

## 5.5 Chapter Summary

This chapter presented the results of the analysis of the qualitative data collected from school files, observations, field notes, and interviews conducted with the teachers and parents of the participants. From the findings, under social skills, the main theme of engagement appeared to be more dominant, with the dominant sub-theme of avoiding interaction. For challenging behaviour, on the other hand, it was hyperactivity/aggressiveness that emerged as the dominant theme with dominant sub-themes of shouting, interrupting, throwing things around, and being hyperactive. After the four-week SS intervention, findings indicated improvements in participants' social skills and reductions in challenging behaviour, with participants exhibiting progress in initiating conversations (Students A, B, and C), following and listening to instructions (Students B, C, E, and F), lessening hyperactivity/aggressiveness (Students C, D, E, and F), and stopped bullying and treating peers roughly as well as other improvements, such as recognising emotions (Students B, C, D, E, and F) and eye contact (Students E and F). Despite the notable improvements in these areas stated above, some challenges persisted beyond the intervention, such as Student A's failure to initiate a conversation or volunteer in general conversation (even after the four weeks of intervention), or Student D, who still preferred to ignore other classmates and still engaged in selective interaction.

However, overall, it can be argued that the intervention implemented was to a great extent effective since the overall improvements could be considered significant. It can be further argued that those challenges that persisted might be solved if further intervention is implemented, considering the trend of progress seen and observed during the four-week intervention.

## CHAPTER 6 - QUANTITATIVE RESULTS

### 6.1 Introduction

This study sought to quantitatively assess the impact of the Social Story™ (SS) intervention with the selected children with autism spectrum disorder (ASD) at the Ajyal Al Watan Centre in Riyadh, Saudi Arabia.

The methodology chapter outlined this study's three research questions (RQ). In order to answer these research questions using quantitative data, the research questions were converted into research objectives (RO). The conversion was critical because objectives can be measured quantitatively using statistical data, as this chapter aims to achieve. Notably, the number and order of the research questions in Chapter 3 align with the number and order of objectives in this one.

Therefore, this study aims to achieve the following research objectives:

**Research Objective 1:** To determine the impact of SS intervention on the social skills of children with ASD. RO1 was answered by examining the impact of the SS intervention on the social skills of each participant using quantitative analysis techniques. Quantitatively, the SSIS-RS questionnaire for the social skills of each participant was rated by both the teachers and the guardians of the participants. The SSIS-RS questionnaire for social skills comprised of seven constructs: (1) *communication*, referring to “taking turns and making eye contact during a conversation, using appropriate tone of voice and gestures and being polite”, (2) *cooperation*, denoting “helping others, sharing materials and, and complying with rules and directions”, (3) *assertion*, implying behaviours of initiation, (4) *responsibility*, indicating demonstration of respect for the property or work and exhibiting *communication* ability with adults, (5) *empathy*, referring to the concern and respect shown for others’ opinion and feelings, (6) *engagement*, denoting the capability of “joining activities in progress and inviting others to join, initiating conversations, making friends and interacting well with others”, and (7) *self-control*, referring to the appropriate responses given in conflict as well as in non-conflict situation. The teachers’ and parents’ ratings will provide insight into the teachers’ and guardians’ perspectives in terms of the participants’ social interaction skills, and their ratings in the pre-and post-intervention stages will determine the progress of each participant (Elliot and Gresham, 2018).

**Research Objective 2:** To determine the impact of SS intervention on the challenging behaviour ratings, particularly externalising, bullying, hyperactivity/inattention, and internalising of children with ASD. RO2 was answered by examining the impact of the SS intervention on the challenging behaviour of each participant, based on the SSIS-RS questionnaire soliciting insights into the participants' behaviour of externalising, bullying, hyperactivity/inattention, and internalising. Notably, the SSIS-RS questionnaire labelled this section as "*problem behaviours*", and the researcher used the term "*challenging behaviour*" instead of "*problem behaviour*" in order not to attribute negative connotations to the behaviours of participants of this study. In other words, the word "*challenging behaviour*" is synonymous with the term "*problem behaviour*" used in the SSIS-RS questionnaire. Furthermore, according to the problem behaviour scale, four constructs were taken into consideration: (1) *externalising*, referring to the aggressive attitude manifested verbally or physically and having issues controlling temper, (2) *bullying*, indicating the challenging behaviour of coercing others to do a particular action, having the tendency to physically or emotionally hurt others, and preventing others from joining certain activities, (3) *hyperactivity/inattention*, referring to the constant moving around and exhibiting impulsive behaviour, usually manifested by getting easily distracted, and (4) *internalising*, denoting the feeling of anxiety, sadness or even loneliness, and showing low self-esteem. The parents and guardians rated the participants using questions under each of these constructs, and the rating of the pre- and post-intervention stages will determine the extent of the improvement of the SS intervention on the challenging behaviour of the children.

**Research Objective 3:** To assess the impact of the SS intervention on individual ASD characteristics of the participants before and after the intervention. RO3 was answered by assessing and analysing the descriptive statistics of all six participants, demonstrating the impact of SS intervention on the participants' individual characteristics associated with ASD. Through this approach, it will be clear if SS intervention managed to assist the participants concerning their individual social interaction skills and challenging behavioural characteristics.



## 6.2 Quantitative Analysis Procedure

Quantitative analysis of the key research variables, such as social skills and challenging behaviours played a vital role in gaining statistical knowledge about the participants of this study. The quantitative results allowed the researcher to see the pre and post behaviour and social skills of each participant, collectively and separately. The choice of mixed methods (quantitative and qualitative) and a sample size of six participants draws inspiration from similar previous studies. For instance, Sani-Bozkurt et al. (2017) use eight students with ASD in their mixed-method study, Rota (2011) includes two students with disabilities, Gikas (2013) has three targeted students, and Balakrishnan and Alias (2017) work with four students with ASD. The design of this study, influenced by these prior works, provides a valuable opportunity for conducting in-depth exploratory research within a new context and setting.

Quantitative analysis was implemented in two steps. First is the adoption of the SSIS-RS questionnaire by Gresham and Elliot in 1990, while the second uses IBM SPSS v27 to validate the results of the SSIS-RS and analyse them. The SSIS-RS questionnaire, which is based on the SSRS scale established by Elliot and Gresham in 1990 and enhanced further in 2008, was purchased from Pearson's official website along with its accompanying manual/guidebook. The questionnaire comprises three sections, with the first being the social skills scale (SSC), which measures communication, cooperation, empathy, assertion, self-control, engagement, and responsibility. The second was the problem behaviours scale (PBS), which measures challenging behaviours that interfere with the development of positive social skills: externalising problems, internalising problems, bullying, and hyperactivity. As mentioned earlier, the term "problem behaviour" was used to mean exactly the same as "challenging behaviour" in this study. In other words, the words problem behaviour scale (or PBS) were used when referring to the scale in the SSIS-RS questionnaire; however, the term challenging behaviour was utilised when referring to the behaviour challenge per se of the participants in this study. Lastly, the third section was the autism spectrum disorder scale, which measures the impact of SS intervention on the individual ASD characteristics of the children.

The SSIS-RS questionnaires were given to the teachers and parents of the participants to fill out, and their responses were recorded in a table under each participant's result. The table includes the

total number of scores of each participant based on the questionnaire, and the total number score for each sub-section was converted to a percentile as recommended by the developers of the questionnaire (Elliot and Gresham, 2018).

The IBM SPSS v27 was then used in two ways. First, it was used to validate the questionnaire because it was a new questionnaire within the context of Saudi Arabia, and the reliability of the questionnaire and its validity were important. The reliability analysis was done by calculating Cronbach's Alpha, which required the recommended minimum of 0.70 (Dimitrov, 2014; Field, 2014; Belhekar, 2019; Dugard et al., 2019). Furthermore, the reliability of the questionnaire was double-checked by the convergent and discriminant reliability tests (See Table 19 below), which were done to validate the constructs (sub-sections) of each section. Despite only six participants being tested, all sections were found to be reliable.

Second, the IBM SPSS v27 was used to extract the descriptive statistics of each participant and the aggregate of all participants. The descriptive statistics made it easier to compare the changes pre- and post-intervention for the participants, though it was limited to six. Due to the small number of participants, generalising hypotheses would not be feasible as that would require a bigger sample and more than one context to be tested (Field, 2018). Nevertheless, this serves as a valuable foundation and promises potential relevance for subsequent studies in this domain within this context. Each participant's result was added to a table to make comparison easier, including the gender of each participant, to find a pattern that might allow future researchers to explore the findings further, and these descriptive statistics allow the researcher to build and discuss the individual findings of each participating child in this study. Specifically, a statistical test comparing pre- and post-intervention was performed using the Wilcoxon test for paired samples.

The following section discusses in detail the quantitative data, starting with the discussion on demographics, followed by the findings for the reliability and validity tests conducted, the findings, and then analysis based on the SPSS results. It is presented based on the specific research objectives of this study.

### 6.3 Demographic Statistics

According to Sweet and Grace-Martin (2016), it is important to consider the demographic profiles of the participants as these provide further insight into the context of the results. For this research, only one demographic variable was considered: gender. There was an equal distribution with both groups, boys and girls, constituting 50 percent. Howitt and Cramer (2017) argue that for case-control studies, it is imperative the groups being compared should be equal sizes, which was achieved in terms of gender.

### 6.4 Reliability Analysis and Construct Validity

The study assessed the six participants using three scales: the SSIS-RS social skills scale, the problem behaviour scale, and autism spectrum disorder scale. Each of the participants had a teacher and a parent who answered the three scales of the SSIS-RS questionnaire. Hence, the total number of questionnaires for each participant was two, which made twelve in total for all the participants. This study then conducted a reliability test of all the twelve collected questionnaires. Gravetter and Forzano (2018) emphasise that the optimal approach is to confirm the internal consistency of the constructs (Dimitrov, 2014); therefore, this study conducted the reliability of all 12 questionnaires by getting the Cronbach's Alphas, which was calculated in SPSS. The results are presented in Table 19 below.

Dimensions	Alpha	Sub-dimensions
Social Skills	.912	7
Challenging Behaviour	.762	4
Autism Spectrum Disorder (ASD)	.845	2

*Table 19. Reliability Analysis*

Several scholars, including Hair et al. (2010) and Byrne (2013), consider the minimum acceptable reliability of Alpha Cronbach to be 0.70. In the results above, the minimum composite reliability was 0.762 for the problem behaviour scale, followed by autism spectrum disorder (ASD) with an alpha of 0.845, and the highest being the social skills scale with 0.912. With all the constructs' alpha coefficients being greater than 0.70, it follows, therefore, that all the constructs considered in this study were internally consistent and reliable. Moreover, according to

Chin et al. (2008), Hair et al. (2010), and Schmitt (2011), construct validity is validated by testing both convergent validity as well as discriminant validity (Hair et al., 2010; Dimitrov, 2014).

Bearing in mind Chin et al.'s (2008), Hair et al.'s (2010), and Schmitt's (2011) statements, this study conducted both the convergent and discriminant validity tests of the constructs in order to emphasise the reliability of the SSIS-RS questionnaire in testing in the Arab context, which is the context of this study. The results of the two tests are presented in Table 20 below.

	CR	AVE	HTMT		
			SSIS	PBS	ASD
Social Skills Scale (SSIS)	.925	.721	.618**		
Problem Behaviours Scale (PBS)	.781	.769	.724**	.648**	
Autism Spectrum Disorder (ASD)	.809	.642	.730**	.224**	.319**

Table 20. Convergent and Discriminant Validity

Key: \* $p < 0.05$ , \*\* $p < 0.01$

HTMT: Heterotrait-Monotrait validity ratio; CR: composite reliability; AVE: average variance extracted; SSIS: social skills; PBS: problem behaviours scale; ASD: autism spectrum disorder.

In order to better establish the reliability of the SSIS-RS questionnaires in the context of the study, which is in Saudi Arabia, this study considered further testing through convergent validity and discriminant validity. For the convergent validity, this study supports Kline's (2016) study of the importance of computing the average variance extracted (AVE). Moreover, Hair et al. (2010) contend that the minimum AVE for the convergent validity ought to be 0.50, while Mertler and Reinhart (2017) prescribe 0.60 as the minimum. Table 20 above shows that the minimum AVE computed was 0.642 for ASD, and since this construct and the rest of the other constructs – social skills scale (.721) and problem behaviour scale (.769) – were all greater than the minimum threshold prescribed by both Hair et al. (2010) and Mertler and Reinhart (2017), it followed that the convergent validity was not violated.

In testing the discriminant validity, the heterotrait-monotrait (HTMT) ratio was computed, and according to Henseler et al. (2015) and Finch and Bolin (2017), the maximum HTMT threshold is 0.85. From the outcome, the maximum HTMT was 0.730 between social skills (SSIS) and ASD, followed by 0.724 between the social skills scale (SSIS) and problem behaviours scale

(PBS). Thus, none of the HTMT statistics was greater than the acceptable limit of 0.85. In this regard, the discriminant validity of the questions used to define the research constructs was, therefore, not violated.

### 6.5 OBJECTIVE 1: Impact of SS Intervention on Social Skills

The first research objective sought to evaluate the impact of the SS intervention on the social skills ratings of the participating ASD students, and this construct was measured based on the seven sub-constructs, which were communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. The seven were assessed using the standard scores, a type of derived scores that indicate the position of the participant's raw score in relation to the raw score distribution of the entire group. It has to be noted that concerning the social skills scale, the assessment is focused on positive behaviours, which means that higher scores are desirable as well as indicating improvement or progress. To quantify this, the manual prescribes that a standard score of greater than 100 means that the participant demonstrates more social skills compared to the average participants in the study. However, a standard score of below 85 is considered below average, suggesting the potential need for social skill training or intervention. Additionally, using the standard scores, behavioural levels can be categorised into three levels – above average, average, and below average. Behavioural level is a kind of derived score indicating the position of the participant's raw score for each sub-scale (e.g., communication, engagement, empathy, etc.) in relation to the rest of the participants in the study. First, the below average behavioural level is given to a participant whose standard score for the sub-scale is less than 85 (below 1 SD below the mean), which means that the participant showed fewer social skills compared to the rest. Second, the average level is assigned to a participant whose standard score falls within the range of 85 and 115 (within 1 SD of the mean), indicating that the participant exhibited the same number of social skills as the average participant in the group. Last, the above average level is given to a participant whose standard score is greater than 115 (more than 1SD above the mean), exhibiting more than the number of social skills exhibited by the participants in the group as reflected in the Table 21 below.

Specifically, Table 22 indicates each participant's social skills rating across seven constructs from both the parent and the teacher, reflecting the pre-and post-intervention ratings, with the

percentile reflecting the changes that happened from pre- to post-intervention. The changes indicate the improvement or lack thereof of the seven constructs indicated above, which can be used in analysing the impact of SS intervention on each of the participants. The following provides a narrative account of the highest and lowest standard score changes from both the parents' and teachers' ratings for each of the participants, referenced to their respective standard scores.

SSIS-RS scale score range	Three point average interpretation
< 85	Below average below 1 SD below the mean
85 to 115	Average within 1 SD of the mean
> 115	Above average more than 1SD above the mean

*Table 21. Three-point average interpretation of SSIS-RS scale scores*

For Student A, the teacher's ratings indicated the highest change from pre- to post-intervention in empathy, with an increase of 44.44 percent, while the parent's ratings showed the highest change in cooperation. Both teachers and parents identified self-control as having the lowest changes, with percentile increases of 9.53 percent and 14.28 percent, respectively. Both teachers and parents agreed on average performance in most areas before the intervention period. However, teachers noted improvement in communication and self-control post-intervention. Meanwhile, parents reported below-average performance in communication, cooperation, assertion, and responsibility before the intervention period. Interestingly, a category improvement from below average to average in cooperation, assertion, and responsibility compared to a drop from above average to average in bullying and hyperactivity, while other areas had no change (Parents). Teachers reported a category improvement from average to above average in communication, cooperation, assertion, responsibility, empathy, and hyperactivity, but a drop from above average to average in externalising and bullying.

The ratings were based on a percentile scale ranging from 0 to 100 percent, and the results for each participant are summarised below.

Student		Communication (%)		Cooperation (%)		Assertion (%)		Responsibility (%)		Empathy (%)		Engagement (%)		Self-control (%)	
		TCH	PAR	TCH	PAR	TCH	PAR	TCH	PAR	TCH	PAR	TCH	PAR	TCH	PAR
A	PRE	19.05	14.29	22.22	0.00	38.10	4.76	11.11	0.00	5.56	5.56	23.81	4.76	28.57	14.29
	POST	47.62	33.33	50.00	27.78	52.38	23.81	38.89	16.67	50.00	27.78	42.86	28.57	38.10	28.57
	Change	28.57	19.04	27.78	27.78	14.28	19.05	27.78	16.67	44.44	22.22	19.05	23.81	9.53	14.28
B	PRE	9.52	9.52	16.67	5.56	9.52	14.29	5.56	0.00	0.00	5.56	4.76	0.00	19.05	14.29
	POST	33.33	33.33	33.33	33.33	28.57	38.10	27.78	33.33	33.33	33.33	33.33	33.33	33.33	33.33
	Change	23.81	23.81	16.66	27.77	19.05	23.81	22.22	33.33	33.33	27.77	28.57	33.33	14.28	19.04
C	PRE	14.29	4.76	33.33	11.11	42.86	33.33	27.78	11.11	11.11	5.56	28.57	16.67	19.05	8.33
	POST	33.33	19.05	38.89	33.33	52.38	41.67	38.89	22.22	44.44	22.22	38.10	28.57	38.10	9.52
	Change	19.04	14.29	5.56	22.22	9.52	8.34	11.11	11.11	33.33	16.66	9.53	11.9	19.05	1.19
D	PRE	23.81	14.29	33.33	0.00	14.29	4.76	0.00	0.00	0.00	5.56	0.00	4.76	38.10	14.29
	POST	28.57	33.33	38.89	27.78	33.33	23.81	27.78	16.67	33.33	27.78	38.10	28.57	52.38	28.57
	Change	4.76	19.04	5.56	27.78	19.04	19.05	27.78	16.67	33.33	22.22	38.10	23.81	14.28	14.28
E	PRE	9.52	33.33	22.22	11.11	38.10	19.05	5.56	11.11	27.78	16.67	9.52	14.29	23.81	14.29
	POST	33.33	38.10	33.33	33.33	52.38	33.33	27.78	27.78	44.44	44.44	38.10	38.10	38.10	33.33
	Change	23.81	4.77	11.11	22.22	14.28	14.28	22.22	16.67	16.66	27.77	28.58	23.81	14.29	19.04
F	PRE	23.81	33.33	33.33	27.78	19.05	23.81	5.56	11.11	11.11	22.22	19.05	14.29	38.10	23.81
	POST	28.57	42.86	61.11	50.00	61.90	38.10	38.89	44.44	66.67	66.67	57.14	28.57	42.86	52.38
	Change	4.76	9.53	27.78	22.22	42.85	14.29	33.33	33.33	55.56	44.45	38.09	14.28	4.76	28.57
ALL	PRE	16.67	19.05	26.85	9.26	26.99	18.06	9.26	5.56	9.26	10.19	14.29	9.13	30.16	14.88
	POST	34.13	32.54	42.59	34.26	46.82	31.75	33.34	26.85	45.37	37.04	41.27	30.95	38.10	30.95
	Change	17.46	13.49	15.74	25.00	19.83	13.69	24.08	21.29	36.11	26.85	26.98	21.82	7.94	16.07

Table 22. Social Skills Ratings by Sub-Construct

For Student B, the teacher rated empathy as having the highest change, with a 33.33-percent improvement, while the parent indicated responsibility as having the highest change, also at 33.33 percent. Both the teacher and the parent rated self-control with the lowest change, at 14.05 and 19.04 percent, respectively. Before the intervention period, both teachers and parents reported that Student B exhibited below-average performance in communication, cooperation, assertion, and responsibility. However, post-intervention observations indicated that Student B showed improvement in all areas except cooperation. Parents reported category improvement from below average to average in communication, cooperation, responsibility, and engagement, but a category drop from average to below average in hyperactivity and a drop from above average to below average in internalising. Teachers reported category improvement from below average to average in communication, assertion, empathy, but a drop from above average to average in bullying.

For Student C, empathy was rated as the greatest change by the teacher at 33.33 percent, while the parent noted cooperation as having the greatest change at 22.22 percent, while the lowest change was in cooperation at 5.56 percent, according to the teacher, and self-control at 1.81 percent, according to the parent. Teachers observed improvement in empathy and engagement post-intervention, although parents reported below-average performance in some areas before the period, with empathy remaining a concern post-intervention. Parents reported an improvement from below average to average in communication and a drop from average to below average in externalising, while other areas had no change. Teachers ratings showed an improvement from average to above average in cooperation, assertion, responsibility and engagement, while other areas showed no change.

For Student D, engagement received the highest rating for change by the teacher at 38.10 percent, and cooperation was rated highest by the parent at 27.78 percent, while the lowest change was in communication at 4.76 percent, according to the teacher, and in self-control at 14.28 percent, according to the parent. Both teachers and parents observed improvement in self-control, and teachers noted improvement in assertion and engagement post-intervention. However, teachers reported below-average empathy before the period. Parents' ratings showed an improvement from below average to average in cooperation, assertion, and responsibility, while there was a drop from above average to average in bullying and



hyperactivity. Teachers' ratings showed an improvement from average to above average in cooperation, an improvement from below average to average in responsibility and empathy, an improvement from below average to above average in engagement, but a drop from above average to average in externalising, bullying, and hyperactivity.

For Student E, the teacher's highest change rating was in engagement at 38.10 percent, while the parent's highest rating was for empathy at 27.77 percent. The lowest rating by the teacher was in cooperation at 11.11 percent, and for the parent, it was in communication at 4.77 percent. Parents reported Student E as above average in communication before the period, and teachers noted improvement in empathy and engagement post-intervention. Initially, teachers reported below-average performance in most areas, with parents expressing concerns about engagement post-intervention. Parents scoring reported an improvement from average to above average in engagement, yet a drop from above average to average in communication. Teachers scoring reported an improvement from below average to average in communication and an improvement from average to above average in assertion and engagement.

For Student F, the teacher rated empathy with the highest change at 55.56 percent, and the parent also rated empathy with the highest change, scoring 44.45 percent. The lowest change was recorded in communication, with the teacher rating it at 4.76 percent and the parent at 9.53 percent. Both teachers and parents reported significant improvement across the board post-intervention, with parents notably observing improvement in assertion and responsibility. Parents reported a category improvement from average to above average in communication, cooperation, responsibility, and empathy but a category drop from average to below average in hyperactivity and internalising. Teachers reported a category improvement from average to above average in cooperation, assertion, responsibility, empathy and engagement but a category drop in bullying and internalising.

In general, there appears to be a positive trend in teacher-reported performance across most students after the intervention period. However, parent perceptions often differed from teacher reports, underscoring the need for improved communication between parents and teachers. Notably, several students showed improvement in self-control, which may indicate a focus on classroom management or student well-being initiatives.

Overall, the results show that across all the students, the ratings of self-control were higher for the teachers' ratings than for the parents' ratings in both the pre-intervention and post-intervention, implying that the students tended to exhibit a higher degree of self-control when dealing with the teachers than with the parents. The aggregate mean rating for the students' self-control pre-intervention was 30.16 percent from teachers and 14.88 percent from parents, and after the intervention, the aggregate mean rating was 38.10 percent by teachers and 30.95 percent by parents. Overall, the post-intervention self-control ratings were higher than the pre-intervention ratings for both teachers and parents, and the teachers' ratings for the overall self-control ratings were higher than the parents' ratings for both the pre- and post-intervention ratings.

The corresponding aggregate ratings of social skills for each student are summarised and presented in Table 23 below.

	Teacher			Parent		
	PRE	POST	% Change	PRE	POST	% Change
Student A	18.51	38.96	110.49	4.22	21.93	420.23
Student B	7.95	27.15	241.44	5.68	29.30	415.60
Student C	23.26	35.88	54.22	13.50	21.34	58.11
Student D	14.32	29.97	109.31	4.22	21.93	420.23
Student E	18.15	33.49	84.50	12.41	30.09	142.44
Student F	18.06	46.98	160.11	17.62	40.08	127.47

*Table 23. Overall Social Skills of Students*

The results above show that among the pre-intervention ratings by the teachers, Student B had the lowest rating (7.95 percent) while Student C got the highest rating (23.26 percent), then after the intervention, Student B got the lowest rating (27.15 percent), while Student A has the highest rating (38.96 percent). These results are related to the standard score changes, which measured the degree of change in the ratings, with the doubling of the PRE ratings being a 100-percent increment, tripling being a 200-percent increment, etc. All the standard score changes were positive, which showed a strong relationship, showing the positive improvement in the social skill ratings of the participants, with the highest improvement being seen for Student B (241.44 percent). The result meant that there was more than a trebling of the original rating from 7.95 percent to 27.15 percent. The second-highest improvement was

for Student F (160.11 percent), the third-highest improvement was for Student A (110.49 percent), followed by Student D (109.31 percent), then Student E (84.50 percent), and the least improvement seen was for Student C (54.22 percent). With regard to average category change, the category improvement from average to above average was for Students A, C, and F as per the teachers' ratings. Parents' ratings showed category improvement from below average to average for Students A, B, and D and improvement from average to above average for Student F.

Regarding the parent ratings, before the interventions, Students A and D got the lowest rating with 4.22 percent, followed by Student B with 5.68 percent. However, the highest pre-intervention parent rating was for Student F with 17.62 percent, followed by Student C with 13.50 percent. Looking at parents' post-intervention ratings, Student F was highest with 40.08 percent, followed by Student E with 30.09 percent, while the least rating was for Student C with 21.34 percent. With respect to the standard score change, again, there was a positive improvement in the ratings from the parents, with the highest improvement being for Student A and Student D with 420.23 percent, and the least high improvement was for Student C with 58.11 percent.

The overall mean ratings among all the students for each of the seven social skill sub-constructs were also computed, and the results are presented in Table 24 below.

	Teacher			Parent		
	PRE	POST	% Change	PRE	POST	% Change
Communication	16.67	34.13	104.76	19.05	32.54	70.83
Cooperation	26.85	42.59	58.62	9.26	34.26	270.00
Assertion	26.98	46.83	73.53	18.06	31.75	75.82
Responsibility	9.26	33.33	260.00	5.56	26.85	383.33
Empathy	9.26	45.37	390.00	10.19	37.04	263.64
Engagement	14.29	41.27	188.89	9.13	30.95	239.13
Self-control	30.16	38.10	26.32	14.88	30.95	108.00
Social Skills	16.71	35.40	111.88	9.61	27.45	185.67

Table 24. Overall Mean Social Skills Ratings for All Students

The findings, presented in Table 24, revealed improvements in both teacher and parent ratings following the intervention. Notably, parents reported an increase in their children's empathy, while teachers observed greater responsibility in their students. The results show that among the teacher ratings before the intervention, the highest mean rating for pre-intervention was self-control (30.16 percent) and cooperation (26.855 percent), and the third was communication (16.67 percent).

On the other hand, post-intervention, of all the sub-constructs, none of the ratings reached 50 percent or greater, and this might suggest that there tended to be improvement but at marginal levels among the participants; in other words, the teachers did not see as much positive change as the parents. The highest overall rating was for assertion (46.83 percent), followed by empathy (45.37 percent), and then cooperation (42.59 percent). The greatest improvement was seen for empathy, whose standard score improvement was 390.00 percent, followed by responsibility (260.00 percent), while the least improvement was in self-control (26.32 percent), followed by cooperation (58.62 percent).

Among parent ratings, before the intervention, the highest mean rating was for communication (19.05 percent), followed by assertion (18.06 percent), and the third was for self-control (14.88 percent). Regarding the post-intervention, the mean rating that was the lowest was for responsibility (26.85 percent), while the highest mean rating was for empathy (37.04 percent), followed by cooperation (34.26 percent), then communication (32.54 percent). Overall, the biggest improvement following the intervention was seen for responsibility (383.33 percent), followed by cooperation (270.00 percent), empathy (263.64 percent), and then engagement (239.13 percent).

Additionally, the trends were examined as highlighted in the student profiles. It is evident that some students exhibited notable improvements; however, some demonstrated different degrees of improvement based on their unique social backgrounds, as detailed in Appendix 8. For example, one student's performance was influenced by the involvement of his father rather than his mother, which aligns with the broader findings that familial dynamics play a significant role in educational outcomes. These distinctions are vital, as they highlight the diversity of social influences that contribute to academic performance. Moreover, as indicated in Appendix 9, certain NVivo themes were constrained by the thesis's timeframe and the

specific subskills summarised within the SSIRS framework. These limitations have been duly noted in the discussion chapter, where we also propose areas for future research that could expand on these initial findings. We believe this reflection, both in the current chapter and in the discussion, appropriately addresses the concerns raised and provides a comprehensive understanding of the factors at play.

Based on Figure 8, the overall mean for the social skills ratings for all students reflects that teachers' ratings indicated an improvement from an average of 16.71 percent before the intervention to 35.40 percent after the intervention, which provides the overall mean result rating of 111.88 percent, indicating the standard scores increase between the pre-and post-intervention improvement. Among the parents, the ratings improved from an average of 9.61 percent to 27.45 percent, indicating an overall mean result rating of 185.67 percent, reflecting the standard scores increase between pre- and post-intervention improvement.

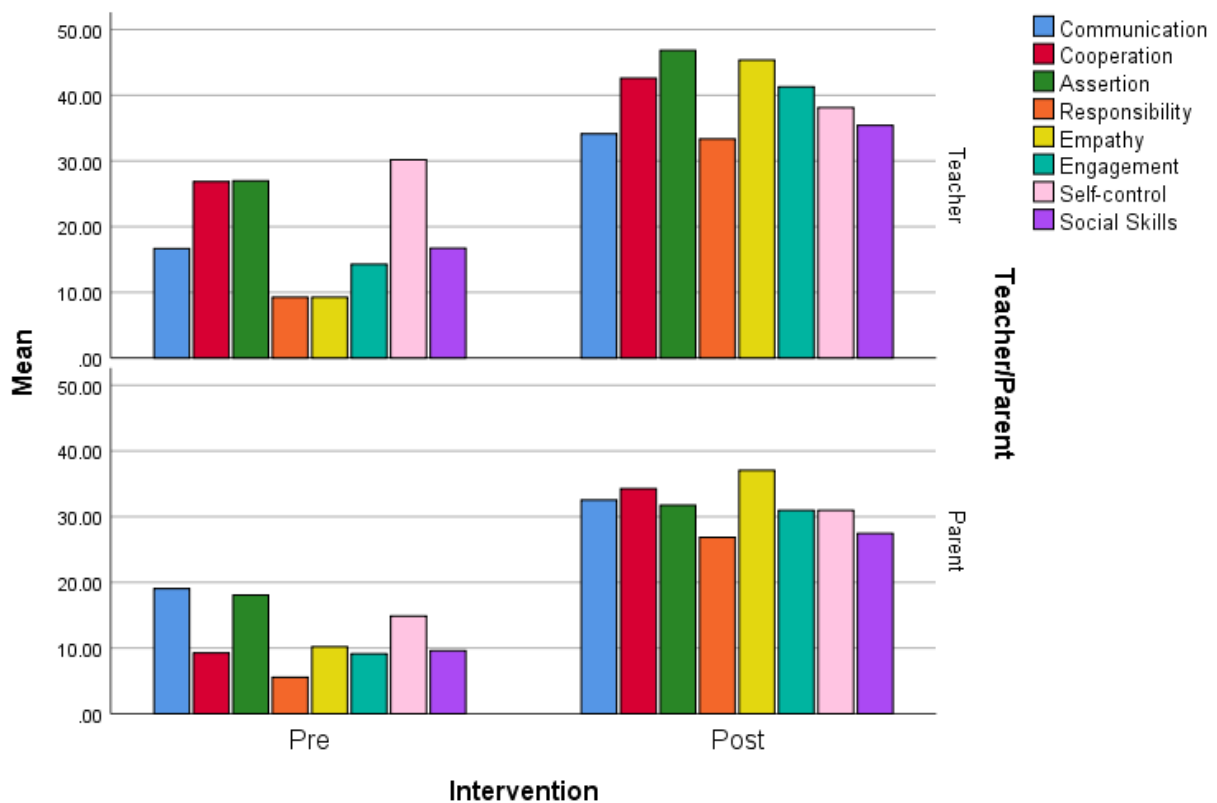


Figure 8. Mean Rating of Social Skills of Parents and Teachers

After reviewing the descriptive statistics, the study aimed to determine whether there was a statistically significant improvement in students' social skills following the intervention. The Wilcoxon test was chosen as the optimal method (Roy, Acharya, and Roy, 2016) to assess

whether there were significant changes in seven social skills constructs – communication, cooperation, assertion, responsibility, empathy, engagement, and self-control – as well as overall social skills. Wilcoxon paired samples tested the null hypothesis that there is no statistically significant difference between the post-ratings compared to the pre-ratings for the same participant. The results of these hypothesis tests are presented in Table 25 below.

Teacher/Parent	Teacher		Parent	
	Z	p-value	Z	p-value
Communication	2.918	0.004	1.664	0.096
Cooperation	2.500	0.012	2.771	0.006
Assertion	1.939	0.053	1.783	0.075
Responsibility	2.729	0.006	2.929	0.003
Empathy	2.903	0.004	2.863	0.004
Engagement	2.903	0.004	2.945	0.003
Self-control	1.497	0.134	2.127	0.033
Social Skills	2.882	0.004	2.892	0.004

*Table 25. Wilcoxon W Test – Social Skills*

Regarding communication by the students, the change was significant for the teacher ratings ( $Z = 2.918$ ,  $p = 0.004$ ) but not for the parent ratings ( $Z = 1.664$ ,  $p = 0.096$ ) with the positive Z-statistic indicating an improvement in communication post-intervention. For cooperation, the teacher ratings showed a significant improvement ( $Z = 2.500$ ,  $p = 0.012$ ), and the parent ratings also indicated a positive change, demonstrating an improvement in student cooperation after the intervention. In terms of assertion, the teacher ratings ( $Z = 1.936$ ,  $p = 0.053$ ) and the parent ratings ( $Z = 1.783$ ,  $p = 0.075$ ) did not show significant changes. Responsibility showed significant improvement in the teacher ratings ( $Z = 2.729$ ,  $p = 0.006$ ), and the parent ratings also reflected an improvement in student responsibility after the intervention. Empathy saw significant changes in both teacher ratings ( $Z = 2.903$ ,  $p = 0.004$ ) and parent ratings ( $Z = 2.863$ ,  $p = 0.004$ ), with positive Z-statistics indicating an improvement in student empathy post-intervention. Engagement had significant changes in both teacher ratings ( $Z = 2.903$ ,  $p = 0.004$ ) and parent ratings ( $Z = 2.945$ ,  $p = 0.003$ ), with positive Z-statistics showing an improvement in student engagement after the intervention. For self-control, there was no significant change in the teacher ratings ( $Z = 1.497$ ,  $p = 0.134$ ), but there was a significant change in the parent ratings ( $Z = 2.127$ ,  $p = 0.003$ ). The positive Z-statistic

for parent ratings indicates an improvement in student self-control post-intervention from the parents' perspective.

Overall, the differences in social skills before and after the intervention were statistically significant for both teacher ratings ( $Z = 2.882$ ,  $p = 0.004$ ) and parent ratings ( $Z = 2.892$ ,  $p = 0.003$ ), while the positive Z-statistics indicate an overall improvement in the social skills of the students.

The chapter includes an analysis comparing gender and age that was done using the descriptive analysis of the students' profiles shown in Appendix 8. The breakdown by gender and age was an additional reported result that was worth reporting for future studies but is not part of the main objectives. The comparison was between the gender groups and between the age groups, and because of the small sample size of only two children in each age group, we utilised descriptive analysis (Sheskin, 2011). Pre-intervention data for males and females were roughly similar, and both groups showed improvement post-intervention, suggesting that the intervention was equally beneficial for both genders, as illustrated in Figure 9.

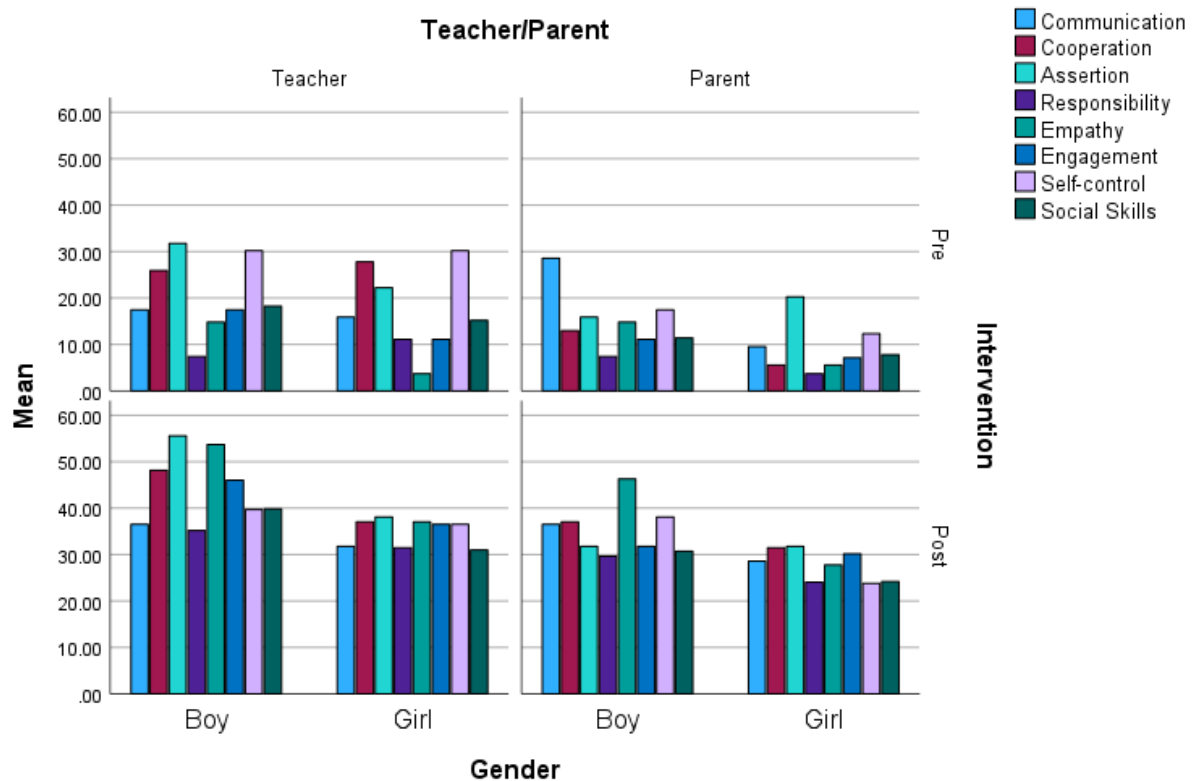


Figure 9. Effectiveness of Intervention Based on Gender

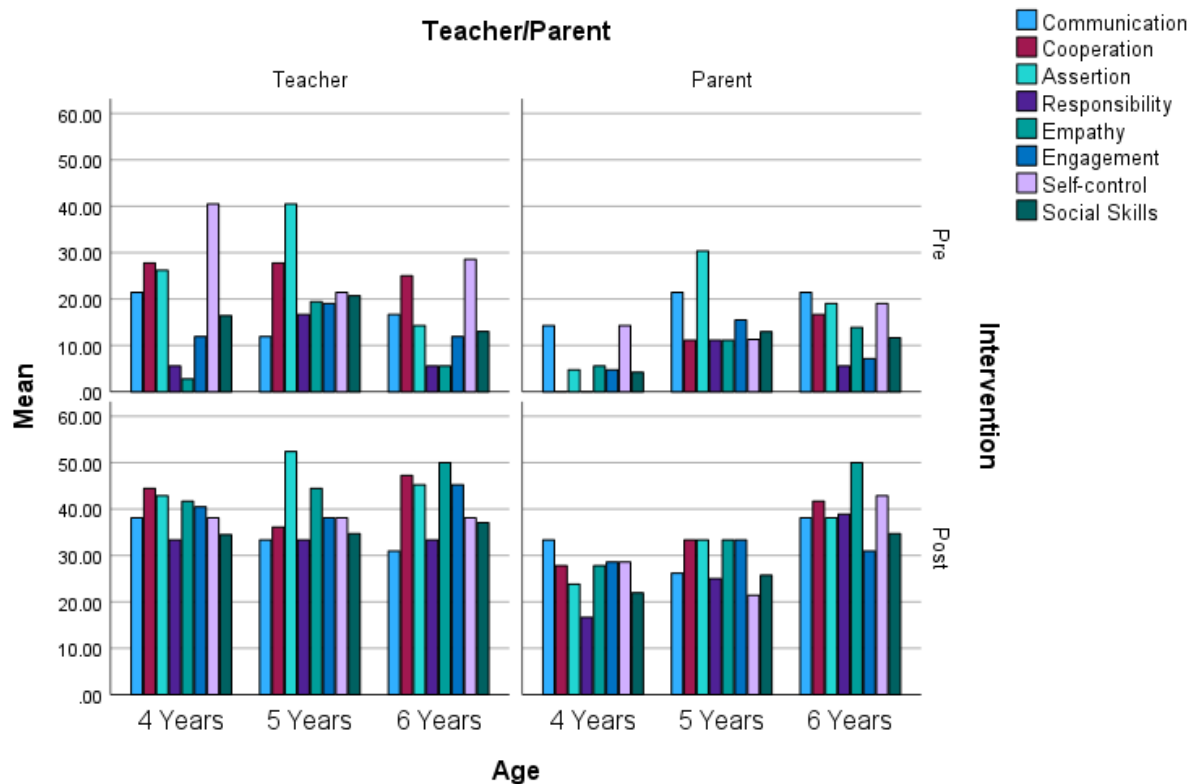


Figure 10. Effectiveness of Intervention Based on Age

The standard score of teacher-parent interaction was observed to be higher for younger children (four-year-olds) and then gradually declined with age, as exemplified by the graph based on descriptive analysis. All age groups demonstrated an improvement in social skills following the intervention. However, there were variations in the effectiveness of the interventions across different age groups, as depicted in Figure 10. While some social skills showed consistent improvement across all age groups, others varied in their effectiveness.

## 6.6 OBJECTIVE 2: Impact of SS Intervention on Challenging Behaviour

The second research objective sought to evaluate the impact of the SS intervention on the challenging behaviour ratings of ASD students. Four constructs – externalising, bullying, hyperactivity/inattention, and internalising – were measured. Following the problem behaviour scale, the focus of the assessment is on the challenging behaviour of the participants, which means that the lower scores are desirable and are considered improvement or progress; conversely, the higher scores are undesirable, indicating the lack or no improvement or progress occurred. Following the interpretation of the standard scores, a participant whose score is greater than 100 means the participant exhibited more challenging behaviours in relation to the



other participants in the group. In terms of the behavioural level interpretation, the problem behaviour sub-scales follow a similar interpretation as the social skills sub-scale score range; however, it has to be noted that the above-average level is considered undesirable.

As was the case for RO, these ratings were based on the percentile scale, and the results for each participant are summarised in Table 26. The results show that generally, the respondents (i.e., teachers and parents) tended to give higher behaviour ratings compared with the ratings for social skills, which indicates that the participating students had higher behaviour change than their social skills.

		Externalising		Bullying		Hyperactivity /Inattention		Internalising		Aggregate Behaviour Rating	
		Teacher	Parent	Teacher	Parent	Teacher	Parent	Teacher	Parent	Teacher	Parent
A	PRE	87.88	63.64	93.33	60.00	66.67	76.19	33.33	61.90	70.30	65.43
	POST	45.45	45.45	53.33	53.33	76.19	42.86	52.38	42.86	56.84	46.13
	Change	-42.43	-18.19	-40.00	-6.67	9.52	-33.33	19.05	-19.04	-13.46	-19.3
B	PRE	63.64	51.52	60.00	53.33	61.90	47.62	61.90	66.67	61.86	54.79
	POST	42.42	33.33	33.33	46.67	42.86	33.33	33.33	33.33	37.99	36.67
	Change	-21.22	-18.19	-26.67	-6.66	-19.04	-14.29	-28.57	-33.34	-23.87	-18.12
C	PRE	54.55	48.48	33.33	46.67	38.10	91.67	100.00	100.00	56.50	71.71
	POST	33.33	30.30	33.33	33.33	47.62	33.33	52.38	38.10	41.67	33.77
	Change	-21.22	-18.18	00.00	-13.34	9.52	-58.34	-47.62	-61.19	-14.83	-37.94
D	PRE	78.79	63.64	60.00	60.00	76.19	76.19	66.67	61.90	70.41	65.43
	POST	48.48	45.45	33.33	53.33	42.86	42.86	47.62	42.86	43.07	46.13
	Change	-30.31	-18.19	-26.67	-6.67	-33.33	-33.33	-19.05	-19.04	-27.34	-19.3
E	PRE	63.64	51.52	40.00	53.33	71.43	57.14	52.38	66.67	56.86	57.17
	POST	45.45	33.33	33.33	46.67	47.62	42.86	33.33	38.10	39.93	40.24
	Change	-18.19	-18.19	-6.67	-6.66	-23.81	-14.28	-19.05	-28.57	-16.93	-16.93
F	PRE	63.64	51.52	60.00	53.33	61.90	47.62	47.62	61.90	58.29	53.59
	POST	33.33	33.33	33.33	33.33	38.10	33.33	33.33	33.33	34.52	33.33
	Change	-30.31	-18.19	-26.67	-20.00	-23.8	-14.29	-14.29	-28.57	-23.77	-20.26
ALL	PRE	68.69	55.05	57.78	54.44	62.70	66.07	60.32	69.84	62.37	61.35
	POST	41.41	36.87	36.66	44.44	49.21	38.10	42.06	38.10	42.34	39.38
	Change	-27.28	-18.18	-21.12	-10.00	-13.49	-27.97	-18.26	-31.74	-20.03	-21.97

Table 26. Behaviour Ratings by Construct

Particularly, the behaviour rating conducted by the parents and teachers of the participants was recorded for pre- and post-intervention based on four constructs. The change is reflected in

percentile form indicating that the higher the number of the change, the higher the challenge, in terms of the participant's behaviour, indicating an increase in the unwanted behaviour of the participants. Conversely, the lower the number, the lower the challenge, which further indicates improvement or a positive change in the participant's behaviour based on the four constructs.

For Student A, the teacher reported the biggest positive change in externalising behaviour with a decrease of 42.43 percent, while the parent reported the biggest improvement in hyperactivity/inattention with a decrease of 33.33 percent. This data indicates a major improvement in Student A's externalising behaviours, according to the teacher, and a notable decrease in hyperactivity/inattention, according to the parent. However, there is a discrepancy between the teacher's and parent's ratings on hyperactivity; the parent observed substantial improvement (76.19 to 47.86 percent), while the teacher noted an increase in hyperactive behaviour, which suggests that Student A's hyperactive behaviour had improved at home but worsened at school. Additionally, the teacher reported no progress in hyperactivity and internalising behaviours, with internalising behaviours increasing by 19.5 percent.

Conversely, the parent observed improvements across all constructs, though bullying showed the least improvement at 6.67 percent. Initially, the teacher rated Student A as having average performance in most areas, which improved in communication and self-control post-intervention, while the parent-rated communication, cooperation, assertion, and responsibility were below average before the intervention, with no change noted post-intervention.

For Student B, both the teacher and parent indicated positive improvements across all constructs, with the biggest improvements in internalising behaviours at 28.57 and 33.34 percent, respectively. The smallest improvements were in hyperactivity for the teacher (19.04 percent) and bullying for the parent (6.66 percent). Initially, the teacher reported below-average performance in communication, cooperation, assertion, and responsibility, with improvements in all areas except cooperation post-intervention, while the parent similarly reported below-average performance in these areas before the intervention, with no change noted post-intervention.

For Student C, the teacher's highest-rated positive improvement was in internalising behaviours at 47.62 percent, while the parent observed an even greater improvement in internalising behaviours at 61.19 percent. The parent also noted a major improvement in hyperactivity of 58.34 percent, which contrasts with the teacher's rating, indicating an

increase in hyperactivity by 9.52 percent. The smallest improvement for the parent was in bullying at 13.34 percent, while the teacher observed no improvement in this area. This inconsistency suggests that Student C exhibited more hyperactivity at school than at home. Initially, the teacher reported average performance in most areas, with improvements in empathy and engagement post-intervention, while the parent noted below-average performance in some areas before the intervention, with continued concerns about empathy post-intervention.

For Student D, both the teacher and parent reported improvements across all constructs, with the major improvement in hyperactivity at 33.33 percent. The minor improvements were in internalising behaviours for the teacher (19.05 percent) and externalising behaviours for the parent (18.19 percent). The teacher initially reported below-average empathy ratings, with post-intervention improvements in self-control, assertion, and engagement, while the parent reported average performance in most areas before the intervention, with no changes noted post-intervention.

For Student E, both the teacher and parent rated positive improvements across all constructs. The teacher's major improvement was in hyperactivity, at 23.81 percent, while the parent's highest was in internalising behaviours, at 28.57 percent. Both the teacher and parent rated bullying as the minor improvement, at 6.67 and 6.66 percent, respectively. Initially, the teacher reported below-average performance in most areas, with improvements in empathy and engagement post-intervention, while the parent reported above-average communication before the intervention, with no changes noted in most areas post-intervention but expressed concerns about engagement.

For Student F, both the teacher and parent rated improvements across all constructs. The teacher's highest-rated improvement was in externalising behaviours, at 30.31 percent, while the parent's major improvement was in internalising behaviours, at 28.57 percent. The minor improvements were in internalising behaviours for the teacher (14.29 percent) and hyperactivity for the parent (14.29 percent). Initially, the teacher reported average performance in most areas, with major improvements across the board post-intervention, while the parent reported average performance in most areas before the intervention, with observed improvements in assertion and responsibility post-intervention.

Similar to the table previously described, there was a positive trend in teacher-reported performance for most students after the period. However, discrepancies between teacher and parent reports in several areas highlight the need for improved communication. Notably, several students demonstrated improved self-control, which may reflect a focus on classroom management or student well-being initiatives.

Table 27 presents the corresponding aggregate ratings of behaviour for each student.

Student	Teacher			Parent		
	PRE	POST	% Change	PRE	POST	% Change
A	70.30	56.84	-19.15	65.43	46.13	-29.51
B	61.86	37.99	-38.59	54.78	36.67	-33.07
C	56.49	41.67	-26.25	71.70	33.77	-52.91
D	70.41	43.07	-38.83	65.43	46.13	-29.51
E	56.86	39.94	-29.77	57.16	40.24	-29.61
F	58.29	34.52	-40.77	53.59	33.33	-37.80

*Table 27. Aggregate Behaviour Ratings per Student*

Regarding the pre-intervention ratings by the teachers, Student D had the highest score rated for improvement of behaviour (70.41 percent), closely followed by Student A (70.30 percent), while the lowest rating was Student C (56.49 percent). After the intervention, the lowest rating was for Student F (34.52 percent), while the highest rating was now for Student A (56.84 percent). Regarding the standard scores changes, all were negative, and this confirms that there was a reduction in the behaviour ratings of the participants, with the highest improvement being seen for Student F (-40.77 percent), followed by Student D (-38.83 percent), the third-highest improvement being for Student B (-38.59 percent), then Student A (-19.15 percent), and the least improvement for Student C (-26.25 percent).

A considerable decrease across all behaviour ratings was observed after the intervention among both teachers and parents, as shown in Table 27. With regards to the parent ratings, before the interventions, the lowest rated behaviour was for both Student F (53.59 parent) and Student B (54.78 percent), while the third was for Student E (57.16 percent). On the other hand, the highest pre-intervention parent rating was for Students A and D, each with 65.43 percent. As for the post-intervention ratings by parents, the highest rating was for Student A

(46.13 percent) and Student D (46.13 percent), and the third being Student E (40.24 percent), while the lowest rating was by Student C (33.77 percent), closely followed by Student F (33.33 percent). With respect to the standard scores change, again, there was a negative change in the ratings by the parents, with the highest improvement being for Student C (-52.91 percent) and Student F (-37.80 percent), and the least improvement was for Student A (-29.51 percent) and Student D (-29.51 percent).

The aggregate ratings among all the ASD students by each of the four behaviour constructs were analysed, and the results are presented in Table 28.

	Teacher			Parent		
	PRE	POST	% Change	PRE	POST	% Change
Externalising	68.69	41.41	-39.71	55.05	36.87	-33.03
Bullying	57.78	36.67	-36.54	54.44	44.44	-18.37
Hyperactivity/Inattention	62.70	49.21	-21.52	66.07	38.10	-42.34
Internalising	60.32	42.06	-30.26	69.84	38.10	-45.45
<b>Challenging Behaviour</b>	<b>62.37</b>	<b>42.34</b>	<b>-32.12</b>	<b>61.35</b>	<b>39.38</b>	<b>-35.82</b>

*Table 28 - Overall Mean Behaviour Ratings for all Students*

For challenging behaviours, a higher mean rating meant a more negative outcome, while a lower mean rating meant a more positive outcome. Of the four constructs, the pre-intervention teacher ratings demonstrated bullying (57.78 percent) and internalising (60.32 percent) to be the lowest mean ratings, while for the post-intervention, the highest overall rating was for hyperactivity (49.21 percent), followed by internalising (42.06 percent), and then externalising (41.41 percent). Overall, the biggest improvement in challenging behaviour was seen for externalising, whose standard scores improvement was -39.71 percent, followed by bullying (-36.54 percent), while the smallest improvement was for hyperactivity (-21.52 percent).

Among parent ratings, before the intervention, the biggest improvement in challenging behaviour was internalising (69.84 percent), followed by hyperactivity (66.07 percent), and the third was externalising (55.05 percent), while bullying was the least (54.44 percent). Regarding the post-intervention, the highest mean rating was for bullying (44.44 percent), while the lowest mean rating was for hyperactivity (38.104 percent) and internalising (38.10

percent). On aggregate, the highest improvement following the intervention was seen for internalising (-45.45 percent), followed by hyperactivity (-42.34 percent), externalising (-33.03 percent), and lastly, bullying (-18.37 percent).

Based on Figure 11, the overall behaviour ratings by the teachers improved from an average of 62.37 percent before the intervention to 42.34 percent after it, resulting in an improvement of -32.12 percent. Among the parents, the ratings improved from an average of 61.35 percent to 39.38, and this was a change of -35.38 percent.

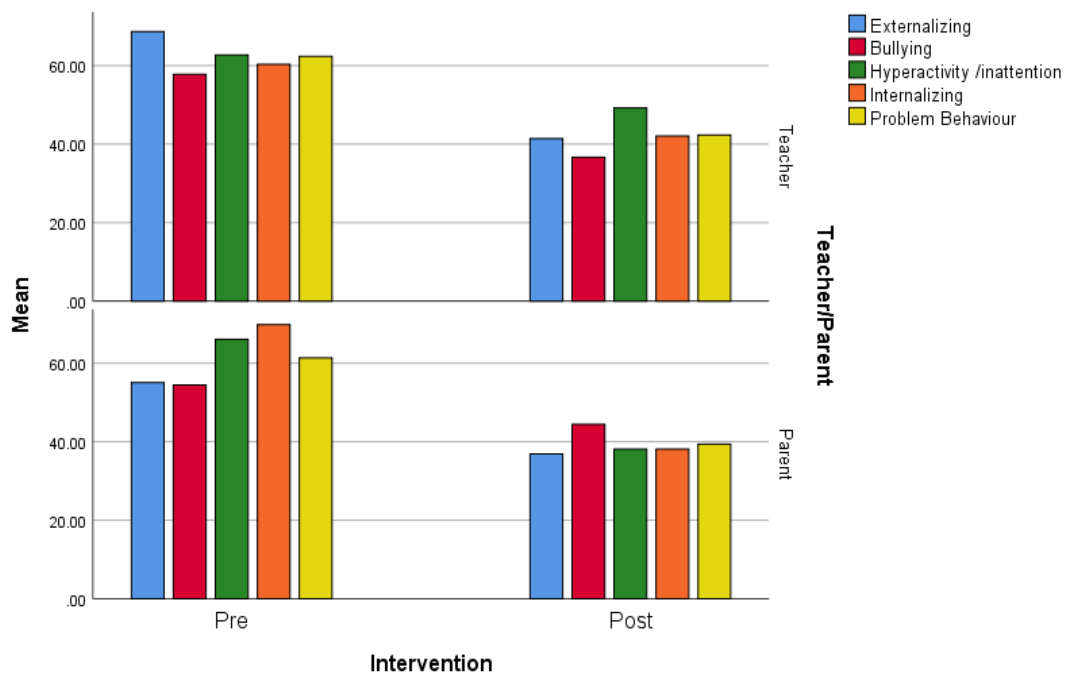


Figure 11. Student Overall Behaviour Rating of Parents and Teachers

Following the descriptive statistics, the study aimed to determine whether there was a significant improvement in students' challenging behaviours after the intervention using the Wilcoxon W test. The results of these tests are presented in Table 29 below.

For the teacher ratings ( $Z = -2.913$ ,  $p = 0.004$ ) and the parent ratings ( $Z = -2.934$ ,  $p = 0.003$ ), there was a statistically significant decrease in externalising behaviours. Regarding bullying, there was a statistically significant change in the teacher ratings ( $Z = -2.326$ ,  $p = 0.020$ ) and the parent ratings ( $Z = -2.015$ ,  $p = 0.044$ ), while the negative Z-statistic indicated a reduction in bullying after the intervention.

Teacher/Parent	Teacher		Parent	
	Z	p-value	Z	p-value
Externalising	-2.913	0.004	-2.934	0.003
Bullying	-2.326	0.020	-2.015	0.044
Hyperactivity /inattention	-1.292	0.196	-2.934	0.003
Internalising	-1.645	0.100	-2.923	0.003
Challenging Behaviour	-2.722	0.006	-2.892	0.004

Table 29. Wilcoxon W Test – Challenging Behaviours

For hyperactivity, there was no significant change in the teacher ratings ( $Z = -1.292$ ,  $p = 0.196$ ), but the parent ratings showed a statistically significant change ( $Z = -2.934$ ,  $p = 0.003$ ). The negative Z-statistic indicates a reduction in hyperactivity after the intervention.

Regarding internalising behaviours, there was no statistically significant change in the teacher ratings ( $Z = -1.645$ ,  $p = 0.100$ ) after the intervention, while the parent ratings showed a significant change ( $Z = -2.923$ ,  $p = 0.003$ ). The negative Z-statistic indicates a reduction in internalising behaviours among students post-intervention.

On aggregate, the differences in challenging behaviours before and after the intervention were statistically significant for both the teacher ratings ( $Z = -2.722$ ,  $p = 0.006$ ) and the parent ratings ( $Z = -2.892$ ,  $p = 0.003$ ). The negative Z-statistic implies a reduction in overall challenging behaviours among the students.

No significant differences were found within pre/post-intervention constructs between males and females, as reported by both parent and teacher ratings. Figure 10 illustrates that the disparity between males and females was relatively small.

However, Figure 12 suggests a relative difference between age groups; however, no statistical testing was conducted due to the small sample size of only two children per age group. Correlation analysis revealed a strong negative correlation between age and behavioural traits, although this correlation was not statistically significant (see Appendix 9).

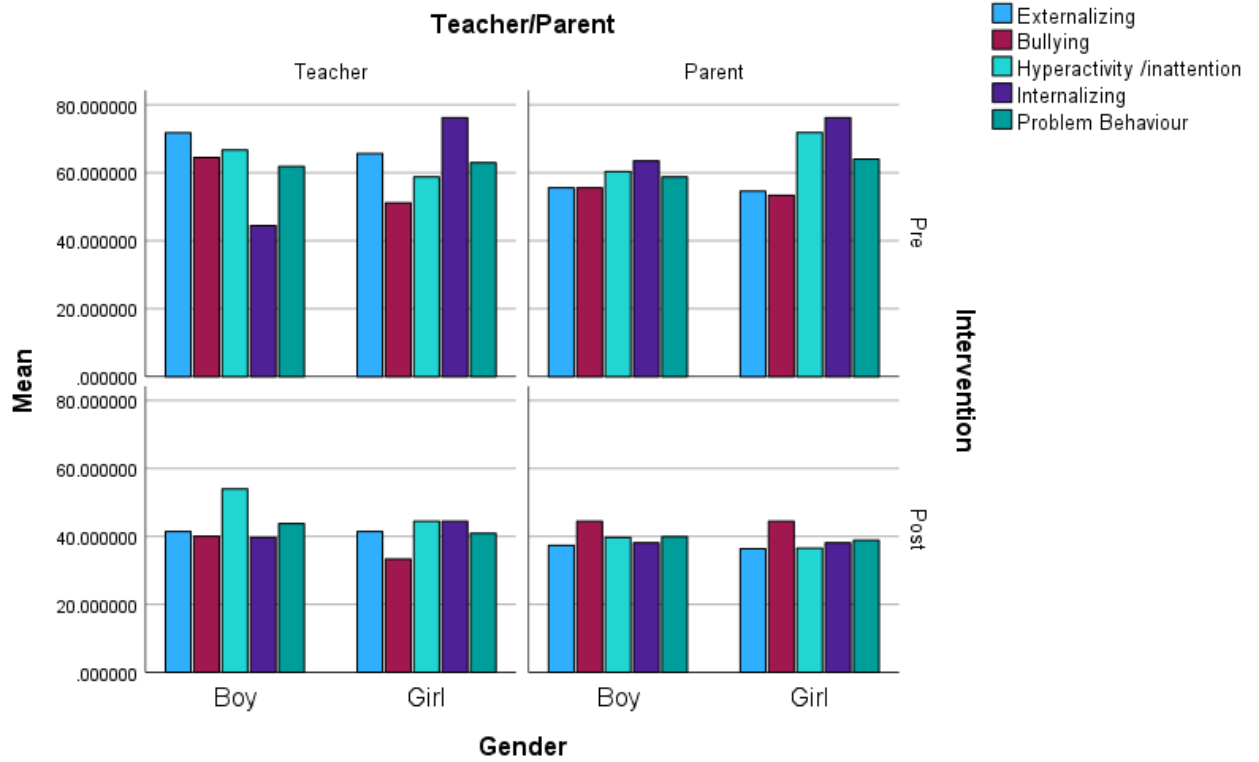


Figure 3. Gender Disparity

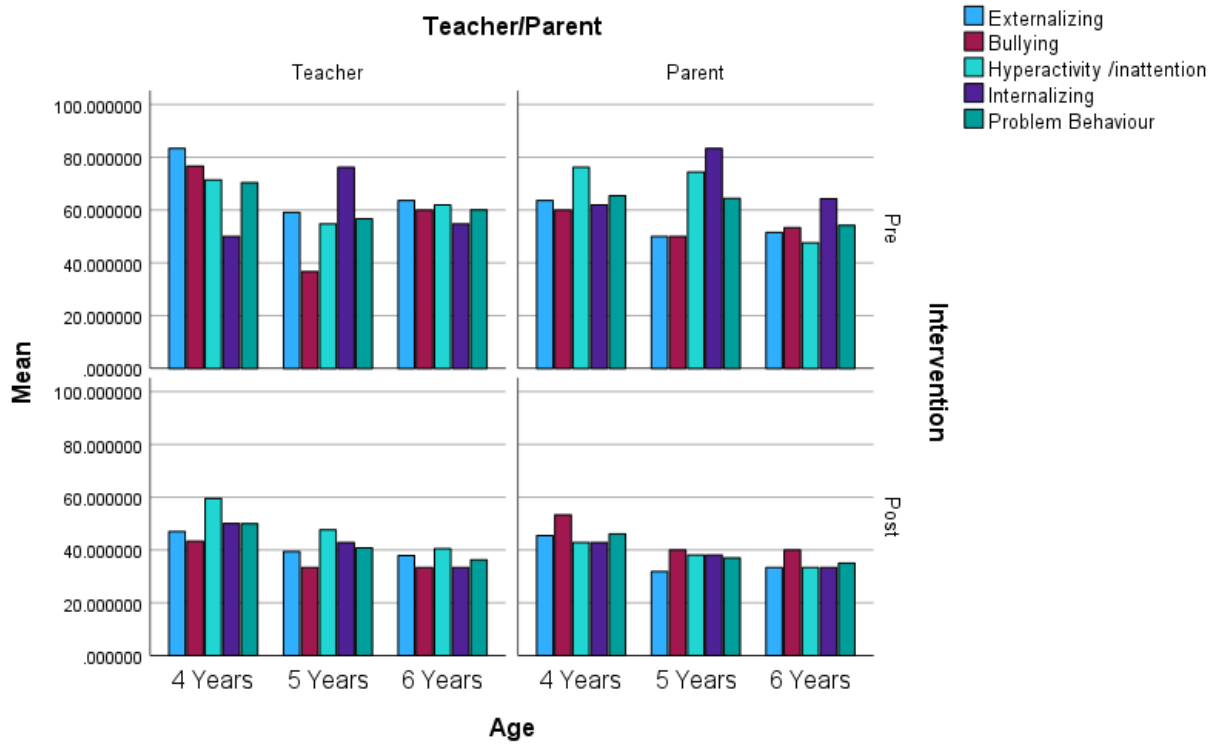


Figure 13. Correlation Analysis



### 6.7 OBJECTIVE 3: Impact of SS Intervention on Individual ASD Characteristics

The last research objective was aimed at evaluating the effect of the SS intervention on the participants' individual ASD characteristics. The summary statistics are presented in Table 30.

	Teacher			Parent		
	PRE	POST	% Change	PRE	POST	% Change
A	75.00	50.60	-32.54	79.46	52.68	-33.71
B	72.32	45.54	-37.04	69.94	50.00	-28.51
C	60.42	52.68	-12.81	78.57	61.01	-22.35
D	63.39	52.38	-17.37	79.46	52.68	-33.71
E	77.08	47.92	-37.84	65.18	54.46	-16.44
F	72.62	46.13	-36.48	66.07	47.92	-27.48

Table 30. Autism Spectrum Disorder by Intervention

For the teacher ratings, before the intervention, the highest ASD rating was observed for Student E (77.08), followed by Student A (75.00), while the lowest rating was for Student C (60.42). After the intervention, the highest rating was for Student C (52.68), the second was for Student D (52.38), the lowest ASD rating was for Student B (45.54) and the second lowest for Student F (46.13). Overall, the major improvement in the ASD rating was observed for Student E (-37.84 percent) and the second-highest was Student B (-37.04 percent), while the least improvement was for Student C (-12.81 percent) and the second least was for Student D (-17.37 percent).

Considering the parent ratings, before the intervention, the highest ASD rating was observed for Student A (79.46) and Student D (79.46), while the third-highest was for Student B (69.94). The lowest ASD rating was for Student E (65.18), followed by Student F (66.07). However, after the intervention, the highest ASD rating was for Student C (61.01), and the second was Student E (54.46), while the lowest ASD rating was for Student F (47.92) and the second Student B (50.00). Overall, the major improvement in the ASD rating was observed for Students A (-33.71 percent) and D (-33.71 percent) while the third-highest was Student F (-27.48 percent), and the least ASD improvement was for Student E (-16.44 percent) followed by Student F (-27.48 percent).

Additionally, the study aimed to determine whether there was a significant improvement in student ASD (autism spectrum disorder) behaviours after the intervention. To achieve this, the non-parametric Wilcoxon test was used. The results of the hypothesis tests comparing the ASD ratings before and after the intervention are presented in Table 31 below.

Teacher/Parent	Teacher		Parent	
	Z	p-value	Z	p-value
Autism Spectrum	-2.961	0.002	-0.866	0.000

Table 31. Wilcoxon test for autism spectrum disorder per vs post-intervention

There was a statistically significant change in autism spectrum behaviours for both the teacher ratings ( $Z = -2.961$ ,  $p = 0.002$ ) and the parent ratings ( $Z = -2.866$ ,  $p = 0.000$ ). Since the Z-statistic was negative, this indicates a reduction in the overall ASD behaviours among the students, which confirms that there was a statistically significant reduction in the ASD ratings both at school and at home.

There was no apparent difference found in the pre- and post-intervention ASD ratings between males and females, as reported by both parent and teacher ratings. From Figure 14, it appears that the disparity between males and females was relatively small.

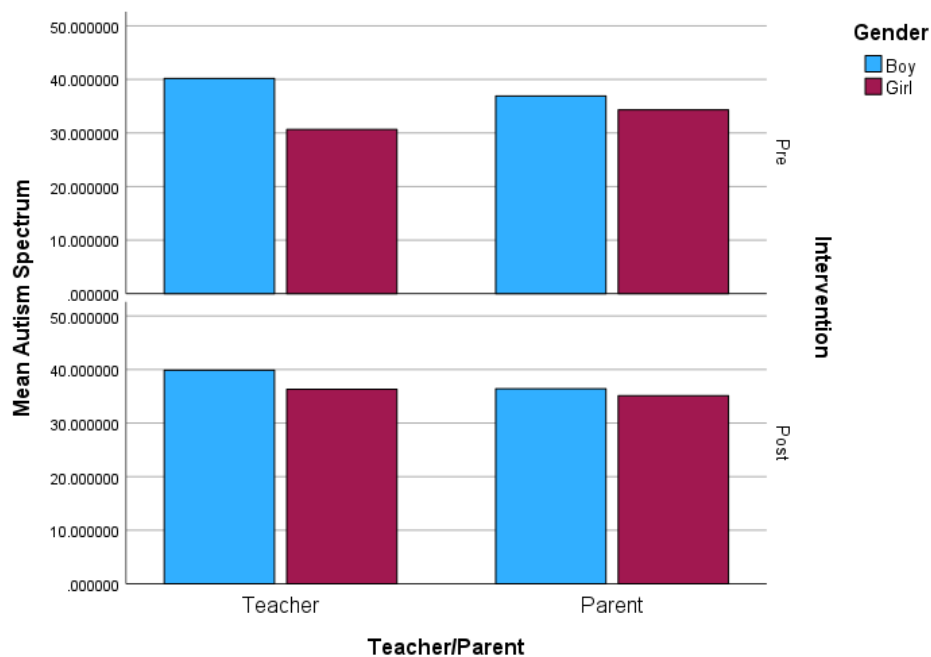


Figure 14. Gender Disparity

Figure 15 shows a relative difference between age groups, but no statistical testing was conducted since there were only two children in each age group.

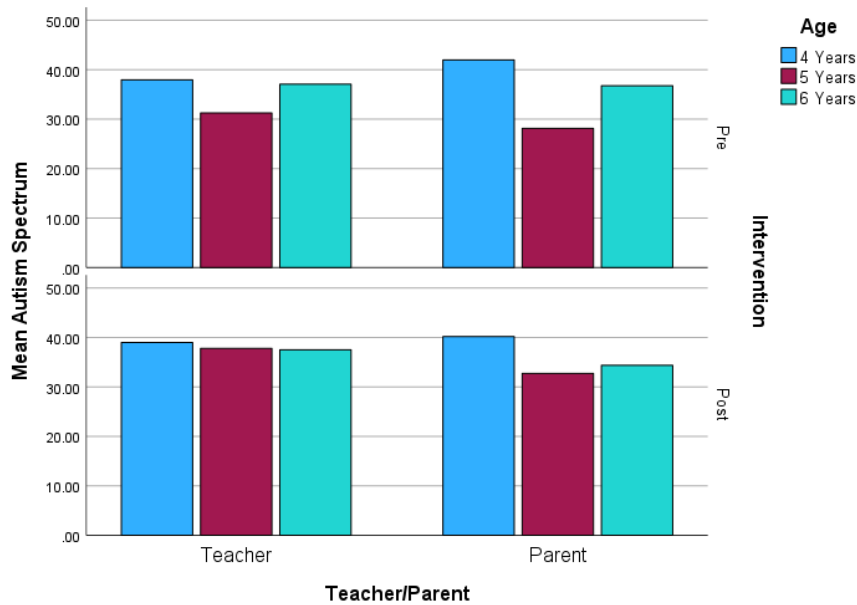


Figure 15. Age Difference

## 6.8 Chapter Summary

This chapter has presented the key quantitative research findings for this study, in which the researcher first presented the demographic results, along with the validation of the study constructs. With respect to the first objective, it was established that the intervention resulted in an improvement in the social skills of the six ASD students participating in this study. With respect to the second objective, which sought to evaluate the impact of the SS intervention on the behaviour ratings of the ASD students, again, the intervention resulted in a reduction in the challenging behaviours. Lastly, the third objective sought to evaluate the impact of the intervention on the individual ASD characteristics of the participants, and from the findings, there was a difference in the ASD ratings after the intervention.

To provide a clear overview, the notable findings of this research are summarised and exemplified in the table below.

<b>Objectives</b>	<b>Descriptive</b>	<b>Mean</b>
Obj1 Social skills	Teachers' questionnaire: of all six students, Student B showed the most significant improvement.	There was an improvement in social skills performance after the intervention (post M=31.43/ pre 13.16).
	Parents' Questionnaire: of all six students, both Students A and D showed the highest improvement.	There was an improvement in all constructs.
Obj2 Challenging Behaviour	Teachers' Questionnaire: of all six students, Student F showed the highest improvement.	There was an improvement in the challenging behaviour performance after the intervention (pre M=61.86/ post M= 40.86).
	Parents' Questionnaire: of all six students, Student C showed the highest improvement	There was an improvement in all constructs.
Obj3 Autism Spectrum Disorder	Teacher rating showed that, before the intervention, Student E had the highest ASD. Also, the highest improvement in ASD was for Student E.  Parents' ratings showed that the highest rating was for Student A, and the highest improvement was for Student A.	There was an improvement in ASD scores for all participating students.

Table 32. Summary of research findings

## CHAPTER 7 - DISCUSSION

### 7.1 Introduction

Drawing on the findings of the current research, this chapter critically interprets and discusses the insights and implications derived from the qualitative and quantitative data on the impact of the Social Story™ (SS) intervention with six children with autism spectrum disorder (ASD) from the Ajyal Al Watan Centre in Riyadh. The discussion highlights the various insights gained from the data and the extensive learning perspectives.

### 7.2 SS Intervention Impacts the Individual ASD Characteristics of ASD Students across Cultures

The Social Story™ (SS) intervention in this study has been culturally approached, which is a novel way to explore the intervention's impact in the context of Saudi Arabia. By designing the intervention to respect the cultural sensitivities of the Saudi context, this research underscores the necessity of tailoring interventions to align with the cultural values and norms of the participants. This culturally tailored approach ensures both the effectiveness and acceptability of the intervention across different settings without undermining the interests and values of the participants, and the collaboration with teachers and parents to understand the cultural setting further enhances the ecological validity of the intervention (Bernal et al., 1995).

This study's findings highlight the importance of culturally tailoring interventions to fit the specific cultural contexts in which they are implemented. The success of the SS intervention in Saudi Arabia demonstrates that careful consideration of language, metaphors, pictorial illustrations, content, concepts, methods, and goals (Lopez et al., 2020) can significantly enhance the usability and effectiveness of interventions for autistic children as well as align with the overall situation where the targeted behaviour is meant to be exhibited by the children with ASD (Vivanti, 2019; Lopez et al., 2020). By improving social skills and behaviours, the SS intervention helps children with ASD integrate better into society, which supports the social model of disability, emphasising the reduction of societal barriers rather than changing the individual. This study's approach is supported by prior research. Alotaibi et al. (2017) and Vivanti (2019) point out that the consideration of cultural sensitivity is crucial when it comes to assessing the role of the learning environment and the execution of SS

intervention. The current study determined the variations and appropriateness of cultural elements in a given Saudi context, corresponding to the views of Al Maskari et al. (2017) and Guler et al. (2017), who stressed the importance of determining the variations and appropriateness of cultural elements across different geographies (cultures) and adopting cultural and contextual adaptations to enhance the feasibility, acceptability, and effectiveness of the intervention. In other words, the study kept in view the important characteristic for an intervention, that is, to be culturally informed and appropriate, i.e., adhering to the cultural values of the group and incorporating the strategies that devise the intervention reflection of subjective cultural elements (beliefs, norms, and expectancies) and behavioural preferences of the study participants (Marin, 1993). This refers to teaching ASD children the necessary skills and behaviour through SS intervention that might enable them to flourish and be part of society, where their ASD characteristics will not impede their inclusion with the rest of the students and manifest in the fact that problems exist in the natural world, thereby underpinning the social model of disability. Therefore, the wider implication of the cultural approach in the intervention's success in Saudi Arabia indicates that similar culturally informed interventions could be beneficial in other regions with distinct cultural contexts.

The consideration to determine these cultural aspects during SS intervention aligns with the views of Hamdan-Alghamdi et al. (2014) and Sundquist et al. (2017) that it is crucial to accommodate cultural aspects to address the student's learning proactively needs, specifically gender segregation (Alsalamah, 2023), stereotypes towards interventions (restricting access to such training), similar challenges in Saudi Arabia, and other cultural discrepancies. Considering all these cultural implications, the findings of the current study exhibit a successful execution of SS intervention that impacted students' social skills and behaviour positively. Therefore, it can be inferred that challenges associated with autistic children experienced by teachers and parents can be channelled through the appropriate execution of interventions like SS in a culturally complex context by considering culturally familiar aspects in design and execution. It will further direct the acceptance of inclusiveness, awareness, and accommodation of the challenges and vulnerabilities associated with autistic children (Schuck et al., 2022). The current study's findings also suggest that a deeper side has a more inclusive approach to handling challenges in an inclusive setting rather than institutionalising them as a separate entity. Becoming a proponent of an inclusive approach, the findings of current research suggest alignment of autism intervention, e.g., SS

intervention, should be designed keeping in view the goals of autism acceptance, cultural familiarity, and development of targeted skills.

Another major implication of this study is the fact that the positive outcomes of the SS intervention can play a crucial role in reducing the stigma and discrimination associated with autism in Saudi Arabia. By demonstrating the effectiveness of the intervention, the study provides a foundation for increasing awareness and fostering positive attitudes within the community towards autistic children. This is particularly important in a context wherein misconceptions and biased social structures contribute to negative perceptions of autism. Particularly, stigma and discrimination exist in terms of socio-structural barriers (school policies of inclusion, resources, and social acceptance from peers, teachers and family members and perceived emotional burden on parents), and the internalised negative evaluation of autistic children can be attributed to misconceptions prevailing in the Saudi context prompted by these biased social structures. Therefore, the positive findings obtained through the current study would serve as necessary support to improve awareness and foster positive community attitudes that will help address the prevailing associated stigma towards autistic children in the Saudi context. It is also crucial to consider how the inclusion of parents and guardians through this intervention would be a positive contribution and guide for other parents, susceptible to stigma and discrimination, as access to SS intervention as behavioural management strategy. The participant parents/guardians can offer culturally informed counselling and guidelines through peer support groups and the exchange of positive experiences and gains from SS intervention to other parents and families deemed at risk of discrimination from others and even their own discrimination towards their autistic children. Owing to the cultural sensitivity of the Saudi context, stigma associated with autistic labels leads parents to go through stereotypical challenges.

By aligning the intervention with cultural values and involving teachers and parents, the study has shown that culturally tailored interventions can enhance effectiveness and acceptability. These findings underscore the importance of considering cultural context in intervention design, reducing stigma and discrimination, and fostering inclusive educational environments.

### **7.3 SS Contributes to Improvements in Social Skills at Varying Levels**

The findings highlight the important implications of SS interventions in enhancing social skills among students with ASD, as evidenced by teacher ratings. These implications provide a basis for appreciating the broader impact of these types of interventions.

One of the significant implications is that the variations observed regarding levels of improvement underscore the imperative nature of diverse strategies that can address personal needs, which supports the notion that children with autism can benefit from multiple facilitation techniques (Bandura, 1977) as suggested by Bandura's social learning theory which lays much emphasis on observation, direct teaching, and modelling during social skills learning (Bandura, 1977; Halle et al., 2016). Similarly, Beaumont et al. (2017) propose that various facilitation methods are needed to assist autistic children in making changes to their behaviour and achieve success in social learning.

Another implication based on the findings is that the differing improvement ratings between parents and teachers imply that other factors within that context, such as interaction opportunities and structure, could determine whether or not an intervention is successful. This indicates that an all-inclusive approach that looks into both school and home environments ensures continuous improvement in social competencies among ASD learners.

Moreover, when other strategies and activities are fused with SS interventions, this leads to better retention and application of learned social skills, thereby creating a stronger foundation for social development. This bridge may also be used to harmonise dissimilar settings ensuring effective implementation of interventions across different contexts, as, ultimately, it enhances improved integration and growth among autistic kids (Schuck et al., 2022).

### **7.4 Differences in Teacher and Parent Social Skills Ratings**

The findings of this study indicate inconsistent parent and teacher observations, emphasising the need for a comprehensive understanding of behaviour across different contexts. Taking into account parent-teacher perspectives on improvements in social skills and behaviour of ASD children highlights the importance of situational specificity and context variability (Clarke et al., 2020). Teachers reported higher levels of behavioural concerns than parents did, both pre and post intervention, which contrasts with prior studies where parents typically



report more concerns than teachers (Major et al., 2015). The parents' lower rating compared to that of the teachers reflects that a child's behaviour manifestation at home differs to a prominent extent than at school (Thompson and Winsler, 2018). In relation to the extant literature, this variation of teacher-parent reporting aligns with the view of prior studies that mention that a higher level of oppositionality is reported by teachers in terms of rating behaviours of autistic children (Reed and Osborne, 2013). This finding is also in line with prior studies that endorse a moderate level of teacher-parent agreement on the report of behavioural improvement post interventions for autistic children (Stratis and Lecavalier, 2015).

To clarify, the first implication of this finding, i.e., the discrepancies in behaviour reporting may reflect situational specificity (i.e., observing and reporting on the behaviour only in one context and situation), and also observational measures of behavioural change for both teachers and parents may be varying as well. For example, teachers' ratings and the changes they perceive in behaviour may be influenced by expectations placed on the child in classroom situations, specifically, interaction with other class fellows and performance in a given task. In addition, prior studies have identified that teacher rating of behaviour is also influenced by the type of school they are employed in, such as mainstream school teachers may report higher variations and anxiety in the behaviour of students than those in a special setting (Adams et al., 2018). Therefore, this finding indicates the importance of multi-informant assessments to capture a comprehensive picture of a child's behaviour.

The incongruence in the parent-teacher perspective regarding autistic child behaviour leads to the second implication, which is highlighted by Clarke et al. (2020), i.e., ineffective communication between teachers and parents, and this implication indicates the importance of sustained teacher-parent communication. Prior literature has also indicated that divergence of perspectives can be improved by facilitating mutual understanding of both teachers and parents, communication for constructive evaluation, and observation of behavioural differences by both. For example, the discrepancy of change in behaviour may relate to the parent's perceived appropriateness of that behaviour in the given context and the perceived appropriateness of the teacher regarding behaviour in the classroom context. Therefore, this necessitates the development of more contact between teachers and parents to overcome discrepancies and obtain more trust-directed information, which can assist in embracing each other's perspectives. Similarly, this implication also calls for effective home-school

collaboration. The significance of having better home-school collaboration and parent-teacher relationship underlies that this interaction may further identify necessary modifications in provisions and learning environments for autistic children (Falkmer et al., 2015). For example, Hebron and Bond (2017) emphasise that parent-teacher collaboration may ensure the flow of accessible information both ways, which would enable collaborative decision-making in the required areas of development for autistic children. Moreover, joint home-school collaboration would be encouraging facilitation if cultivated, as Hebron and Bond (2017) include another important perspective to this notion that this may reduce caring demands on both teachers and parents that may be attributed to equal responsibility sharing, recognising the additional capacity of resource provision both at home and in schools and devising individualised plans in each context.

The third implication can potentially relate to context-directed factors, i.e., factors that teachers may have experienced in the classroom that may have shaped a different attitude toward a student's behaviours. These factors may include considering the mainstream context of classrooms, class size, layout, and many more, which may impact student behaviour and the differences in its manifestation at home and school and, consequently, teachers' and parents' different interpretations of that behaviour and the resultant different rating in the context of the given research.

The fourth implication is the possibility of teachers' and parents' different understandings of the questions. In other words, inconsistencies between responses from teachers and parents may be based on the variations between participants in their perceived understandings of the questions. This finding aligns with the views of Santoro (2013) that contradictory responses and disclosure of information may underlie similar and sometimes contradictory narratives provided by multiple perspectives of a particular incident involving one particular participant. The inconsistency between the responses of teachers and parents may also relate to understanding the variation of both, as parents may lack the educational cues and terms that could have shaped their responses, thinking, and knowledge. Additionally, the parents/guardians and teachers observe the children in different contexts, in which the demands on their social skills are also different. In the context of the given research, in order to accomplish consistency and solicit consistent interpretations among teachers and parents of prior behaviour, studies suggest using appropriate communication strategies during interviews. For example, Arminen (2005, p.127) suggests that the interviewer could employ

communicative strategies that align with teaching cues and the educational setting to enable a better understanding of the question, i.e., “to attune to the relevant dimension of the subject”.

The fifth implication based on the mixed findings can be associated with parents’ propensity to give a more positive picture after the intervention in contrast to the view of the teachers. This finding may underlie the implication that parents are more familiar with their children across different contexts, and they can evaluate the sustained change more accurately as they can construe the improved behaviour more comprehensively relative to teachers. Moreover, the different ratings of the same behaviour or SS may be due to different understandings of autistic characteristics in both teachers and parents. Hence, a more positive attribution toward intervention may underlie this reason. Similarly, teachers rating the disruptive behaviour may not only involve rating students based on their disruption in terms of standard classroom endorsements but require a valid cause to exhibit that aggression and anger that would help teachers estimate the improvements. This dimension has been endorsed by prior studies such as Crozier (1999), explaining too that teachers’ ratings of behaviour in autistic children require an appropriate situation to observe that manifestation and then determine whether the behaviour has improved or it is just not manifested in a given situation in the classroom.

Last, the findings also imply that patterns of behaviour may vary during observation and according to the experience of the teachers and parents. Larkin et al. (2016) posit that in line with autism-based intervention and behavioural theorists, i.e., behaviour is best understood and construed through various environmental factors maintaining or influencing them. Therefore, the variation in perceiving behavioural changes post-SS intervention may relate to the reason for the differences in behaviour across home and school contexts (Kanne et al. 2009). Moreover, the study is linked to the notion reinforced by the social disability model of autism that suggests disability is a social construction and neither ability nor disability exist; rather, society and normal functioning are organised according to normative models that prioritise particular abilities over others (Richardson et al., 2018). The model further aims to regulate the challenges exhibited by autistic children by handling external barriers and physical realities in the surroundings that manifest to inhibit the development of these individuals (Spiel et al., 2019). Therefore, the goal is to see how SS intervention can be executed in a way to help them overcome their social and behavioural challenges in home and school contexts through teacher and parental support. Therefore, the notion of the study also entails the social disability model as an underpinning model and takes into account how

social, communication, and behavioural skills can be regulated, keeping in view the internal and external factors that may mediate these constructs pertinent to children with ASD.

### **7.5 SS Contributes to Positive Developments in Behaviour**

In the aspect of behaviour of autistic children, the data reveal mixed findings. To begin with, the quantitative and qualitative findings of the study revealed a reduction in behaviours, which is an exciting finding as prior studies in this context have primarily concentrated on improving appropriate behaviours, i.e., social and communication skills (Chan and O'Reilly, 2008) and social interaction (Karal and Wolfe, 2018). At the same time, Gray (2004) emphasises using SS for developing and teaching other skills using SS intervention. Therefore, the current study's finding aligns with the opinions of Ozdemir (2008) that the use of adequately constructed social stories without additional behavioural management interventions enables them to manage and regulate their behaviour and be able to feel more confident and integrated into the classroom.

The wider implications of this finding suggest that integrating SS interventions within school settings can provide substantial benefits, including improved behavioural regulation, whereby SS interventions help autistic children manage and regulate their behaviours, reducing inappropriate behaviours and promoting positive conduct. Enhanced social integration is another benefit, as fostering better behaviour through SS interventions can help autistic children feel more confident and integrated into their classroom environments, thereby improving their overall school experience. Additionally, SS interventions support the development of social and communication skills, aligning with the broader goals of enhancing these skills and contributing to better social interactions among autistic children. Moreover, the versatility and adaptability of SS interventions allow them to be tailored to address a variety of skills and behaviours, making them a valuable tool for educators.

The effectiveness of these interventions is influenced by their fit with the school environment, the available resources, and the duration of their implementation, echoing the perspectives of Kasari et al. (2013). This highlights the importance of a supportive and well-resourced educational framework to maximise the impact of SS interventions on the behaviour of autistic children.

## 7.6 Collaborative Development of SS Intervention

Findings reveal the importance of collaborative development of SS intervention with the students as well as the researcher's collaboration with the teacher being potentially assisted in SS intervention to positively impact the ASD characteristics of participants. All stories were developed and implemented flexibly, taking into consideration the negotiation between the researcher and individual students during implementation and the researcher and teacher collaboration in creating the social stories before the implementation. The efficacy of the intervention is crucially influenced by the appropriateness of teacher and researcher collaboration, as prior studies render this collaboration effective for sustainable intervention execution in the classrooms (Kennedy, 2002; McInerney and Hamilton, 2007). In light of this notion, the collaboration of the researcher with both teachers and students enables symbiotic intervention execution that addresses critical challenges by guiding research direction and informing classroom practices. The collaborative development approach in designing the SS intervention, involving both teachers and students, enabled input from various dimensions that ensured the development of a fit between SS content, students' needs and challenges, and overall classroom routine and school context. In doing so, the researcher also facilitated the research process by selecting the right participant for the intervention, identifying the right behaviours and challenges that needed a solution, designing the right procedures of intervention, keeping in consideration restrictions of classroom layout and schedules that would have impeded the execution, and determining ways of increasing intervention efficacy by overcoming those challenges in the right way.

The collaboration with the teacher enabled preintervention assessment that further enabled the researcher to develop an individualised design for each student specific to their needs and challenges. Therefore, this implied that insight from teachers during the design of the individual SS for each student and incorporating their suggestions helped the researcher develop classroom-friendly and culturally familiar SS interventions. This finding aligns with the views of Zimmerman et al. (2020) that the collaboration of researchers and teachers for SS design will help address behaviours more effectively in order to complete the targeted activities. Another important dimension of this collaboration is that it is beneficial not only for overall intervention execution and gains for the researcher but also for teachers, policymakers, and school leaders by accessing research and being part of it. Cowie et al. (2015) reflect on the idea that the collaboration of teachers in research enables them to understand their practices more efficiently and that enabling them to understand the context of

research findings could be of great help in their practice. The finding implied that SS, when collaboratively worked, has the potential to have a more positive impact on all participants.

### **7.7 SS Has a Greater Impact on Developing Social Skills Compared to Behaviour**

The findings established that there was a much greater positive change in the individual social skills of the participants compared to their behaviour. However, it is essential to note that behaviour is greatly subjected to external factors and hence it may require different strategies to improve it, as necessary, which leads to the implication that the similar differences between skill and behaviour could mean that autistic individuals often camouflage themselves.

Camouflaging, according to Lai et al. (2017), refers to concealing or hiding the condition of an autistic person for the purpose of harmonising with normal human relations without being detected. Hence, perceived social skills might differ from real underlying abilities (Cook et al., 2021). In this context, this finding may underlie the implication that social stories may be modified and paired with any other intervention and approach by tailoring it to the behavioural challenges of the specific student more effectively. Garwood and Van Loan (2017) elaborate that social skills are the foundation and imperative skills required for academic success and performance in school, which relate to developing peer acceptance, teacher-student interaction, and overall academic success. In light of the significance that social skills hold, SS intervention has gained quite a lot of attention as something to be used potentially with autistic children. However, previous studies produce contradictory views and conclusions owing to methodological flaws that may undermine the effectiveness of this intervention. The execution of a well-designed and individualised SS intervention in this study enabled autistic students to recognise and channel their abilities and perform much better in the identified areas. Therefore, it can be inferred that support enabled via SS intervention and guidance from teachers, authors, and parents gave them a chance to realise their latent potential, implying that adaptations and accommodations like teachers' and parents' support along with other strengthening practices can help autistic children develop a sense of identity as well as personal autonomy that may root down to their innate executive function skills, as highlighted by Hebron and Bond (2017). These findings further call into question whether designing a standardised intervention may be developmentally appropriate for autistic children yet also indicate the pressure of directing and guiding them to engage with the normal world in a traditional standardised way.

Findings also demonstrate a mixed manifestation of improvement in one area and challenges in other aspects of social skills. In light of the qualitative findings, the analysis of improvement in social skills, i.e., initiation of conversation, engagement, and other improvements, produced interesting and mixed findings for each student. The interesting discrepancy of showing reasonable improvements in one aspect of social skill while still exhibiting challenges in another, leads to further questions. This discrepancy existed despite the observation of each targeted skill showing the behavioural change in one while challenges remain in the other after the intervention. In light of this finding, considering these variations in the improvement of social skills and the duration of intervention, which was only six weeks, implies that the need to differentiate and prolong the intervention approach, accompanied by other strategies and techniques, would have produced more apparent and more consequential positive changes for each case, which aligns with prior studies. For example, Skoukut et al. (2008) emphasises that combining two and more social skill interventions is a more practical approach for autistic children.

The spontaneity of communication of initiation in autistic children may remain prevalent due to highly structured teaching programmes (Chiang and Carter, 2008). Therefore, keeping in view the findings of the current study, this implies that the execution of SS intervention should consider the development of spontaneity or initiation through systematic instructions and peer mediation in a natural context to maximise the intervention's effect (Paul, 2008). Alternatively, pairing up the autistic student with a typically developing student in an SS session, followed by providing them with feedback on their performance, also produces practical gains. Thiemann and Goldstein (2001) found this strategy effective in providing video feedback immediately after the SS session to produce the targeted social behaviour more frequently. In this context, there is a dearth of prior studies to assess the duration and intensity of intervention to evaluate its effects on core characteristics of autism, i.e., social skills, communication skills, restricted interests, and repetitive behaviour (Linstead et al., 2017). However, Granpeesheh et al. (2009) report that prolonging the hours and duration of intervention for autism during the younger ages (specifically under the age of seven) may produce more noticeable progress, which relates to early identification and early intervention perspectives, as Fuller and Kaiser (2019) endorse this idea that the age of initiation of intervention programmes has associations with earlier inclusive school placements. Older ages may require more intervention hours due to the stability of characteristics and may not

show progress within a short time duration and may require more monitoring to see the gains and improvements.

Another implication for this finding suggests that teachers and parents may need clarification about distinguishing the target behaviour as a new skill by the time of intervention completion and improvement measurement. This links to the power to detect crucial improvement post-intervention, which is also identified as response bias (Beaumont and Sofronoff, 2008). In the context of these findings, Rao et al. (2011) mention that adequate power to detect change and improvement pre- and post-intervention in social skills comes from a larger sample size that allows for better comparison. Therefore, this discrepancy in the mixed positive change of social skills of one student and improvement in behaviour in others comes from other unforeseen factors, such as interaction with a more knowledgeable adult, and attention from experts and guides.

### **7.8 Teacher and Caregiver Cooperation and Home-School Collaboration**

Taking into consideration the small sample of the current study, the disparity in the ratings of behaviours might be associated with various other dimensions, such as the incongruent range of parent-teacher perspectives regarding autistic child behaviour and discrepancies across different rating constructs regarding their challenges, which may relate to a lack of teacher-parent cooperation and home-school collaboration. This aspect is also highlighted by Winterbottom et al. (2008) and Clarke et al. (2020), i.e., ineffective communication between teachers and parents allows the tendency to develop for both to rate the children's behaviour differently and hence there are calls for effective home-school collaboration. Additionally, teachers' differential ratings of each construct and behavioural interpretation of participating students may also relate to expectancy bias or the Pygmalion effect towards the students (i.e., their gender, learning difficulties, and achievement level), as highlighted by prior evidence. Another interpretation of this can be made in light of the teacher's self-efficacy and the learning behaviour of the participants, whereby some students were exhibiting more challenges relative to others or the level of engagement of each student (Sawyer et al., 2022). Therefore, in that context, teacher's self-efficacy in regulating the learning of children with autism may face challenges and the motivation to deal with that child may influence the rating later. This finding may also support the differing interpretations and perceptions of the teachers and parents regarding behaviour at school and at home. For example, Szumski and



Karwowski (2019) explain that teachers' distorted expectations are either imprecise or biased of a particular student and might impact their perception of any improvement and achievement. However, it is important to note that prior studies have mentioned that discrepancies in the ratings of behaviour assessment – providing varied reports of common constructs for autistic children – are usual and may lead to ambiguities in determining consistent information and intervention success factors (Stratis and Lecavalier, 2015).

The mixed findings from parents' and teachers' ratings underscore the implications of the importance of increased teacher-parent cooperation and home-school collaboration. The need to have greater cooperation between teachers and parents is congruent with the current study's findings, i.e., the mixed findings highlighting the reciprocal association of parent-teacher disparities in ratings. This disparity necessitates closer collaboration, which develops similarities and congruence in the perception of the teacher-parent understanding of challenges, issues, and factors that may trigger behaviour in autistic children. Similarly, low interaction may lead to more disparities in their understanding and rating of behaviours and perceptions (Levinson et al., 2020). Considering the current research setting, i.e., Ajyal al-Watan Centre in Riyadh, Saudi Arabia, and the small number of participants, the disparity in the rating of both teachers and parents identified for the given cases may be associated with the cultural implication that exists in free-flow collaboration between teachers and parents (Bagadood and Sulaimani, 2022). The prevalent cultural misunderstandings, stereotypes, and social norms linked to learning disabilities among Saudi children may limited parents from interacting and collaborating effectively with schools and fostering better developmental opportunities (e.g., better intervention design) to address their social and behavioural issues. Alolayan (2022) linked sensitive cultural patterns as major barriers to effective teacher-parent collaboration in the Saudi context, e.g., the father's role as a mediator and limiting mothers to communicate directly may result in ineffective information sharing that will impact important decisions regarding improvements for autistic children and intervention design.

Additionally, to ensure better cooperation and collaboration, the active participation of teachers and parents is vital for addressing the challenges faced by their students/children. The inclusion of parents, teachers, and teacher assistants in the current study gave a distinctive image similar to the view of Balakrishnan and Alias (2017), which also relates to a collaborative execution of SS for it to work effectively. They mention that SS intervention should take a collaborative approach where the interaction of teacher and parent of the child

would enable efficient execution of intervention as it will further determine consistency, which is essential for a successful outcome in this intervention. In line with consistency, parent–teacher agreement is an imperative consideration and rendered as a best practice to educate and address the learning challenges and behavioural complications in autistic children (Tincani et al., 2014). These factors made the researcher realise that even though the teachers participated in the creation of the SS stories for the participating children, this participation should have been extended to the parents in a three-way consultation to cover all issues.

Furthermore, a more active parent-teacher collaboration will facilitate and consolidate the decision-making process and establish a more viable intervention programme in a mainstream setting. Moreover, it is also worth teachers considering adjusting their actions, practices, and responsibilities accordingly to yield better outcomes in the behavioural and social profiles of autistic children (Paseka and Schwab, 2019).

### **7.9 Increase in Teachers' and Caregivers' Perspectives of SS Intervention**

The success of the intervention positively impacted the participating teachers and parents, with implications relating to the increase and changes in teachers' and parents' perspectives of SS intervention. As mentioned in the prior section, the impact of intervention and implications of parental and teacher involvement in it include considerable inferences. All the parent and teacher feedback highlighted their appreciation of the SS intervention, and all agreed on the continuation of the intervention acknowledging the improvements they had seen in the children. The participation of the adults in the intervention process is a useful way of addressing the knowledge gap and developing the process to help address the support and identify the right ways of addressing the challenges of autistic children. Comparing the pre- and post-intervention interviews, teachers demonstrated a lack of appreciation for SS intervention due to a lack of knowledge. However, they showed appreciation after seeing the improvements post intervention. The positive transition in their perception towards the usefulness of SS intervention is another indication that they did not experience the effectiveness of SS intervention prior to this in a naturalistic setting, i.e., school, and experiencing the improvement in different constructs of the behaviour of their child at home. Therefore, the findings imply that involving teachers and parents in interventions helped improve their perceived effectiveness and their appreciation of interventions compared to their contrary pre-intervention attitudes. Therefore, the extent of the improvement they

experienced with the execution of SS intervention addressed their previous perceptions of SS intervention, and this improvement in perception of the intervention during the post period has been identified in prior studies; for example, Cameleri et al. (2022) note that participation of teachers and parents and their consequent changes in perception are also exhibited in competence ratings and variation in ratings is also dependent on their level of experience with interventions. This idea relates to current findings whereby the experience of teachers' and parents' pre-intervention are linked to their perceived notions regarding using interventions, and transition in their perception came with experiencing the intervention and its effectiveness post-intervention. This further highlights the need for the contribution of developing positive perceptions and attitudes among teachers and parents/guardians to the use of SS intervention in a culturally sensitive context, such as Saudi Arabia. This finding also opens gateways for broader perspectives to address domains of prevailing stigmas and discrimination that are limiting positive awareness and knowledge among teachers and parents towards better practice and execution of SS interventions for autistic children.

#### **7.10 Continuity of SS Intervention, i.e., to Be Part of a Syllabus**

Another important implication of this study is the vital importance of continuity in SS intervention to the point of including it as part of the curriculum. Based on the findings, it has been inferred that the participating students' success would have been more profound if the intervention had been implemented longer. Given the six weeks of the SS intervention's implementation, findings indicate positive developments and progress for participating students in terms of both social and behavioural skills. Hence, a longer implementation might have profound results. This notion is supported by both participating parents and teachers, as they recognised that if the intervention was implemented for longer, development would be more significant. Moreover, findings suggested that six weeks for intervention was notable for eliciting desired changes, it could have produced many potential results if continuously conducted for a longer period. Kokina and Kern (2010) mention one to six weeks of intervention as a brief period, while other researchers, such as Balakrishnan and Alias (2017), mention that the continuation of SS intervention consistently ensures more success with this approach and efficient collaboration between teachers and parents. However, prior studies such as Crozier and Tincani (2005) mention that there needs to be more evaluation in this perspective of determining the optimal length of intervention that could determine a suitable duration of use.

Furthermore, SS should be implemented on a regular basis to keep monitoring the progress and advancement in the social skills and behaviour of autistic children. Findings suggest that using SS intervention was effective to a considerable extent since the overall improvements could be considered significant. However, the persisting challenges could have been addressed more if further intervention had been implemented, considering the trend of progress seen and observed during the six-week intervention. This finding implies that if the intervention period was longer and more regular, it could have addressed other unaddressed dimensions more significantly. Previous literature also suggests that autistic children benefit more from any intervention or technique if repetition and consistency are maintained to integrate the desired improvement in behaviour (Lewis et al., 2008). Samuels et al. (2008) elaborate that temporary exposure to SS intervention may be enough to address the particular challenge in some autistic children. However, high intensity exposure may be more beneficial for some with a high degree of challenging behaviour and difficulties. Balakrishnan and Alias (2017) also mention the consistent use of SS, in that case it being read to participants daily. The authors assure SS offers successful outcomes, even after execution of the intervention period, with occasional revisiting until the desired behaviour is maintained, limiting the chances of a reversal of behaviours. It is also argued that in addition to prolonging the use and duration of SS intervention for continued success, variations in the content and theme are also mandatory to retain motivation (Kuoeh and Mirenda, 2003; Samuels et al., 2008).

### **7.11 SS Is a Uniquely Individual Approach to Each Student**

The implication of the study's findings highlights the need to implement the SS intervention based on an individual approach. Due to the distinct requirements of each person with autism spectrum disorder (ASD), a singular approach is inadequate to address all their needs, as indicated by Jones et al. (2008). Consequently, effective practice for ASD necessitates a diverse set of strategies, akin to a "toolbox", to cater to individual needs (Charman et al., 2011). While the key traits of ASD are widely recognised, it is crucial to acknowledge that the impact of ASD varies with each person, and while specific challenges associated with ASD are identified, recognising the unique strengths and interests of each person is equally essential. These personal attributes often serve as a foundation for creating tailored interventions, as noted in studies by Wittemeyer et al. (2012) and English et al. (2015). It is also worthwhile to consider the uniqueness of each individual student in terms of where

he/she lies on the spectrum and how much the characteristics affect them. Moreover, at the same time as there are classified core challenges that designate their individual needs, it is also important to identify their individual interests and strengths as these commonly are the precursors for developing individualised interventions (English et al., 2015).

The current study presented the use of SS based on students' individual challenges and recognises that having one social story for all would not be appropriate, and this finding is consistent with views presented in prior studies. For instance, Rust and Smith (2006), keeping in view the understanding level and specific behavioural challenges, indicate that SSs are designed individually to help support and resolve issues on an individual basis. The need to have an individual design for each student in an intervention also relates to the heterogeneous difficulties and challenges; e.g., the findings of the given study produced mixed results, only proving the heterogeneity of the participants underpins the importance of using the individual approach in implementing the SS. Their SS needs to be consistently executed and based on an individualised approach to support change. However, having the individual approach of SS intervention accommodating a large-scale study is also criticised as it would make systematic evaluation difficult (Marshall et al., 2016). Using an individual SS design for students has been recognised as a potential solution in a mainstream setting, as Marshall et al. (2016) mention that retaining individualisation in SS intervention, particularly in mainstream settings is a central feature of this intervention. This feature is also exhibited in the current study, wherein the targeted students were in a specialised setting. However, the underlying complexities, measurement of delivery, and maintenance of the required layout were considerations identified by prior studies for the efficacy of SS intervention (Kasari and Smith, 2013).

### 7.12 Reflection of Methodology

In consideration of the underlying intent of the research and the primary research question, the study aimed to address the gap by developing insights through the quantitative findings and qualitative perspectives on the effectiveness of interventions for autistic children, and the mixed-method approach provided rich insights both quantitatively and qualitatively. Choy (2014) adds that data collected from different methods could significantly help in conducting an in-depth analysis of the results through triangulation, which is appropriate for this study, as it investigates the impact of the SS intervention on children's social skills, behaviour, and individual ASD characteristics.

One major implication of this methodological approach is the comprehensive understanding it provides. By combining quantitative and qualitative data, the study offers a robust analysis that enriches the insights into the effectiveness of the SS intervention. This comprehensive understanding is essential when it relates to the development of effective interventions, which can be applied or adapted as well as implemented in diverse contexts. This mixed-method approach ensures that interventions are not only evidence-based but also contextually relevant and adaptable to different environments and cultural settings.

Another significant implication is the importance of cultural adaptation in the research methodology. The study highlights that effective data collection must consider cultural sensitivities and adapt methods to respect language, religious beliefs, social behaviours, traditional customs, and ethical values (Liao et al., 2017). For example, in the Saudi cultural context, certain data collection methods like videotaping or sharing pictures were not suitable, especially considering the practice of wearing hijabs among Muslim women, and by acknowledging and respecting these cultural and religious practices, the study ensured that the methodology was relevant and effective for the participants.

The use of a case study method and the mixed-method approach are relevant for conducting the SS intervention, and the current study accentuates the significance of the unique characteristics of using mixed methods to understand and evaluate the factors that relate to diverse autistic children, the varying degree of their challenges and issues, the broader perspectives of both teachers and parents pre- and post-intervention, and reflection on the use of SS intervention pre- and post-execution. The efficacy and strength of using mixed methods located the differences in ratings and observations, pre- and post-intervention, from both teachers' and parents' perspectives. Using a mixed-method approach has been endorsed as an effective means in the context of implementation research, and Zhang (2014) emphasises a better intervention design and implementation through the use of mixed methods through the collection of data before, during, and after research as a comprehensive mean of developing rich descriptions for the implementation process. Furthermore, using multiple methods enhances the rigour of the procedure. Since the current study is by its nature small-scale and exploratory, the generalisation of the findings from the six cases to a larger population may be difficult. Moreover, transferability was not intended in the underlying study, but it can be

tentatively inferred, where appropriate, to gain a deeper understanding of how SS intervention can be executed to address the multiple challenges of autistic children.

#### 7.14 Conclusion

Findings of the current research imply that multiple factors and characteristics associated with participants, the intervention setting, and overall characteristics of the intervention determine the success and efficacy of its execution and its resulting impact on the targeted autistic children in the desired way. The study produced a novel contribution in terms of the execution of SS intervention in a culturally sensitive context, i.e., Saudi Arabia through a collaborative approach with teachers and parents/guardians. Referring to the culturally appropriate interventions and instruments for a culturally sensitive setting of Saudi Arabia, where the prevalence of autism is proliferating, the findings of the current study would be a valuable addition to the available literature base, which is largely culturally and contextually biased (Leeuw et al., 2020). The findings and insights of this study are a positive learning and guiding experience for researchers, students, authorities, parents, and practitioners seeking a positive approach and information to help address the prevailing negatively internalised evaluation of children with autism. The findings of the current study cohere with the views of Güral et al. (2013) that various factors shape and influence the execution of SS intervention, such as the geographical context, the age and gender of the participants, and socio-economic factors, such as teachers' and parent's attitudes towards the use of intervention and the prevailing internalised stigma regarding autism that may have influenced their ratings. Another distinction of the current study is that it offers a broader view of behavioural differences and social development of children with autism by taking into account both teacher and parental perspectives and exhibiting their collective efforts to address these differences in both school and home contexts, respectively.

Moreover, as mentioned by prior studies, the effectiveness of SS relates to successful collaboration between intervention participants, i.e. teachers, parents and the researcher (Wright et al., 2016; Bronwell, 2018) and achieving consent between all three may prompt an effective intervention (Qi et al., 2018). The current study made a potential contribution in terms of accomplishing collaboration between teachers, parents and researcher to execute SS intervention.

The SS intervention characteristics that appeared to influence the overall intervention procedures were the ultimate goal of its implementation, i.e., developing and supporting specific social skills, reducing behaviours, and acquiring overall ASD characteristics. These factors are further influenced by setting the intervention to manifest desired positive changes, i.e., in the mainstream classroom setting and observation by parents at home. Moreover, the influence and skills of intervention agents, i.e., researchers, teachers, and assistants, in executing the SS intervention also impact how much improvement in the targeted challenges is wanted. Another crucial factor found to impact retention and maintaining the improved positive changes is the timing and duration of the intervention. As some of the areas did not show the desired amount of improvement, i.e., improvement in social skills outpaced the improvement of behaviour of autistic children, it can be implied that if the duration of executing intervention was prolonged from a brief duration (1-10 sessions) to a medium (11-20) or even longer period (21-30) (Kokina and Kern, 2010) and was sustained on regular bases, it could have improved the latter construct in the same way as social skills were. In addition, the individualisation of SS intervention for each child also generates efficacy in addressing the specific behaviour of each child in a peculiar way. Having several SSs for an individual child and modifying their content over some time also holds the strength of addressing more intrinsic challenges, as mentioned in light of prior studies in the sections mentioned above. The findings also imply that, although intervention produced significantly positive improvements on the whole in all targeted areas for the autistic children, evaluation for detailed insight also requires the use of a comprehension check post-intervention to determine further modifications in different areas of the intervention.



## CHAPTER 8 – CONCLUSION

### 8.1 Introduction

This study aimed to determine the overall impact of the Social Story™ (SS) intervention with six participating children with autism from Ajyal Al Watan Centre Riyadh in the Kingdom of Saudi Arabia. This was achieved by answering three specific research questions: (1) the impact of SS intervention on children's social skills, (2) the impact of SS intervention on children's challenging behaviour, and (3) the impact of SS intervention on the individual autism spectrum disorder (ASD) characteristics of the participating children.

Utilising a single case mixed method, i.e., using both quantitative and qualitative data collection methods, and analysing the data by using triangulation was shown to be appropriate in determining the impact of the SS intervention on children with autism. Through this type of methodology and approach, the study highlighted the positive impact of SS intervention on the social and behavioural skills of the six children with autism; however, the impact of the intervention on social skills indicated was greater compared to the impact on the challenging behaviour of the participating students. As the SS intervention was created uniquely for each of the participating children, it was revealed that the intervention also positively influenced the individual ASD characteristics of the participating children, leading to developments in other skills, such as recognising emotions, listening improvement, eye contact, and sharing.

Following the guidelines set by Gray (2018) in the creation of Social Stories™ also proved to be beneficial in investigating the impact of the SS intervention. However, before the implementation, two notable observations needed to be pointed out: the importance for teacher/parent/guardian collaborations, and their co-production in the creation and development of SS intervention. Consultations with parents and teachers can be very valuable in addressing the right target goals for the intervention as well as accurately creating social stories uniquely applicable to each participating student. Moreover, such consultation and cooperation between parents and teachers may strengthen the home-school collaboration beneficial for the students.

This study also postulates that the SS intervention impacts students with autism across cultures, indicating the applicability of Social Stories™ in educating children with autism. Similarly, this finding indicates the need for more research in different settings focused on SS

intervention in the Kingdom of Saudi Arabia, the Gulf, and the Middle East. Given the fact that the study managed to influence the perspectives of teachers and parents concerning SS intervention, future research on this can only bolster more detailed findings and conclusion as to the effectiveness of SS intervention. Changing the perspectives of the parents/guardians and teachers also reduced their apprehensions and increased their interest and determination to use SS intervention to help children with ASD, and the said impact helped create awareness of the effectiveness of SS intervention, which might result in reducing or eliminating discrimination and stigmatisation of children with autism in mainstream educational institutions. Such reduction or elimination could potentially lead to recognition of the potential benefits of the SS intervention, which could further result in considering it as part of the school's syllabus, and with such potential achievements, advocating for a more inclusive education system in Saudi Arabia could be achieved. Detailed implications of the findings have been pointed out in the discussion and analysis in Chapter 6.

Given the limited timeframe, i.e. implementation over six weeks, the positive impact suggests the need to continue the implementation with the potential for more positive outcomes for the students with ASD, the teachers (in terms of a more effective educational tool to be employed), the parents/guardian in assisting their children in performing better in social functions, at home, and in the community, and the entire educational system of Saudi Arabia in terms of continuous improvement in implementing the best curricula for schoolchildren.

The following sections discuss this study's contributions to research and practice as well as the limitations that affected this research.

## 8.2 Contributions to Research

This study's findings, most specifically its insights discussed in Chapter 6, suggest various benefits for research in the field.

First and foremost, this study's focus on SS intervention has impact in terms of augmenting and enriching the extant literature in the field. The insights from the findings, such as the impact of SS intervention seen across cultures, can further expand researchers from the Middle East or other cultural contexts in which SS intervention has not been explored well to conduct or continue their research in order to bring enlightenment and awareness of the effectiveness of SS intervention in schools. Enriching extant literature can aid researchers in

investigating further the effectiveness of SS as well as comparing results and findings to make valuable generalisations for the benefit of practitioners in the field. Notably, the enrichment of literature in the Saudi context can help researchers to investigate the differences or similarities in the impact of SS intervention in the Arabian Gulf and US-European contexts, which could result in learning how best the SS intervention be implemented or used.

Second, the insights that show SS intervention worked for the six participating children in the Ajyal Al Watan Centre Riyadh and could potentially work in the Saudi context can motivate the Saudi Ministry of Education to fund and encourage further research into SS intervention in other schools in order to collect data and compare results and findings before making the informed decision about including SS intervention in the educational system of Saudi Arabia. Upon making the decision to include it, the Saudi Ministry of Education can plan for a comprehensive awareness campaign of SS intervention and its effectiveness in teaching students with disabilities.

Third, the findings revealing the differences in the ratings of social skills and challenging behaviour by parents/guardians and teachers suggest the need for teacher-parent/guardian cooperation and collaboration, and this finding can help direct future research in terms of the best way for teachers and parents/guardians to cooperate in relation to supplementing the learning of students with disabilities, not only in school but also in home settings.

Additionally, if the collaboration is centred on teaching children with autism, it would guide teachers and parents/guardians on how to co-produce Social Stories™ and specifically target the needs of individual children.

Fourth, the finding that SS intervention significantly impacted children's social skills, and communication and engagement in particular, can encourage researchers to focus their studies on learning whether this finding is true in other schools in the Saudi context and to some extent compare and contrast this finding with other cultural contexts to better understand the effectiveness of SS intervention.

Fifth, despite the challenges associated with juxtaposing two different sets of data (quantitative and qualitative), this approach helps reveal clear differences and similarities in the results. These insights can be used to produce meaningful implications for the study and present evidence-based findings applicable to the specific context, and the resulting analysis

not only enhances the understanding of the intervention's impact but also provides a foundation for developing more refined strategies in future research. This method of data juxtaposition underscores the importance of comprehensive data analysis in producing practical and applicable outcomes in educational interventions for autistic children.

Last, future research should explore the use of additional interventions and strategies alongside SS intervention, such as external reinforcers and prompts to remind students when they are not exhibiting targeted behaviour. Additionally, investigating digitally mediated SS interventions that incorporate technology may reveal novel gains and innovative approaches for supporting autistic children.

### 8.3 Contributions to Practice

Due to the apprehensions of educators and leaders of educational institutions concerning the use of interventions, it is difficult to motivate and encourage their participation in the study. However, the researcher has been successful in motivating and coordinating the school's, teachers', and parents/guardians' participation in the study, which the researcher considers as an achievement in itself. The participation of relevant stakeholders impacted the materialisation of this thesis, implying the recognition of its benefits to practitioners in the field.

First, this study's importance contributes to the widening of the practitioners' perspectives, particularly the educational institution and its teachers. Based on the interview and some informal conversations the researcher had with them, some of the teachers indicated their apprehension and apathy toward interventions as tools for teaching students with disabilities. Additionally, almost all of them indicated a lack of knowledge concerning SS intervention and seemed to lack knowledge of any other interventions that might work. This study clearly removed their apprehensions and apathy toward SS intervention by suggesting the continuation of the implementation of the SS intervention, and their first-hand experience in witnessing the progress in children made them realise that SS intervention really works, acknowledging that this progress can be extended through extending the exposure of children to Social Stories™.

Second, this thesis serves as an avenue for teachers to suggest to their educational institution's officials to consider the SS intervention as part of their syllabus. The participating teachers

observed the benefits of using SS intervention in teaching children with autism, and in return, would like to suggest its continuation as well as learning about SS through workshops. The teachers' willingness suggests the effectiveness of SS intervention as a teaching tool; thus, they indicated their interest in suggesting the inclusion of social stories in their syllabi.

Third, for parents and guardians of children with autism who face daily challenges concerning their respective children's disabilities, the study provides them with hope for their children's bright futures as equal members of their respective families and functional individuals in the community. Parents/guardians indicated the effectiveness of SS intervention in developing skills, i.e., skills in communication, engagement, and behaviour as well as other social skills like greeting and acknowledging, and the parents/guardians strongly suggested the continuation of the SS intervention, recognising the potential for further development once its implementation continues.

Fourth, the researcher anticipates that the insights garnered from this study will not just enlighten teachers, school administrators, and parents, but also resonate with key decision-makers, most notably the Saudi Ministry of Education. In demonstrating the effectiveness of Social Stories™ (SS) intervention for ASD students, this thesis emphasises the importance of integrating such practices at an institutional level. The Ministry of Education serves as the epicentre of educational reforms and policies, and its endorsement and active promotion of SS intervention could formalise and strengthen a large-scale implementation of the SS intervention. The ministry could officially recognise and incorporate SS into teacher training programmes, which could lead to a wider generalisation and validation of the intervention's effectiveness, and this approach could dramatically expedite the process of adoption and implementation, potentially ensuring that every child in need can benefit from this evidence-based strategy. Moreover, the ministry could commission further research, perhaps in partnership with academic institutions, to continually assess the effectiveness of SS interventions and refine them based on ongoing results. Finally, the inclusion of SS interventions could serve as a catalyst for similar reforms throughout the Middle East, by extending its influence beyond the national border, serving as a model for other Middle East nations to follow.

Last but not least, it is the hope of the researcher that this thesis contributes to the reduction and elimination of discrimination and stigmatisation of children with disabilities in schools

and communities. The promising progress of children even with limited exposure to SS intervention may be extended through longer exposures or SS becoming an integral part of the educational system's curriculum. The children's acquisition of needed social skills and behaviour might help change people's unfair treatment of the children because of their disabilities.

#### 8.4 Limitations

This study pioneers the use of SS intervention in an educational institution in the Kingdom of Saudi Arabia and given the positive outcomes of the study's investigation, this study highlights benefits to various relevant stakeholders as discussed above. However, the researcher acknowledges that this study contains some limitations, specifically in its design, methodology, and other factors, some of which lie beyond the researcher's control.

First, this study uses six participating school children with ASD in one setting, which is adequate and more than in some existing studies in the field. However, the small sample size is still considered insufficient to make generalisation regarding the findings, and given the lack of research conducted on the use of SS intervention in the Saudi context, this study's findings could not be generalised. However, this study could be the first of many and can serve as a basis for comparison.

Second, Chapter 3 discusses the use of a multiple-case mixed method for this study highlighting the importance of addressing the weaknesses of qualitative and quantitative data collection methods. Nevertheless, this study, being a multiple case study, also hinders the researcher from making definite conclusions with a high degree of certainty from its findings. This study presents its findings and analysis but cannot make any definite generalisations, hence, the recommendation for further research, as mentioned above.

Third, this study utilised both quantitative and qualitative data to address each method's weaknesses. It has to be noted that in the collection of qualitative data, i.e. the semi-structured interviews of parents/guardians and teachers, there is a possibility of personal bias in terms of their responses to the questions, especially when taking into consideration the need of parents to present their children in a positive manner, or the teachers' intention to project positive developments. However, the qualitative data have been combined and compared with the quantitative data in order to present more holistic findings.

Fourth, the timeframe set in the design of the SS intervention could have a potential impact in terms of the extent of the positive outcomes of the research. Four weeks have been set for the implementation of the SS intervention, following the extant literature. Given the feedback of parents/guardians and teachers acknowledging the need for further implementation and recognising better positive outcomes, the timeframe limited the maximum potential of achieving a more definite statement of children's progress relative to addressing their needs. It is, therefore, consequential to consider the need for longer-term follow-up to ensure that the learned skills continue and develop.

Fifth, the researcher facilitated the research process by selecting appropriate participants for the intervention and identifying the behaviours and challenges that needed addressing. However, several limitations impacted the study. The selection process, although thorough, may have introduced bias in choosing participants who were more likely to respond positively to the intervention. Additionally, the design of the intervention procedures had to take into account the limitations of classroom layouts and schedules, which could have impeded the execution of the intervention, and these constraints might have affected the overall efficacy of the intervention. Efforts were made to overcome these challenges, but the inherent limitations of the educational environment could not be entirely mitigated.

Last but not least, despite the rigorous methodologies employed to counter the Hawthorne effect, some limitations persist due to the inherent nature of behavioural studies. The initial familiarisation process, whereby participants were desensitised to the observation through 'warm-up' sessions, aimed to reduce behaviour alterations due to the novelty of the research setting (Rosenthal and Rosnow, 2009). However, it is possible that some level of awareness and consequent behavioural alteration remained among the participants throughout the study.

Overall, despite the limitations pointed out in this section, this study presents insights that could impact the lives of children with ASD as well as the lives of the parents facing this challenge.

In summary, it is evident that Social Story™ (SS) intervention serves as a promising tool for improving the social and behavioural skills of students with autism spectrum disorder (ASD).

Not only has this study yielded positive outcomes for the participating children, but it also marks an important step in offering empirically based interventions in a Middle Eastern context, a region where such approaches are not widely studied.

Additionally, the positive change in perceptions among parents and teachers who participated in the study indicates a broader potential for acceptance and inclusion. If such interventions were to be systematically integrated into the curriculum, it could lead to a more inclusive educational environment, which would be particularly important in areas where stigmatisation and misinformation about disabilities exist.

Moreover, the significance of this study indicates the need for future research in culturally underrepresented settings, which could enhance existing literature in the field, encouraging scholars and practitioners alike to consider the involved relationship between culture and intervention effectiveness.

This study also lays the groundwork for future inquiries. While this research focused on a relatively small sample size of six students, subsequent studies could explore the intervention's impact on a larger scale and across different educational settings, geographical locations, or age groups. This could serve as an avenue for more robust conclusions, which could eventually lead to policy changes, beneficial to children with ASD.



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## APPENDIX 1 – University Ethical Committee’s Approval

UNIVERSITY OF LEEDS RESEARCH ETHICS COMMITTEE APPLICATION FORM <sup>1</sup>



**UNIVERSITY OF LEEDS**

Please read each question carefully, taking note of instructions and completing all parts. If a question is not applicable please indicate so. The superscripted numbers (eg<sup>8</sup>) refer to sections of the guidance notes, available at <http://ris.leeds.ac.uk/uolethicsapplication>. Where a question asks for information which you have previously provided in answer to another question, please just refer to your earlier answer rather than repeating information. Research ethics training courses: <http://www.sddu.leeds.ac.uk/research-innovation/research-ethics-training-and-guidance>

To help us process your application enter the following reference numbers, if known and if applicable:

Ethics reference number:	
Student number and/ or grant reference:	201039306

### PART A: Summary

A.1 Which [Faculty Research Ethics Committee](#) would you like to consider this application?<sup>2</sup>

- Arts, Humanities and Cultures (PVAR)
- Biological Sciences (BIOSCI)
- ESSL/ Environment/ LUBS (AREA)
- MaPS and Engineering (MEEC)
- Medicine and Health (Please specify a subcommittee):
- School of Dentistry (DREC)
- School of Healthcare (SHREC)
- School of Medicine (SoMREC)
- School of Psychology (SoPREC)

A.2 Title of the research<sup>3</sup>

The use of social stories as an intervention to develop the social and behavioural skills of students with Autism Spectrum Disorder (ASD) in school and home settings

A.3 Principal investigator’s contact details<sup>4</sup>

Name ( <i>Title, first name, surname</i> )	Miss Nouf Al Shammari
Position	PGR student

Department/ School/ Institute	School of Education
Faculty	ESSL
Work address ( <i>including postcode</i> )	LS2 9JT Room 2.20 School of Education, University of Leeds Leeds LS2 9JT UK
Telephone number	07853487187
University of Leeds email address	Ed16nmsa@leeds.ac.uk

A.4 Purpose of the research: <sup>5</sup> (Tick as appropriate)	
<input type="checkbox"/>	Research
<input checked="" type="checkbox"/>	Educational qualification: <i>Please specify:</i> <u>PhD</u>
<input type="checkbox"/>	Educational Research & Evaluation <sup>6</sup>
<input type="checkbox"/>	Medical Audit or Health Service Evaluation <sup>7</sup>
<input type="checkbox"/>	Other

A.5 Select from the list below to describe your research: (You may select more than one)	
<input checked="" type="checkbox"/>	Research on or with human participants
<input type="checkbox"/>	Research which has potential adverse <a href="#">environmental impact</a> . <sup>8</sup> <i>If yes, please give details:</i>
<input type="checkbox"/>	Research working with data of human participants
<input checked="" type="checkbox"/>	New data collected by qualitative methods
<input checked="" type="checkbox"/>	New data collected by quantitative methods
<input checked="" type="checkbox"/>	New data collected from observing individuals or populations
<input checked="" type="checkbox"/>	Routinely collected data or secondary data
<input type="checkbox"/>	Research working with aggregated or population data
<input type="checkbox"/>	Research using already published data or data in the public domain
<input type="checkbox"/>	Research working with human tissue samples ( <i>Please inform the relevant <a href="#">Persons Designate</a> if the research will involve human tissue</i> ) <sup>9</sup>

A.6 Will the research involve NHS staff recruited as potential research participants (by virtue of their professional role) or NHS premises/ facilities?	
<input type="checkbox"/>	Yes
<input checked="" type="checkbox"/>	No
<i>If yes, ethical approval must be sought from the University of Leeds. Note that <a href="#">approval</a> from the NHS Health Research Authority may also be needed, please contact <a href="mailto:FMHUniEthics@leeds.ac.uk">FMHUniEthics@leeds.ac.uk</a> for advice.</i>	

A.7 Will the research involve any of the following:<sup>10</sup> (You may select more than one)

*If your project is classified as [research](http://www.myresearchproject.org.uk) rather than service evaluation or audit and involves any of the following an application must be made to the [NHS Health Research Authority](http://www.nhs.uk) via IRAS [www.myresearchproject.org.uk](http://www.myresearchproject.org.uk) as NHS ethics approval will be required. There is no need to complete any more of this form. Further information is available at <http://ris.leeds.ac.uk/NHSEthicalreview> and at <http://ris.leeds.ac.uk/HRAapproval>. You may also contact [governance-ethics@leeds.ac.uk](mailto:governance-ethics@leeds.ac.uk) for advice.*

- |                                     |                                                                                                                                                     |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | Patients and users of the NHS (including NHS patients treated in the private sector) <sup>11</sup>                                                  |
| <input type="checkbox"/>            | Individuals identified as potential participants because of their status as relatives or carers of patients and users of the NHS                    |
| <input type="checkbox"/>            | Research involving adults in Scotland, Wales or England who lack the capacity to consent for themselves <sup>12</sup>                               |
| <input type="checkbox"/>            | A prison or a young offender institution in England and Wales (and is health related) <sup>14</sup>                                                 |
| <input type="checkbox"/>            | Clinical trial of a medicinal product or medical device <sup>15</sup>                                                                               |
| <input type="checkbox"/>            | Access to data, organs or other bodily material of past and present NHS patients <sup>9</sup>                                                       |
| <input type="checkbox"/>            | Use of human tissue (including non-NHS sources) where the collection is not covered by a Human Tissue Authority licence <sup>9</sup>                |
| <input type="checkbox"/>            | Foetal material and IVF involving NHS patients                                                                                                      |
| <input type="checkbox"/>            | The recently deceased under NHS care                                                                                                                |
| <input checked="" type="checkbox"/> | None of the above<br>You must inform the Research Ethics Administrator of your NHS REC reference and approval date once approval has been obtained. |

*The HRA decision tool to help determine the type of approval required is available at <http://www.hra-decisiontools.org.uk/ethics>. If the University of Leeds is not the Lead Institution, or approval has been granted elsewhere (e.g. NHS) then you should contact the local Research Ethics Committee for guidance. The UoL Ethics Committee needs to be assured that any relevant local ethical issues have been addressed.*

A.8 Will the participants be from any of the following groups? (Tick as appropriate)

<input checked="" type="checkbox"/>	Children under 16 <sup>16</sup> <i>Specify age group: 4-6 years</i>
<input type="checkbox"/>	Adults with learning disabilities <sup>12</sup>
<input type="checkbox"/>	Adults with other forms of mental incapacity or mental illness
<input type="checkbox"/>	Adults in emergency situations
<input type="checkbox"/>	Prisoners or young offenders <sup>14</sup>
<input type="checkbox"/>	Those who could be considered to have a particularly dependent relationship with the investigator, eg members of staff, students <sup>17</sup>
<input checked="" type="checkbox"/>	Other vulnerable groups
<input type="checkbox"/>	No participants from any of the above groups

*Please justify the inclusion of the above groups, explaining why the research cannot be conducted on non-vulnerable groups.*

The research will explore the behaviour of children with ASD in a young age group (4-6 years old). This research constitutes an early intervention in their lives in order to improve their social and behavioural skills and therefore it is necessary to include them as participants. This work cannot be conducted with non-vulnerable groups as they are the crux of my study.

It is the researcher's responsibility to check whether a DBS check (or equivalent) is required and to obtain one if it is needed. See also <http://www.homeoffice.gov.uk/agencies-public-bodies/dbs> and [http://store.leeds.ac.uk/browse/extra\\_info.asp?modid=1&prodid=2162&deptid=34&compid=1&rodvarid=0&catid=243](http://store.leeds.ac.uk/browse/extra_info.asp?modid=1&prodid=2162&deptid=34&compid=1&rodvarid=0&catid=243).

A.9 Give a short summary of the research<sup>18</sup>

This section must be completed in language comprehensible to the lay person. Do not simply reproduce or refer to the protocol, although the protocol can also be submitted to provide any technical information that you think the ethics committee may require. This section should cover the main parts of the proposal.

The social stories (SS) intervention is basically a co-authored short story for children to help them to learn how to behave in or manage a particular social situation. It is often used to support children with autism spectrum conditions (ASD) with their understanding of social situations. Previous research in this area suggests that this intervention gives positive results when used with such children because the social stories can be tailored to fit the unique challenges of each individual. Although this intervention has been seen to be effective, it has not been used previously in a Saudi Arabian context so this study will be the first of its kind.

So, my research aims to examine the effectiveness of social stories in the light of Social Learning Theory; secondly, it seeks to measure how social stories can improve the participation of ASD children in both home and school settings; and, thirdly, it attempts to assess how Social Learning Theory can be used to improve the learning of social and behavioural skills in these settings. Thus, the findings of this research are expected to inform educational practitioners, teachers and guardians/parents in the effectiveness, as well as the use, of social stories as an intervention for children with ASD.

Based on my aims, my research question is:

How does the use of SS influence the development of the social and behavioural skills of children with ASD in school and home settings?

This question will be answered via a four-phase intervention plan (see section C.2 on Design), implemented with three males and three females aged 4-6 years. All interactions with my participants (children, teachers, guardians/parents) will take place within school premises and all the data will be collected after the informed consent from guardians/parents and teachers is received.

A.10 What are the main ethical issues with the research and how will these be addressed?<sup>19</sup>  
*Indicate any issues on which you would welcome advice from the ethics committee.*

I will be in direct contact with young children with ASD so I need to obtain the consent of their parents/ guardians and teachers. I will address the ethical issues as detailed below.

Working with children with ASD:

The main participants in this study are classified as a vulnerable group due to their autism and young age so the consent of guardians/parents must first be given. A copy of the consent form, which will be translated into Arabic, is attached in Appendix One. The consent form makes clear that no video recording of the child will take place, nor will any pictures be used that show their faces. Guardians/parents have the right to withdraw their child from the research any time before phase two; no reason need be given. All participants will be anonymous and pseudonyms will be given to the participants.

Secondly, children will also be able to show their ongoing consent to take part in every session as their reactions will be taken into account. I will be using 'sad' and 'happy' face cards when asking them a basic question of how are they today? And are they willing to take part in today's intervention class? This will give them space to express feelings and give me their consent to participate.

Third, I am well aware of unpredictable circumstances that a participant might experience on a particular day so I will include a contingency plan to ensure that 'extra days' can be allocated. If a participant becomes unhappy about participating on more than one occasion, I will assume that he/she does not want to participate and the individual will be withdrawn; participants' best interests will always be considered a priority.

Fourth, children will be able to express their consent by happy and sad face cards will help me to identify whether or not they wish to participate in the study. These cards will be used before every session.

Dealing with sensitive issues for parents and teachers in the questionnaires and interview:

The consent form will ensure that the guardians/parents /teachers are aware of first, the SSIS-RS post and pre-questionnaires that they will need to complete within two weeks of their receipt. They

can withdraw themselves from the questionnaire and ask for their results to be omitted within seven days after answering; after this, the questionnaire answers will not be destroyed.

Secondly, participants can withdraw from the post, semi-structured, in-depth interviews within a week by sending an email as I am aware that it might be a sensitive issue for guardians/parents to speak about their child and his/her differences, especially since teachers might have previously encountered difficulties related to their child's education. Therefore, I will address this by first sending a copy of the interview questions with the consent and information pack (Appendix One). This will ensure that the guardians/parents are well aware of the questions that will be asked and that they come prepared to discuss them. Second, there will be no pressure to answer any question that they might feel uncomfortable answering. Also, if I sense that the interview is causing distress, I will ask the interviewee to refrain from answering or arrange for another meeting.

#### Pseudonymisation:

Because my research is about a single case study (i.e., at Ajyal Al Watan Centre), I cannot guarantee 100% anonymisation if others are aware that the research took place there (and this is noted in the information form). However, all data collected from children, parents/ guardians and teachers will be pseudonymised. Although this strategy will be used, there is still a potential link to identity. However, I can guarantee that the information gathered will not be shared and will be kept confidential.

Because of my direct contact with the children I will be working with, I will be recognised by the school director and other staff members. This is a common limitation with this kind of research which demands such direct contact.

#### Participants' welfare:

As a researcher with legal and humanitarian duties towards participants (parents/guardians, teachers and children with ASD), I am entitled to look after their welfare. Hence, confidentiality will only be broken in the case if I find any of the participants in danger of being hurt or hurting another person. The researcher will be in contact with the school director and if necessary, child protection services.

### PART B: About the research team

B.1 To be completed by students only <sup>20</sup>	
Qualification working towards (e.g. Masters, PhD)	PhD
Supervisor's name (Title, first name, surname)	Professor Ruth Swanwick
Department/ School/ Institute	School of Education
Faculty	
Work address (including postcode)	1.05 Hillary Place Faculty of Education, Social Sciences and Law Beech Grove House University of Leeds LS2 9JT
Supervisor's telephone number	+44(0)113 343 4582
Supervisor's email address	R.A.Swanwick@education.leeds.ac.uk

Module name and number (if applicable)	NA
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B.2 Other members of the research team (eg co-investigators, co-supervisors) <sup>21</sup>	
Name ( <i>Title, first name, surname</i> )	Dr Judith Hebron
Position	Lecturer
Department/ School/ Institute	School of Education
Faculty	
Work address ( <i>including postcode</i> )	2.18 Hillary Place Faculty of Education, Social Sciences and Law Beech Grove House University of Leeds LS2 9JT
Telephone number	+44(0)113 343 4553
Email address	J.Hebron@leeds.ac.uk

### Part C: The research

#### C.1 What are the aims of the study?<sup>22</sup> (Must be in language comprehensible to a lay person.)

This research aims to examine the effectiveness of social stories as an intervention in the light of Social Learning Theory in developing the social skills of children with ASD in a Saudi Arabian context. More specifically:

It seeks to measure how social stories can improve initiation and participation in specific situations related to social engagement for children with ASD.

It attempts to assess the impact of Social Learning Theory in improving the learning attainment of autistic children in various settings (i.e. home and school).

The findings of the research are expected to inform educational practitioners, educational planners, policy makers, teachers and parents in the effectiveness, as well as the use, of Social Learning Theory as an intervention for children with autism.

#### C.2 Describe the design of the research. Qualitative methods as well as quantitative methods should be included. (Must be in language comprehensible to a lay person.)

*It is important that the study can provide information about the aims that it intends to address. If a study cannot answer the questions/ add to the knowledge base that it intends to, due to the way that it is designed, then wasting participants' time could be an ethical issue.*

This exploratory research will be an in-depth descriptive case study based in Riyadh, Saudi Arabia. It is a case study because it will be implemented in a particular context: i.e., Ajyal Al Watan Centre, Riyadh, KSA. There will be three groups of participants: first, the children with ASD (three males and three females aged 4-6 years old; second, guardians/parents of these children, and third, their teachers. My research design will allow me to measure the dependent variable (social skills in this study) of a single participant or a single cluster of participants through first:

An ABA design to evaluate the effectiveness of the intervention being executed (Appendix five).

This measurement involves establishing a baseline condition (phase A), followed by the intervention phase to track any improvements or changes (phase B) (Creswell, 2012). The use of a single subject ABA research design will obtain evidence-based results and assess the impact of the social story



intervention in developing social skills and addressing unexpected behaviour in the participating students. The data to plot the ABA design will be use the following data collection methods: Social Skills Improvement System-Rating Scales Questionnaire (Appendix three): the questionnaire will be distributed twice (pre- and post-intervention) to teachers and parents of the children with ASD. The questionnaire will be analysed by using a manual scoring guide (purchased along with the questionnaire); the bar graph will give descriptive data. This will allow me to assess any impact from the intervention.

Sally Anne Test: the Sally Anne test will be used to measure the pre- and post-ToM of each student. As mentioned earlier, this is a test performed using storytelling; it asks the child two questions to determine false belief. The two questions are: where is the marble really? (the reality question) and where was the marble in the beginning? (the memory question).

Observational frequency chart: This is a frequency chart that will be used for each child for four weeks (20 days). The researcher will record the frequency of the unexpected social behaviour from 8am to 1pm (start to end of school).

The SSIRS and observational chart will give a clear indication regarding whether or not there is improvement in the child's unexpected social behaviour. The ToM test, on the other hand, will show if there is change in the cognitive behaviour of the child when answering both questions correctly. The interview questions will be used as a tool to clarify the findings of the questionnaire and observations. They will be secondary tool to obtain deeper thoughts about the intervention and how affective it has been for the child in both home and school settings.

Post – intervention, semi-structured interview questions: These are questions asked to both teachers and guardians/parents after the implementation of the social story intervention (questions are attached- see Appendix Three). These interview questions will be semi-structured and open-ended in order to give both teachers and guardians/parents the space to express their feelings and opinions about the intervention. These will be analysed using thematic analysis after being translated and transcribed professionally.

Implementation of the social story intervention: this will be carried out in four steps according to social learning theory and the same steps will be followed with each child:

Co-write the social story with them side by side. I will hold the pen and write the social story under each image that I will have drawn beforehand. While writing the story, I will read it out loud.

After completing the draft, I will ask the student to repeat the story. He/she will be narrating it and I will be listening carefully, making sure my gestures are being noticed.

I will then ask the student to perform the social story: i.e., enact a role play. I will join in with the performance so that the session is interactive. The classroom will have enough space to perform the story and imitate the images within it.

This whole process (a, b, c) will be repeated with me asking questions about the story.

### C.3 What will participants be asked to do in the study?<sup>23</sup> (e.g. number of visits, time, travel required, interviews)

The research will take place in Riyadh, Saudi Arabia, at the Ajyal Al Watan Centre. The researcher will need approximately three months to complete data collection. The researcher has received informal permission from the Centre to conduct the research. However, this will be formalised once ethical approval has been granted.

There are three participant groups; each category has its own part in the study. Below are these three groups, each with its part in the study discussed:

The participants are six children with ASD (three males and three females aged 4-6 years old). They are involved with the main part of the study: i.e., the implementation of the social story. They will undergo a four-week process; three days per week for 40-45 minutes. The children will be asked to co-write a tailored story with the researcher that focuses on enhancing a pre-discussed behaviour. The child will also read and perform (pretend play) the story. The children are also participating in a quick ToM test (a 10 minute story) that will be conducted before and after the implementation of the social story. This will allow the researcher to measure whether or not ToM is affected by the social story intervention.

Six guardians/parents of the children with ASD will be asked to participate in the pre- and post-SSIRS questionnaire. These questionnaires will be sent home and participants will be asked to return them within seven days. Guardians/parents are encouraged to finish the questionnaire before attending a post semi- structured interview to discuss in detail any changes they noticed after the implementation of the social story. The pre- and post-interviews will be carried out in 30-40 minutes after the intervention within the Centre's premises at any time convenient to the guardian/parents.

Each child has two teachers and hence there will be 12 responses from teachers about each child's pre- and post-SSIRS questionnaire. Teachers will also be asked to participate in a post semi-structured interview to understand any details about the changes in behaviour and social skills of each child. A seventh teacher (chaperone) will be accompanying me while the social story intervention sessions are undertaken; her role will be to only monitor the session.

Each interview session will take approximately 30-40 minutes to be completed. All interviews are scheduled to take place within one week after the implementation of the social story intervention: i.e., the end of the 4 weeks' intervention (phase 3). Teachers and guardians/parents are welcome to choose any date and time convenient to them within the week. The interviews will take place within the Centre's premises.

C.4 Does the research involve an international collaborator or research conducted overseas:<sup>24</sup>  
(Tick as appropriate)

Yes     No

If yes, describe any ethical review procedures that you will need to comply with in that country:

This is my home country and I know the setting very well; thus, no specific procedures are required. Moreover, I will be driving myself to the Centre using my own car. I have been granted access to the Centre and a formal letter has been sent to my sponsors and to the Ministry of Education to agree on the Centre, allowing me to proceed to the data collection (after being granted ethical approval from Leeds University).

Describe the measures you have taken to comply with these:

Official agreement from the Director of Ajyal Al Watan Centre (Appendix Two)

Include copies of any ethical approval letters/ certificates with your application.

C.5 Proposed study dates and duration

Research start date (DD/MM/YY): 01/10/2018  
(DD/MM/YY): 31/08/2021

Research end date

Fieldwork start date (DD/MM/YY): 01/01/2020  
(DD/MM/YY): 31/04/2020

Fieldwork end date

C.6. Where will the research be undertaken? (i.e. in the street, on UoL premises, in schools)<sup>25</sup>

In the premises Ajyal Al Watan Centre, Abi Jafar Al Mansur, Riyadh, Saudi Arabia

## RECRUITMENT & CONSENT PROCESSES

*How participants are recruited is important to ensure that they are not induced or coerced into participation. The way participants are identified may have a bearing on whether the results can be generalised. Explain each point and give details for subgroups separately if appropriate.*

C.7 How will potential participants in the study be:

(i) identified?

The cooperation and participation of students, teachers and guardians/parents at The Ajyal Al Watan Centre (the study organisation) are required. The Centre was chosen, firstly, because of its high rating of A+ as the best care centre in Riyadh according to the Ministry of Social Development, and secondly, owing to the convenience of its location as it is situated in the capital city of KSA, Riyadh. Thirdly, it is a school exclusively for special education and has a high proportion of children with ASD. Lastly, I was a tutor there in 2010 although, because nine years have passed, I will need to refamiliarize myself with the rules and procedures.

The Centre has six classes of ASD, with each class consisting of 4-6 children. Therefore, the participants will be chosen according to certain selection criteria, which are:

Child diagnosed with ASD by an official registered local doctor

Between 4-6 years old

Registered student at the Centre

Three males and three females

After I have selected the participants, a consent letter and a guardians' /parents' approval form will be sent out to fulfil the ethical considerations of the research. The Centre has a standing parental consent (Felzmann, 2009) (i.e., an archived document), which means that the Principal has been given approval to make decisions on behalf of the parents/guardians to allow their children to participate in school, and Ministry events and activities. However, in my case I prefer to become involved directly and be in contact with guardians/parents to request their consent to participate in the study. Guardians/parents will be able to return their consent letter to the school in a sealed envelope and hand them directly to me. This will ensure that they can choose freely to participate (or not). Moreover, the following is a set of assumptions that will be fulfilled by the participants: Teachers participating in both the post-intervention interview, and the SSIS-RS questionnaire pre- and post-intervention, must have direct teaching contact with the children selected for the study. The chaperone who will accompany me while the individual social story sessions are performed for each individual will also be asked to participate in the activities mentioned above.

Guardians/parents participating in SSIS-RS questionnaire pre- and post-intervention and post-intervention semi-structured interviews must have direct contact with the child.

(ii) approached?

This is purposive sampling research based on the criteria above. Hence, after the fulfilment of the above criteria with regard to the children with ASD, an institutional consent letter and parental/guardian approval form will be obtained to fulfil the ethical considerations of the research.

(iii) recruited?<sup>26</sup>

The Director of the Centre has already indicated a willingness to take part in the research by providing a letter of approval (Appendix two). However, teachers and the chaperone will be asked to consider whether they would like to take part in the research. This will ensure that they can choose freely whether or not to participate. Thus, they will be required to fill in a consent and participation form and give it to me by hand in a sealed envelope. It should be noted that the Director does not know the names of teachers I have chosen to participate.

Parents will provide their consent for themselves and their child to participate in the research. They will return their consent to me in a sealed envelope.

C.8 Will you be excluding any groups of people, and if so what is the rationale for that?<sup>27</sup>

*Excluding certain groups of people, intentionally or unintentionally may be unethical in some circumstances. It may be wholly appropriate to exclude groups of people in other cases*

My study is an intervention case study. It is targeting a certain group of children based on the criteria above. Hence, it is necessary to exclude the other children within the Centre.

C.9 How many participants will be recruited and how was the number decided upon?<sup>28</sup>

*It is important to ensure that enough participants are recruited to be able to answer the aims of the research.*

There will be:

6 children with ASD (three males and three females)

12 teachers and one chaperone

Six guardians/parents

This number is expected to generate sufficient data to answer the research questions. It is also manageable in terms of data gathering and analysis as I am restricted to a specific time-frame because of the terms of my sponsorship.

If you have a formal power calculation please replicate it here.

*Remember to include all advertising material (posters, emails etc) as part of your application*

C10 Will the research involve any element of deception?<sup>29</sup>

If yes, please describe why this is necessary and whether participants will be informed at the end of the study.

No

C.11 Will [informed consent](#) be obtained from the research participants?<sup>30</sup>

Yes     No

*If yes, [give details](#) of how it will be done. Give details of any particular steps to provide information (in addition to a written information sheet) e.g. videos, interactive material. If you are not going to be obtaining informed consent you will need to justify this.*

The main participants are a vulnerable group (aged 4-6 with ASD) and hence the consent of their guardians/parents needs to be obtained. This will happen by sending information and consent forms to the guardians/parents. Guardians/parents will also be asked to agree or disagree to take part in the pre- and post-questionnaire and the post-interview. Moreover, as noted above, the researcher will ensure that the children are happy to take part once parents have given their consent by performing phase two (trial session). If the child appears unhappy (sad card, not interacting) to take part then the researcher will arrange for another child to be included in the study. This is will achieved by going through the process of selection noted above.

Teachers will also be asked to fill in a consent form to ask for their consent to participate in the pre- and post-questionnaire and post-interview.

Copies of the signed consent and participation sheets will be kept securely for reference by the researcher.

*If participants are to be recruited from any of potentially vulnerable groups, [give details of extra steps](#) taken to assure their protection. Describe any arrangements to be made for obtaining consent from a legal representative.*

*Copies of any written consent form, written information and all other explanatory material should accompany this application. The information sheet should make explicit that participants can withdraw from the research at any time, if the research design permits. Remember to use meaningful file names and version control to make it easier to [keep track of your documents](#). Sample information sheets and consent forms are available from the University ethical review webpage at <http://ris.leeds.ac.uk/InvolvingResearchParticipants>.*

C.12 Describe whether participants will be able to withdraw from the study, and up to what point (eg if data is to be anonymised). If withdrawal is not possible, explain why not. *Any limits to withdrawal, eg once the results have been written up or published, should be made clear to participants in advance, preferably by specifying a date after which withdrawal would not be possible. Make sure that the information provided to participants (eg information sheets, consent forms) is consistent with the answer to C12.*

Guardians/parents can withdraw their child within one week with no reason needed. However, if a child is found to become distressed when participating, then their involvement will cease.

The answers of teachers and guardians/parents in the interviews can be withdrawn within one week following their submission by sending me an email.

Guardians/parents and teachers can withdraw themselves from the questionnaire and ask for their results to be omitted within three days after answering by sending an email; after this, the questionnaire answers will not be destroyed.

C.13 How long will the participant have to decide whether to take part in the research?<sup>31</sup>  
*It may be appropriate to recruit participants on the spot for low risk research; however consideration is usually necessary for riskier projects.*

Guardians/parents and teachers of children with ASD will have at least two weeks to consider their participation.

C.14 What arrangements have been made for participants who might have difficulties understanding verbal explanations or written information, or who have particular communication needs that should be taken into account to facilitate their involvement in the research?<sup>32</sup> *Different populations will have different information needs, different communication abilities and different levels of understanding of the research topic. Reasonable efforts should be made to include potential participants who could otherwise be prevented from participating due to disabilities or language barriers.*

The research and data collection will be in Arabic. Hence, all documents shared with participants (i.e., participation and consent forms) will be translated into Arabic. Before sending all relevant documents to participants, these documents will be subjected to a language and content clarity check by a translation specialist working at a translation company in Saudi Arabia. I will make sure that all documents distributed to guardians/parents are in simple Arabic and will require only primary qualifications to understand. Please note that an English version will be kept in case I encounter a native English-speaking participant.

C.15 Will individual or group interviews/ questionnaires discuss any topics or issues that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could take place during the study (e.g. during interviews or group discussions)?<sup>33</sup>  
*The [information sheet](#) should explain under what circumstances action may be taken.*

Yes     No                      *If yes, give details of procedures in place to deal with these issues.*

The consent and participation form will clearly state that if any sensitive or difficult questions are found within the interview or questionnaire, they are not required to be answered. Also, if any child participating in the research does not wish to continue or becomes distressed, the guardian/parent or researcher can withdraw him/her immediately. This can be identified in the introductory phase or even later when the session begins if the child shows lack of interest or discomfort. The interview questions to parents/guardians and teachers will be given in advance to ensure that they are aware and happy to proceed with the research.

C.16 Will individual research participants receive any payments, fees, reimbursement of expenses or any other incentives or benefits for taking part in this research?<sup>34</sup>

Yes     No

*If Yes, please describe the amount, number and size of incentives and on what basis this was decided.*

## RISKS OF THE STUDY



C.17 What are the potential benefits and/ or risks for research participants in both the short and medium-term?<sup>35</sup>

There are two potential risks in this research. First, a child with ASD may not be responsive to participating in the intervention. If this is seen to be the case, the researcher will return to the criteria selection phase and find another possible recruit. The researcher will try to understand the reasons behind not wanting to participate as it is valuable data in terms of understanding attitudes of children with ASD towards interventions.

Second, there is a small risk of distress for both guardians/parents and teachers. For guardians/parents, this might be in terms of discussing issues around their child's diagnosis of autism and/or behaviour. Likewise, teachers might feel distressed about discussing challenges they might encounter in their classroom if they feel it might reflect negatively on their competence. The researcher has designed a signposting document (appendix Six) that will help participants in case of being distressed or concerned when having their interview or answering the questionnaire. The signposting document also includes three names and contact numbers of not for profit organisations (Ministry of Social Affairs, Prince Sultan Centre for Special Education Support Services and Saudi Association for Special Education) that they can seek support from.

The benefits of this research outweigh the risks stated above as this research will help, first, to understand interventions that could support the development of social behaviour of the six children with ASD. Second, this study is the first of its kind in the given context and hence, it has the potential to open a new era of 'social story interventions' in the Kingdom of Saudi Arabia if the research results are proved to be effective.

C.18 Does the research involve any risks to the researchers themselves, or people not directly involved in the research? *Eg lone working*<sup>36</sup>

Yes  No

*If yes, please describe:* \_\_\_\_\_

Is a [risk assessment](#) necessary for this research?

Yes  No If yes, please include a copy of your risk assessment form with your application.

*NB: If you are unsure whether a risk assessment is required visit <http://ris.leeds.ac.uk/HealthAndSafetyAdvice> or contact your Faculty Health and Safety Manager for advice.*

## RESEARCH DATA

C.19 Explain what measures will be put in place to protect personal data. E.g. anonymisation procedures, secure storage and coding of data. Any potential for re-identification should be made clear to participants in advance.<sup>37</sup> Refer to <http://ris.leeds.ac.uk/ConfidentialityAnonymisation> and <http://ris.leeds.ac.uk/ResearchDataManagement> for guidance.

The data collected (e.g., the raw data from the physical interview questions and questionnaires) will be stored within the researcher's laptop (encrypted, password protected and accessed by myself only) and a copy of the encrypted data will be kept on a USB drive. Moreover, the researcher will be saving her work on her personal encrypted computer, which is password protected by the University of Leeds, within the university premises.

The researcher will be using a voice recorder and her iPhone for audio recording participants in their interview. The recordings will be linked automatically to her personal laptop (icloud), hence, making it easier for the researcher to dictate through transcription software as it will be automatically transferred to (.mp3) format. After the completion of the download, the phone recordings and voice recordings will be deleted. The researcher will be using two recording instruments to have backup in case one breaks down within the interview.

All research participants will be pseudonymised (names kept unknown). However, the researcher will link the original names to special symbols and letter abbreviations will be used to code the interviews with teachers and guardians/parents so, if they wished to withdraw, the researcher would easily be able to find them. The key file (original names linked to special symbols) will be kept till the end of the intervention i.e. three months as she will be communicating back results to parents and teachers of participants.

C.20 How will you make your research data available to others in line with: the University's, funding bodies' and publishers' policies on making the results of publically funded research publically available. Explain the extent to which anonymity will be maintained. (*max 200 words*) Refer to <http://ris.leeds.ac.uk/ConfidentialityAnonymisation> and <http://ris.leeds.ac.uk/ResearchDataManagement> for guidance.

There are no plans to report or disseminate the data other than in an anonymised format for the purpose of informing the thesis and any further journal article publications.

C.21 Will the research involve any of the following activities at any stage (including identification of potential research participants)? (Tick as appropriate)

- |                                     |                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Examination of personal records by those who would not normally have access                                      |
| <input type="checkbox"/>            | Access to research data on individuals by people from outside the research team                                  |
| <input type="checkbox"/>            | Electronic surveys, please specify survey tool: _____ ( <a href="#">f guidance</a> )                             |
| <input type="checkbox"/>            | Other electronic transfer of data                                                                                |
| <input type="checkbox"/>            | Use of personal addresses, postcodes, faxes, e-mails or telephone numbers                                        |
| <input checked="" type="checkbox"/> | Use of audio/ visual recording devices (NB this should usually be mentioned in the information for participants) |



<input checked="" type="checkbox"/>	FLASH memory or other portable storage devices	
Storage of personal data on, or including, any of the following:		
<input checked="" type="checkbox"/>	University approved cloud computing services ( <a href="#">Microsoft Office 365 for email</a> (Exchange online) and <a href="#">Microsoft OneDrive for Business</a> )	
<input type="checkbox"/>	Other cloud computing services	
<input checked="" type="checkbox"/>	Manual files	
<input type="checkbox"/>	Private company computers	
<input checked="" type="checkbox"/>	Laptop computers	
<input type="checkbox"/>	Home or other personal computers (not recommended; data should be stored on a University of Leeds server such as your M: or N: drive where it is secure and backed up regularly: <a href="http://ris.leeds.ac.uk/ResearchDataManagement">http://ris.leeds.ac.uk/ResearchDataManagement</a> .)	

C.22 How do you intend to share the research data? (Indicate with an 'X') Refer to <http://library.leeds.ac.uk/research-data-deposit> for guidance.

<input type="checkbox"/>	Exporting data outside the European Union
<input type="checkbox"/>	Sharing data with other organisations
<input checked="" type="checkbox"/>	Publication of direct quotations from respondents
<input type="checkbox"/>	Publication of data that might allow identification of individuals to be identified
<input checked="" type="checkbox"/>	Submitting to a journal to support a publication
<input checked="" type="checkbox"/>	Depositing in a self-archiving system or an institutional repository
<input type="checkbox"/>	Dissemination via a project or institutional website
<input type="checkbox"/>	Informal peer-to-peer exchange
<input type="checkbox"/>	Depositing in a specialist data centre or archive
<input type="checkbox"/>	Other, please state: _____
<input type="checkbox"/>	No plans to report or disseminate the data

C.23 How do you intend to report and disseminate the results of the study? (Indicate with an 'X') Refer to <http://ris.leeds.ac.uk/ResearchDissemination> and <http://ris.leeds.ac.uk/Publication> for guidance.

<input checked="" type="checkbox"/>	Conference presentation
<input checked="" type="checkbox"/>	Peer reviewed journals
<input checked="" type="checkbox"/>	Publication as an eThesis in the Institutional repository
<input type="checkbox"/>	Publication on website
<input type="checkbox"/>	Other publication or report, please state: _____
<input type="checkbox"/>	Submission to regulatory authorities

<input type="checkbox"/>	Other, please state: _____.
<input type="checkbox"/>	No plans to report or disseminate the results

C.24 For how long will data from the study be stored? Please explain why this length of time has been chosen.<sup>38</sup> Refer to the [RCUK Common Principles on Data Policy](http://ris.leeds.ac.uk/info/71/good_research_practice/106/research_data_guidance/5) and [http://ris.leeds.ac.uk/info/71/good\\_research\\_practice/106/research\\_data\\_guidance/5](http://ris.leeds.ac.uk/info/71/good_research_practice/106/research_data_guidance/5).  
*Students: It would be reasonable to retain data for at least 2 years after publication or three years after the end of data collection, whichever is longer.*

  4   years,   0   months

## CONFLICTS OF INTEREST

C.25 Will any of the researchers or their institutions receive any other benefits or incentives for taking part in this research over and above normal salary or the costs of undertaking the research?<sup>39</sup>

Yes  No

If yes, indicate how much and on what basis this has been decided

C.26 Is there scope for any other conflict of interest?<sup>40</sup> *For example, could the research findings affect the any ongoing relationship between any of the individuals or organisations involved and the researcher(s)? Will the research funder have control of publication of research findings? Refer to <http://ris.leeds.ac.uk/ConflictsOfInterest>.*

Yes  No

*If so, please describe this potential conflict of interest, and outline what measures will be taken to address any ethical issues that might arise from the research.*

C.27 Does the research involve external funding? (Tick as appropriate)

Yes  No *If yes, what is the source of this funding? [University of Hail, Saudi Arabia](#)*

*NB: If this research will be financially supported by the US Department of Health and Human Services or any of its divisions, agencies or programmes please ensure the additional funder requirements are complied with. Further guidance is available at <http://ris.leeds.ac.uk/FWAcompliance> and you may also contact your [FRIO](#) for advice.*

PART D: Declarations

### Declaration by Chief Investigators

The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.

I undertake to abide by the University's ethical and health & safety guidelines, and the ethical principles underlying good practice guidelines appropriate to my discipline.

If the research is approved I undertake to adhere to the study protocol, the terms of this application and any conditions set out by the Research Ethics Committee.

I undertake to seek an ethical opinion from the REC before implementing substantial amendments to the protocol.

I undertake to submit progress reports if required.

I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of patient or other personal data, including the need to register when necessary with the University's Data Protection Controller (further information available via <http://ris.leeds.ac.uk/ResearchDataManagement>).

I understand that research records/ data may be subject to inspection for audit purposes if required in future.

I understand that personal data about me as a researcher in this application will be held by the relevant RECs and that this will be managed according to the principles established in the Data Protection Act.

I understand that the Ethics Committee may choose to audit this project at any point after approval.

Sharing information for training purposes: Optional – please tick as appropriate:

<input type="checkbox"/>	I would be content for members of other Research Ethics Committees to have access to the information in the application in confidence for training purposes. All personal identifiers and references to researchers, funders and research units would be removed.
--------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Principal Investigator

Signature of Principal Investigator: (This needs to be an actual signature rather than just typed. Electronic signatures are acceptable)

Print name: Nouf AL Shammari. Date .05/12/2019

Supervisor of student research: I have read, edited and agree with the form above.

Supervisor's signature: (This needs to be an actual signature rather than just typed. Electronic signatures are acceptable)



Print name: Dr Judith Hebron Date: 3<sup>rd</sup> December 2019

Please submit your form by email to [researchethics@leeds.ac.uk](mailto:researchethics@leeds.ac.uk) or if you are in the Faculty of Medicine and Health [FMHUniEthics@leeds.ac.uk](mailto:FMHUniEthics@leeds.ac.uk). Remember to include any supporting material such as your participant information sheet, consent form, interview questions and recruitment material with your application.

To help speed up the review of your application:

Answer the questions in plain English, avoid using overly technical terms and acronyms not in common use.

Answer all the questions on the form, including those with several parts (refer to the [guidance](#) if you're not sure how to answer a question or how much detail is required).

Include any relevant supplementary materials such as

Recruitment material (posters, emails etc)

[Sample participant information sheet](#)

[Sample consent form](#). Include different versions for different groups of participants eg for children and adults, clearly indicating which is which.

Signed [risk assessment](#) (If you are unsure whether a risk assessment is required visit <http://ris.leeds.ac.uk/HealthAndSafetyAdvice> or contact your Faculty Health and Safety Manager for advice.).

Remember to include use [version control](#) and meaningful file names for the documents.

If you are not going to be using participant information sheets or consent forms explain why not and how informed consent will be otherwise obtained.

If you are a student it is essential that you discuss your application with your supervisor.

Submit a [signed copy](#) of the application, preferably electronically. Students' applications need to be signed by their supervisors as well.

#### References

Creswell, J.W. 2012. Educational research: planning, Conducting, and Evaluating.

## APPENDIX 2 - Ajyal Al-Watan Center's Approval to Conduct Research



To School of Education , Leeds university

**No Objection Letter regarding Nouf Murdhi Alshammari**

Dear Sir or Madam,

This letter is to confirm that prospected PhD student at university of Leeds **Ms Nouf Murdhi Alshammari** (Student ID 201039306 ) (Full Time ) is welcomed to conduct research in Ajyal Alwatan Center from September 2019 to November 2022 in order to get all required thesis analysis and information from teacher, students and their parents.

Please feel free to contact us if your office should require any information on mobile

No+966500200106.

Yours sincerely,

Nouf Almuqrin



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ص ب 377028 الرياض 11335  
رقم الترخيص 279  
هاتف: 00966 11 2140160  
جوال: 00966 533007092  
جوال: 00966 533007136

### APPENDIX 3 – Research Consent Forms for Teachers and Parents/Guardians

#### Research Consent Form for Teachers

Ajyal Al Watan Centre, Riyadh, Kingdom of Saudi Arabia

Title of the Study

“The use of the Social Story intervention to develop the social and behavioural skills of ASD students in school and home settings.”

Please read the following and confirm your consent to taking part in this project by ticking the boxes below.

**Please sign and date this form.**

I confirm that I have read and understood the information about the project as provided in the participation information sheet attached to this consent form.	<input type="checkbox"/>
I have been given the opportunity to ask for clarification about the research study and ask questions to clear uncertainties.	<input type="checkbox"/>
I understand that I can withdraw from the interview within one week following its completion.	<input type="checkbox"/>
I understand that all my information in the research will remain confidential (except in the case where a disclosure is made making me concerned about your welfare or that of another person) and no information that identifies me will be made publicly available.	<input type="checkbox"/>
I understand that all face-to-face interviews will be optionally audio-recorded. If you do not wish to be recorded, then notes can be taken instead.	<input type="checkbox"/>
I consent to the information I give being used in this research or in other publications, and to being shared and archived, as explained in the participation information sheet.	<input type="checkbox"/>

I agree to take part in this project

-----

Initials

-----

Date

-----

Signature

## Research Consent form for Parents/Guardians

Ajyal Al Watan Centre, Riyadh, Kingdom of Saudi Arabia

Title of the Study

“The use of Social Stories’ intervention to develop the social and behavioural skills of ASD students in school and home settings.”

Please read the following and confirm your consent to taking part in this project by ticking the boxes below.

I confirm that I have read and understood the information about the project as provided in the participation information sheet attached to this consent form.	<input type="checkbox"/>
I have been given the opportunity to ask for clarification about the research study and ask questions to clear uncertainties.	<input type="checkbox"/>
I understand that I can withdraw my child from the study at any time of the study (three months) I wish with no reason given.	<input type="checkbox"/>
I understand that I can withdraw from the interview within one week following its completion.	<input type="checkbox"/>
I understand that all face-to-face interviews are optionally audio-recorded. If you do not wish to be recorded, then notes can be taken instead.	<input type="checkbox"/>
I understand that all my information in the research will remain confidential (except in the case where a disclosure is made making me concerned about your welfare or that of another person) and no information that identifies me will be made publicly available.	<input type="checkbox"/>
I consent to the information I give being used in this research or in other publications, and to being shared and archived, as explained in the participation information sheet.	<input type="checkbox"/>

**Please sign and date this form.**

I agree to take part in this project

-----

Initials

-----

Date

-----

Signature

**APPENDIX 4 – Behavioural Event Recording Form (Azzato, 2016)**

Participant: \_\_\_\_\_ Date: \_\_\_\_\_ Observer: \_\_\_\_\_  
 Trainer: \_\_\_\_\_ Prompter: (phase I-II only) \_\_\_\_\_ Phase: \_\_\_\_\_

<b>Behavior Definition (in specific, observable, measurable terms):</b>	
DV1 - Requesting	Requesting (symbol): only record during baseline, phases I-III: within 10 s, activating corresponding graphic symbol on iPad by dragging onto iPad sentence strip. Requesting (speech): during iPad fade-out: within 10 s, requesting the desired item via a clearly related word approximation or full word utterance. Requesting (multiple symbols for sentence): record during baseline and phases IV-V: within 10 s, dragging "I want" plus "ITEM" onto sentence strip on iPad. Requesting (speech): within 10 s, requesting the desired item via a clearly related approximation or full word utterance of "I want" plus "ITEM".
DV2 - Speech	<b>***Both intentional and non-intentional verbalization/vocalization should be recorded during trials***</b> Non-intentional: verbalizations/vocalizations NOT intended to convey a meaningful message to the trainer (i.e., echolalia). Unintelligible words or any utterances that do not correspond with reinforcers, the referent for the utterance is not present. Intentional: verbalization/vocalizations intended to transmit a meaningful communicative message (i.e., to request, comment, refuse, or imitate); can include jargon or speech approximations. A word vocalization was recorded each time the participant made a sound clearly related to the item/reinforcer he was presented. A word approximation was recorded when the participant made an utterance that was an intelligible approximation to the correct word, but was not precisely the accurate name of the requested item. An accurate word utterance is a complete and clearly intelligible production of the item word.
DV3 – Social	Eye contact: looking at the trainer for at least 1 second following the activation of the graphic symbol. Smiling: smiling/laughing in the direction of the communication partner. Joint Attention: referential look between therapist and an object prior to activation of the graphic symbol.
* Preference assessment should be conducted every 5 trials. Start: _____ End: _____ Total Duration: _____ ** Each reinforcer should not be presented more than 10 trials.	

Target behaviors	Trials																				Total number of behavior occurred
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Reinforcer																					
DV1: symbol																					
DV 2:	non-intent.																				
	Intent. - unrelated																				
	Intent. -related requesting via speech: approx. or accurate word																				
DV 3:	Eye Contact																				
	Smiling																				
	Joint Attention																				

Notes:



## APPENDIX 5 – NARRATIVES OF SS CREATION AND IMPLEMENTATION

### Student B

#### *Pre-Intervention*

The researcher collected data concerning Student B. She started with Student B's school file, detailing that Student B was a 5-year-old female with moderate ASD. Additionally, the researcher requested to observe her in a class setting. This provided the researcher to make the Frequency Behaviour Chart counting the number of times the student manifested her social interaction skills or behaviour. Furthermore, the researcher also managed to initially describe Student B's behaviour in class. The narrative below reflects the researcher's initial observations of Student B.

*I have checked Student B's file and discovered that she was diagnosed with a moderate level of Autism. I was able to get the chance to observe Student B's social skills and behaviour in class. My initial observations include the fact that she was very quiet and stayed alone almost all the time. When a task was given in class where she had to be paired with another student, she expressed her dislike by ignoring the instructions. She also refused to participate in class, specifically in reading. In other words, Student B did not like to talk to other people, and she'd rather sit alone. Then I learned that Student B was shy and almost ashamed to talk to others, which was the main reason why she refused to answer questions and ignored playing with others. Notably, she had a particular doll that she always brought with her, and the teacher always placed that doll in front of her in class. I noted that she did not demonstrate a noticeable exhibition of aggressive or hyperactive behaviour. My Frequency Behaviour Chart (Week 0 observation) indicated the following frequency for Student B's social interaction skills manifestations: 29 times for avoiding answering, 29 times for avoiding initiating conversations, 28 times for avoiding interaction and 23 times for disliking sharing.*

From the researcher's field notes, the researcher managed to collect information regarding Teacher B's profile and her perspective pertaining to intervention for autistic children. More importantly, Teacher B's responses pertaining to Student A are reflected in the thematic analysis provided below. The informal conversation with Teacher B lasted around ten minutes, and it is reflected below.

*Teacher B was 35 years old female with a Bachelor's degree in Business Administration. She further added that she received training concerning autism from Saudi Arabia's Ministry of Education as well as an in-house workshop to enhance her capabilities. She indicated that she had been teaching or handling autistic children for seven years. When asked regarding her perception of interventions, she did not provide a direct answer to the question. Instead, she*

*stated that teachers handling autistic children should understand how the minds of autistic children work. Furthermore, she added that she should play with the children and be friends with them in order for them to learn from her. She explained that when the children liked her, they would copy her and consider her as a role model. She elaborated that behaviours of autistic children occur depending on the child's characteristics, the family background, and how the family treats the child. Autistic children copy or imitate, and if bad behaviour has been demonstrated, the child will pick that up as well.*

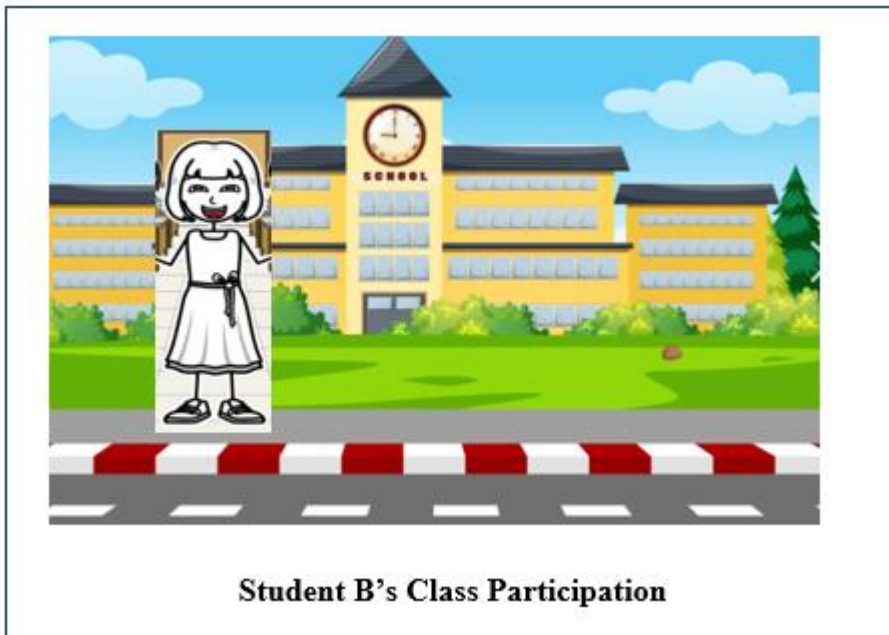
The researcher got the chance to have an informal talk with Student B's mother one day when she came to pick her up from school. As the mother was in a hurry, the conversation lasted five minutes. Below is the narrative for the researcher's field notes on the informal talk.

*Student B's mother stated that they discovered Student B had autism when she was about two years old. She said that Student B had a very different behaviour and personality compared to her other four children. When they brought her to a specialist in Riyadh, the capital of Saudi Arabia, the specialist advised them to attend to the needs of Student B before it would be too late. The mother emphasised that every member of the family tried to engage her in conversations and activities, but she always refused. The mother even said that she tried to make her play with her and also to tidy up her room, but she would not do it. Student B did not also like to play with her siblings at home, and she always brought the doll with her everywhere she went.*

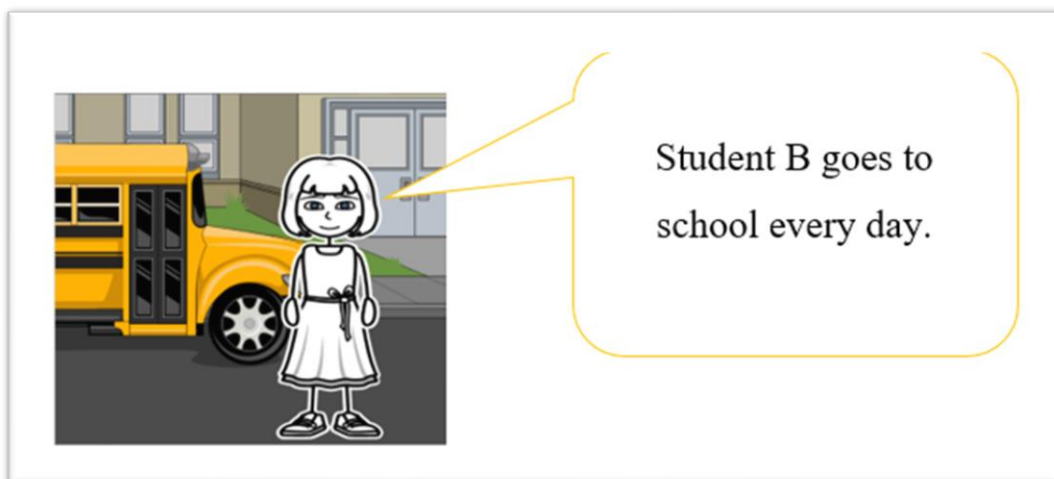
#### *Drafting of the Social Story*

With Gray's (2018) Criteria #1 and #2 considered, the researcher managed to collect sufficient information on Student B for the creation of the Social Story intervention. With Gray's Criterion #4 as a guide, the SS draft was developed based on Student B's abilities, capabilities and personality in order to achieve the target goal. The agreed SS draft is presented below.

In a storybook format, the researcher created the SS draft based on the identified target goal (to initiate basic conversation and interact with others) for Student B. With Criterion #3 as a guide, the researcher started the SS with a title, "Student B's Class Participation", which reflected the topic as well as the target goal of the intervention. It has to be noted that all illustrations selected with the aim to reinforce the ideas in the mind of Student A in terms of actions to be imitated as well as familiarize the setting and actions in order for Student B to feel comfortable imitating them. Page one includes a picture of a smiling girl, whose name is Student B, in front of the school, the identified setting.

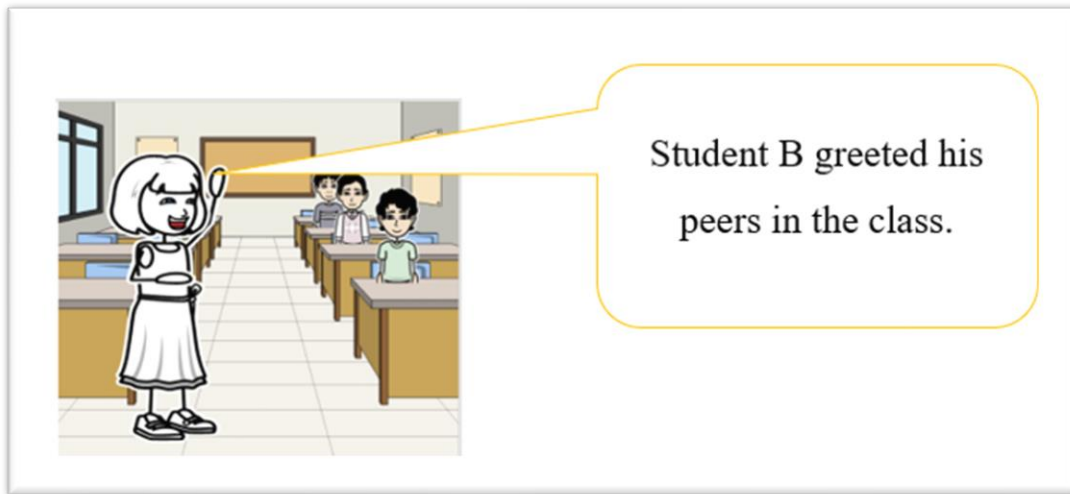


Page 2 shows the introduction of the SS with an illustration of Student B in front of a school bus, ready to go to school; it reinforced the idea that she needed to go to school every morning. The significance of the introduction is emphasizing the setting where Student B had to perform certain actions to improve her social interaction skills.

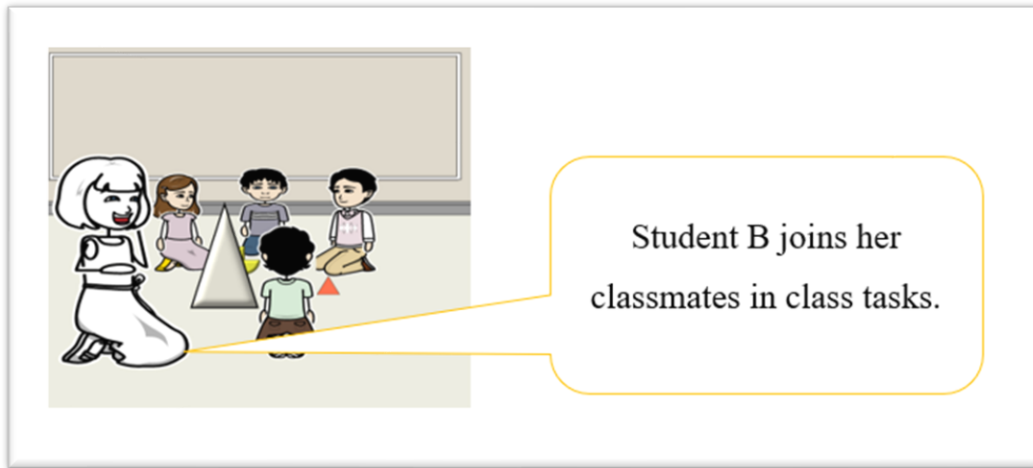


Page 3 is considered the first part of the SS body. Here, it demonstrated Student B greeting her class, and she was doing that with a smile. The greeting is essential in terms of reinforcing the idea that she needed to talk to her classmates and teacher by doing daily greetings. Even though this is just a simple action of greeting, this action would address Student B's lack of or refusal to interact. This would also address Student B's shyness and increase her level of

confidence. More importantly, this action would show Student B that the school, especially her classmates and teacher, is friendly and talking to them is natural and nothing to be afraid of. The lesson could also extend in explaining the importance of greetings in the Arab culture.

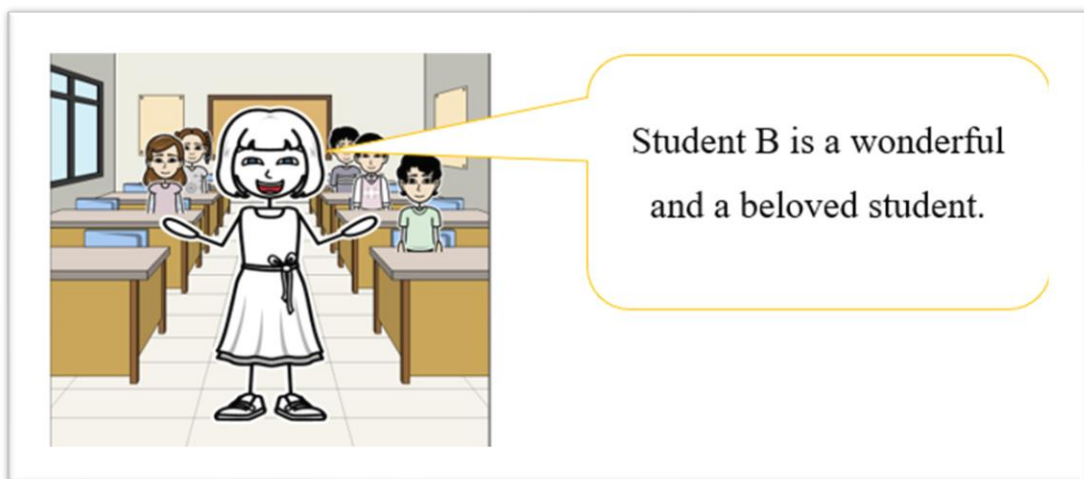


Page 4 is the second part of the SS body. It illustrated Student B together with her classmates. She was smiling and enjoying doing the class task with them. This part addressed Student B's difficulty in engaging with others. This illustration could address both communication and engagement challenges. For communication, the illustration could demonstrate that she was initiating conversation and potential answering questions. For engagement, the illustration addresses the various aspect of Student B's issues on engagement. First, it would encourage her to initiate conversation; second, it would reinforce the idea that it was okay to play with her classmates and be paired for the class task; third, it would provide an opportunity for her to stop being alone; and fourth, it demonstrated that she should share her toys with her friends. The illustration provided various ways to connect ideas to improve Student B's engagement and communication issues. Knowing that her doll is important to her, I included that in my illustration, thinking that this would perk her interest in the story.



Student B joins her classmates in class tasks.

The last page (Page 5) illustrated that Student B was happy because her actions in previous illustration cards (greeting the class, participating in the class task) helped her to be loved by her classmates and teacher. This reinforced the idea that good actions would bring good results. In other words, what the main character (Student B) of the SS did, was considered good, and therefore she was beloved by her classmates and teacher.



Student B is a wonderful and a beloved student.

The five-page SS conversations are simple to understand with literal meaning, use the third person with present tense with positive language, tone, and message (Criterion #5). The five-page SS contains a descriptive narrative (Criterion #8). The coaching sentences (Criterion #7) were not reflected in the illustration cards but in the follow-up sentences that serve as story support. Coaching sentences, although optional, were employed to provide encouragement and greater motivation to participate in the intervention. Review and revision of these drafts were conducted (Criterion #9). With all of these considered, the SS intervention was implemented.

### SS Intervention

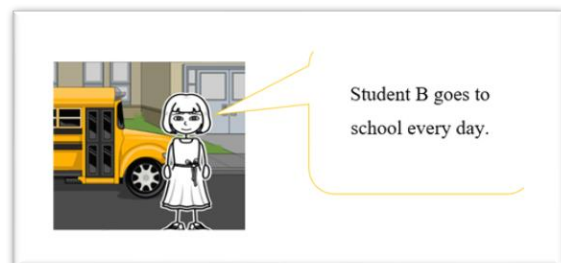
As for the implementation, it has to be noted that Criterion #10 was considered. The implementation was scheduled for 12 sessions of 45 minutes for every session and a 3-time frequency. The SS implementation narrative is reflected below.

*The first of the first week of implementation was proven to be difficult. When I was introduced, Student B didn't even look at me. I told her my name and asked for hers. She remained quiet. Then I started the story by reading the first page. As expected, Student B refused to listen to the story. She held her doll close and kept quiet. I even tried to use the doll to our advantage as I added her to the story's illustrations. Even so, Student B just remained quiet. So, I called Teacher B to start the story with her. Teacher B just read the story and described the illustrations. It seemed to work because it got her attention. She started to listen intently. I participated in the narration of the story by giving short explanations regarding the main character and what she was doing. Gradually, I took over narrating the story. The first day can be described as familiarisation phase with the SS.*

*On the second day of the intervention, I started with a cheerful greeting. I asked her to introduce herself. She remained silent. I asked her if she remembered the story yesterday. Again, she remained quiet. However, she showed signs that she was interested in the story. So, I asked her if she wanted to change the name of the main character, which is the same as her name. She only moved her head, indicating a no. Then, I started with the first page of the SS. I slowly read the title and asked her to repeat after me, but she remained quiet. I introduced the name of the main character again, explained where she was, and described the importance of Student A's class participation. Before I opened the second page, meaning yes. I asked her if she had any questions, but she remained silent. I also asked her if she wanted me to proceed. She nodded her head*

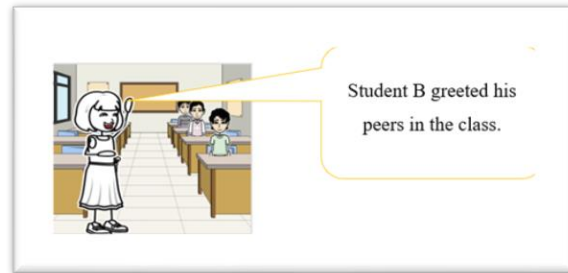


*Then I opened the second page of the SS. I described the illustration stating that Student B was ready to go to school by riding the school bus, and she did this every day. My support story for this illustration card included why it was important to go to school. My coaching sentences included the different reasons concerning what she would learn in school.*

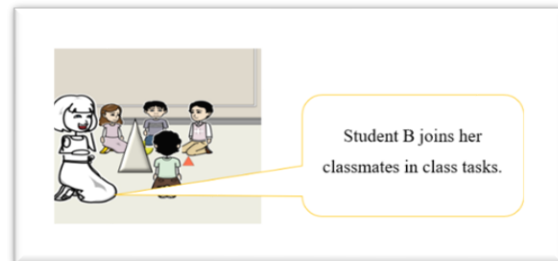




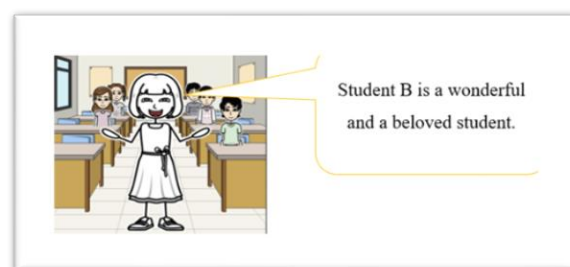
*I flipped to the next page, knowing that this illustration card was really important. I described the image and explained what the main character was doing. I explained that the main character was smiling because she loved greeting her classmates and teacher when she arrived at school. I demonstrated this by greeting her. I also explained that her greetings made her classmates and teacher happy. Greetings are considered important in Arab culture as all people, young and old, male or female, greet other people. Again, I demonstrated greetings. At this time, she looked at me but still remained silent. I also asked her to greet me, but still, there was no response.*



*The next page of the illustration described the main character enjoying participating in-class tasks. I explained that the main character, together with her doll, was with her classmates doing what the teacher asked them to do. I described the actions of the main character by stating that: (1) she was talking to her classmates, explaining what the teacher wanted them to do; (2) she was also listening to her classmates as they explained their ideas, and when they asked her, she also gave her ideas; and (3) she was enjoying doing the tasks with her classmates. I also explained that after the task, the main character played with her classmates, and she even shared her doll with them to play with. I also said that all these actions made Student B (the main character) has new friends and that they all liked her because she was very friendly. Then I asked if she wanted to join some of her classmates. There was no reaction.*



*The last illustration card was the conclusion of the SS. I described what the main character was doing. I said that she was standing in front of her class and was smiling because she made new friends and her new friends and teacher loved her. I stressed that the reasons why they loved her were because she greeted them, joined them in doing class work, shared her toys, talked to them, and asked questions. All these demonstrated to her classmates and teacher that Student B was really friendly and nice. I asked her if she wanted to be considered good or nice; I got no response except for eye contact.*



*By the third day of the intervention, we proceeded with the normal routine. What was surprising was the fact that she said "Hi" when I greeted her. I asked her if she wanted to greet her friends. She shook her head. I also asked her if she wanted to change the name of the main character. She also shook her head. So, I proceeded with the story. I asked her to read with me, and again she shook her head. I was*

*already happy because shaking her head was a sign that she could respond to questions compared to the usual ignoring she did. When we started flipping the pages, she stopped my reading and explaining of page three and got the colouring pen, and started colouring. I did not ask her to do it, and I did not know why that particular page. So I gave her time to finish. When we continued to the next page, she also coloured the image. And I was happy. At least, I was able to get some form of response from Student B.*

*By the second week, Student B started reading with me. It was not constant, but there were certain times when she started drawing as well as colouring. I encouraged her to tell me the story for the illustration card, and this time she ignored me. When I proceeded with the pages, I usually gave more explanations to the picture so that she could understand. I also explained the smiling of the main character means that she was happy. It was during this week when she said "Please" and held her colouring pen, indicating that she wanted to draw again.*

*By the third week of the intervention, I observed that Student B was becoming more confident in saying words. Last week, it was "Please" and now it was "Thank you" after I finished reading the story. However, she still refused to greet the class. The teacher assigned her with some of her classmates. Although the teacher tried to encourage her to participate with her classmates, she refused and did not talk to them. However, she responded to the teacher when spoken to. She did not also indicate that she wanted to read the story with me.*

*In the fourth week, after we had read the story, the teacher put them in a group again. She followed the instructions of the teacher; however, just like last week, she did not talk to them. But what was surprising was Student B allowed some of her classmates to play with her doll. Before, she usually cried when someone touched her doll. It was also during the fourth week that after I greeted her and she greeted me back by saying "Hi". I asked her to say "Hi" to the class. She did not stand in the middle, but shyly she said "Hi" to them. I clapped my hands and encouraged the rest of the class to do the same. Then she showed excitement in reading the story. She did not read with me, but it was obvious that she loved listening to the story being read.*

*Even though I have not seen very substantial improvement in Student B, I was already happy with some changes in her behaviours, such as sharing her doll, answering and following instructions, saying "Hi" and "Please," as well as showing interest in reading.*

#### Frequency Behaviour Chart (Week 1 to 4)

The Frequency Behaviour Chart during SS intervention indicated that Student B exhibited the following social skills issues: a decrease in the avoiding answering from 26 times in Week 1 to 13 times in Week 4; avoiding initiating conversations from 27 times in Week 1 to 10 times in Week 4; avoiding interaction from 26 times in Week 1 to 12 times in Week 4; and disliking sharing from 22 times in Week 1 to 11 in Week 4. The chart demonstrated a reduction, which



implied increase from low level of the social interaction skills to moderate. The observation data further implies the notable effect of the SS intervention on Student B's social skills.

#### *Post-Intervention*

For the post-intervention interview, Teacher B expressed positive feedback regarding SS intervention. She explained that the SS intervention was reliable and would work for all children, regardless of their personalities or behaviours. She expressed enthusiasm when it came to recommending the use of the SS intervention to the Kingdom of Saudi Arabia based on what she witnessed with Student B. She expressed positive expectations concerning SS intervention when it came to helping the other students. She was also willing to undergo training in employing SS intervention in class and would suggest that this intervention should be employed for more than a month.

Likewise, Student B's parent expressed willingness to recommend using SS intervention because she had seen the difference in her child. Also, she expressed willingness to learn more about the intervention because she recognised the benefits it brought to her child.

#### *Frequency Behaviour Chart (Week 5)*

Student B's post-Intervention Frequency Behaviour Chart also demonstrated the following frequencies for all the main themes identified. Student B exhibited 8 times avoiding answering, 11 times avoiding initiating conversations, 9 times frequency for avoiding interactions and 12 times for disliking sharing.

## Student C

### *Pre-Intervention*

The researcher collected data concerning Student C in order to assess his social skills and behaviour. The first data evaluated was Student C's school profile. Based on his chart, it was stated that he was a four-year-old male. He was diagnosed with a moderate level of autism. In addition, the researcher got the chance to observe Student C in the classroom setting for a week before the intervention. The researcher created a Frequency Behaviour Chart (Week 0) listing down the characteristics manifested in relation to social interaction skills and behaviour. The researcher's observations are reflected below.

*I observed Student B manifesting hyperactivity in class with a tendency towards aggression. I witnessed Student C throwing things and shouting. His classmates demonstrated slight signs of fear of him. Student C did not also listen to what the teacher or his classmates were saying. For Student C's Frequency Behaviour Chart for Week 0, the following frequencies were exhibited: 54 times for shouting/throwing things, 27 times for not listening to instructions, and 28 times for avoiding interaction.*

The researcher was given the opportunity to observe the teacher (Teacher C) handling Student C while teaching the class, in addition to the informal conversation that lasted around seven minutes. The researcher's observations of the teacher and the field notes from the informal conversation are discussed below.

*Teacher C is a forty-year-old female who has been handling students with autism for ten years. She explained that she got a Bachelor's degree in special education and a Master's in Autism. She also added that she managed to participate in almost 70 autism-related workshops. When I asked regarding autism-related interventions, Teacher C explained that every child was unique and believed that different measures should be used to address each child's challenges. She elaborated that in the Kingdom of Saudi Arabia, inclusive education is being used, so children with autism can learn from other children of the same age and be friends with them. To her, this would help autistic children to socialise and would not feel different. Concerning behaviours, she explicated that there are several reasons why children develop such, but it mostly depends on the child's background, including family, siblings and relatives. In addition, Teacher C was very gracious in providing me with the opportunity to observe her class while she was teaching Student C and his classmates. I witnessed how caring she was with her students. She knew when to be strict or to be kind with her students. Teacher C changed the tone of her voice to indicate that she was serious and in control of the class or when she was playing*

*with them. Her classroom resembled more of a playroom. She focused more on playing with the children with activities that incorporated lessons, such as colouring and learning the alphabet. She spent more of her time with the children individually. When a child (Student C) threw things and shouted, she also took time to tell the class that such behaviours were not good.*

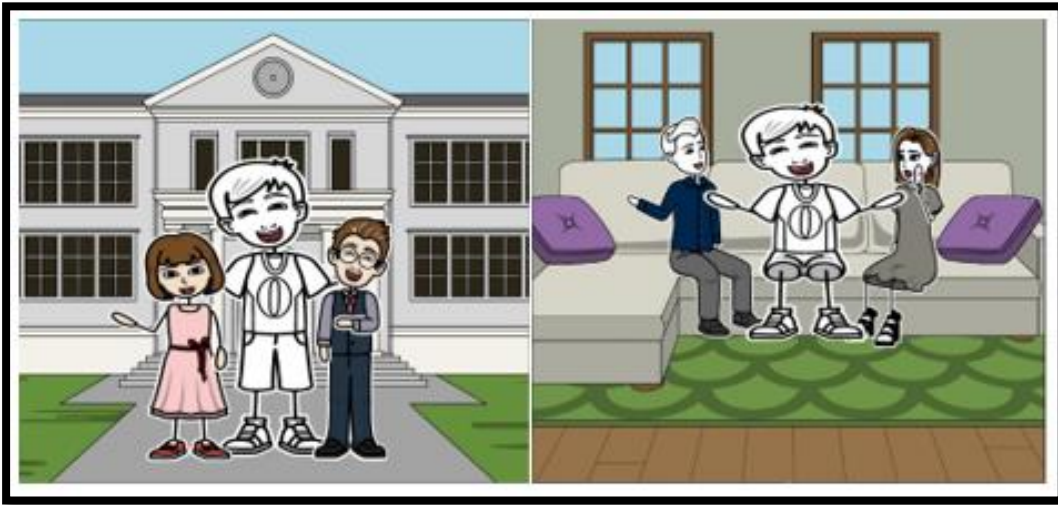
The researcher also managed to engage in an informal conversation with the mother of Student C that lasted around five minutes when she came to pick him up after school. Although she indicated an interest in listening to her child's day in school, she was in a hurry explaining that she had to balance her work, house chores, and taking care of Student C. The field notes concerning the informal conversation are reflected below.

*Student C's mother stated that they learned of Student C's autism when he was already three years old, and it was their neighbour who made her realise that her child was different. They took Student C to Riyadh, the capital of the Kingdom of Saudi Arabia, to see a doctor, who advised them to take the child to a specialist in autism to make things better for Student C. She explained that Student C is an only child and has no siblings with whom he could interact. Her interactions with her child usually ended up in Student C's shouting and screaming. Besides, her husband was a busy businessman, working around sixteen hours a day. He usually left early in the morning and came home late when Student C was already sleeping. He barely had time to spend with Student C. However, Student C's father wanted to improve Student C's social skills and behaviour.*

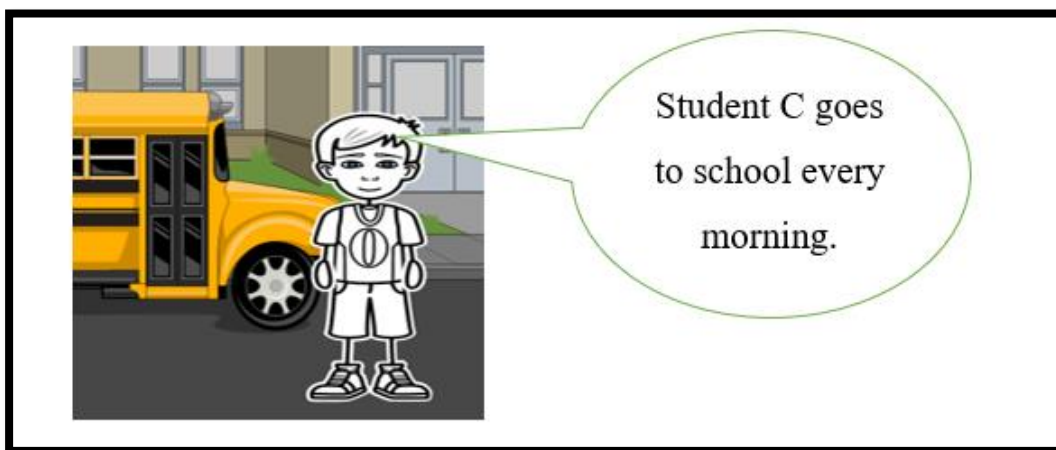
#### *Drafting of the Social Story*

With Gray's (2018) Criteria #1 and 2 in mind, the researcher proceeded with the creation of the SS for Student C. Additionally, the SS would be tailored based on the unique behaviours demonstrated by Student C as well as his capabilities (Criterion #4). With these, the teacher agreed with the SS, and the SS is presented below.

Like the rest of the SS, it is designed in a storybook format, following Gray's Criterion #3. Hence, page one of the SS contained the title of the SS, i.e., "Student C: the Polite Boy." The title reflected the focal point of the intervention, which is Student C being polite and respectful. The illustration included images of a school and home, the identified settings, where he is expected to be polite and respectful. The researcher explained that the main character in the image was smiling because he felt he was being loved by many people hugging him because these people knew he was polite. It is further explained that his friends from school were not afraid of him because they knew he was friendly. The illustration was important, emphasising that doing good would make him loved by many.

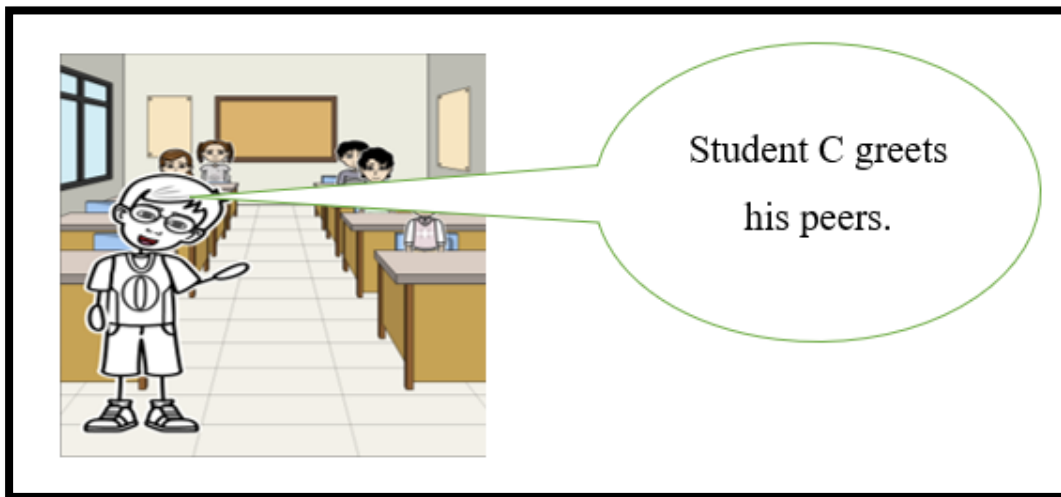


Page 2 of the SS illustrated Student C being ready for school as he was about to go inside the school bus. This was considered the introduction of the SS. It reinforced the idea that it was important for Student C to go to school every morning. It was also important to reiterate the setting of the SS, which is the school. Although in the title page, the home setting was included, the main focus was the improvement of social skills and behaviour in school.

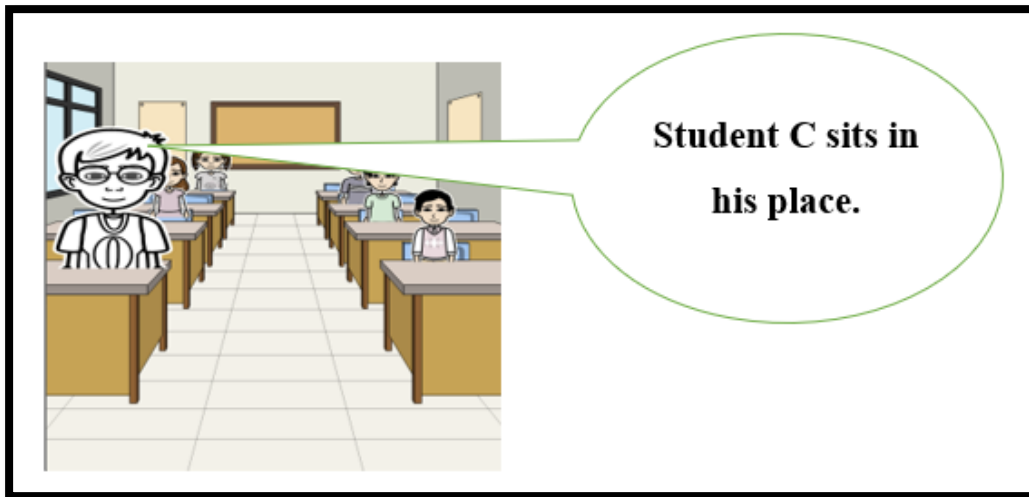


Page 3 is the first part of the body of the SS. As explained in previous case studies, the body contains the target goals of the intervention. On page 3, the illustration showed Student C greeting the class; he was standing in front of the class. The support stories for this illustration card would include an explanation of why standing in front of the class and greeting them, including the teacher, was important, which was demonstrating respect and being polite. The researcher further explained that greeting also demonstrated that he was friendly and his

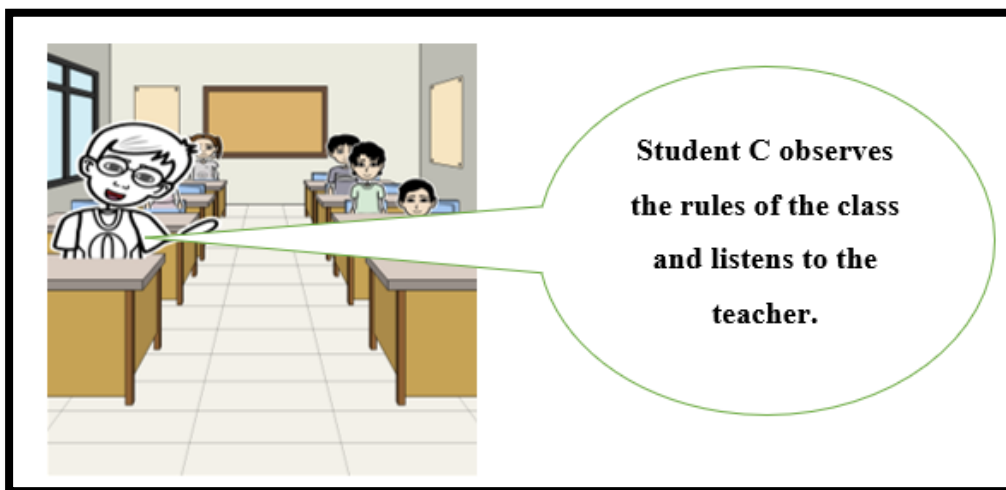
classmates would not be afraid of him. The researcher asked the questions if he saw his family (mother, father, grandparents, and relatives) greeted other people. The researcher continued by saying that greeting was considered very important in the Arab culture. This illustration card aimed to make Student C imitate greetings, which could address Student C's communication and engagement difficulties.



Page 4, which was also a part of the SS body, illustrated Student C was sitting down in his seat and actively listening to the teacher together with his classmates. The illustration card was crucial in terms of emphasising the idea that the students, including Student C, needed to listen to the teacher's instructions. Here, the researcher explained that listening to the teacher's instructions would demonstrate that the students were polite and respectful. It would help the teacher teach well and the students to learn well. The teacher further explained that there was a time for everything, a time for talking in class, and a time to listen to the class teacher. Students who did that are loved because they are considered polite and respectful. This illustration help achieve the target goal of listening as well as reducing hyperactivity of throwing things around by sitting quietly in his place.

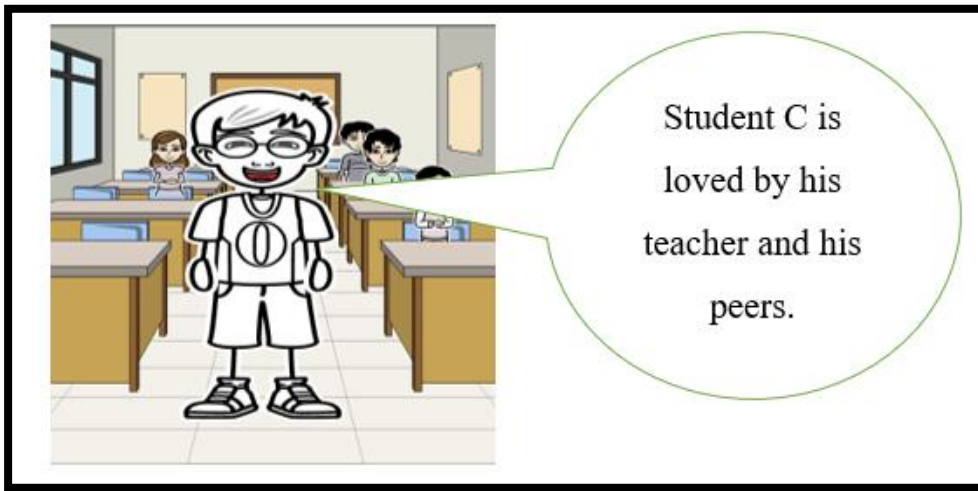


Page 5 of the SS was considered the last part of the body. The illustration card presented Student C observing the rules of the class and listening to the teacher. This particular illustration demonstrated Student C talking. The researcher explained that Student C only talked when the teacher gave him permission to talk in class. When the teacher gave him permission, Student C asked a question regarding the lesson in class, showing that he was listening carefully. The researcher made it clear that when the teacher started to speak, Student C kept quiet and listened to the teacher. This illustration aimed at teaching Student C to listen and follow the teacher's instructions and not to shout or to scream to get attention.



Page 6 of the SS illustrated the image of the boy smiling because he knew that his classmates and teacher loved him so. This illustration is considered the conclusion part of the SS. The researcher reiterated that because Student C greeted his classmates every day in class, listened carefully to the teacher's instructions, followed the class rules, sat quietly in his place, and did

not throw things around, he is loved by his classmates and teacher. Because of that, Student C was considered friendly, polite, and respectful.



The six-page SS for Student C contained simple words with literal meaning appropriate in terms of understanding to the ability of Student C. If the researcher saw or suspected that certain terms of sentences are not clear, she ensured that the word or sentence was explained clearly. For example, in greetings in Arab culture, she had to clarify and expound so that it would be understandable to Student C. Like the rest of the SS for other students, simple present tense was used and in the third person point of view. The conversations in the illustration cards were descriptive with positive language, tone, and message (Criteria # 5 and 8). The support stories placed for this intervention were encouraging statements (coaching statements), such as praises for the main character (Criteria #7). Also, before implementation, the SS underwent a review and revision stages (Criterion #9), with the consultation of Teacher C. It has to be mentioned that the number of pages for Student C intervention increased because the target goals for Student C cover both social skills and behaviour while the other participating students only had goals for social skills. With everything planned, the SS was ready for implementation.

### ***SS Intervention***

Criterion #10 of Gray's (2018) Principles was considered before implementation. Like the rest of the intervention, Student C's intervention was scheduled for 12 sessions of 45 minutes for every session with a 3-time frequency. The following researcher's narratives illustrate



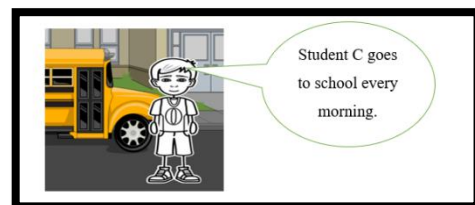
how the SS intervention was conducted to target both the social skill challenges and behaviour issues of Student C.

*As expected, the first day of intervention with Student C was rough and challenging. When I was introduced, he ignored me. I greeted him and asked him to do the same, and he refused with a scream. When I proceeded with the telling of the SS, the first half-hour of our session, Student C kept throwing his pencil case twenty-one times. This action distracted our intervention most of the time. By the end of the session, we were not able to finish the story. We only reached up to page four; however, I tried to repeat many times that the main character, Student C (the same name as the child), was really polite and listened to the teacher's instructions.*

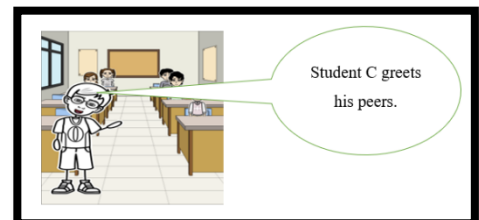
*By the second day of the intervention, we started with greetings. He did not greet me; he sat down next to me and was holding his pencil case. Before I proceeded with the SS, I asked him if he wanted to change the name of the main character, and I got no response. When I started with the title page, I read the conversation and explained the illustration. I emphasized that the main character was loved by his friends in school and by his parents. He was just looking down and did not react. I continued with praises for the main character as well as mentioning that most people love him because he was really polite and respectful.*



*Then I continued with the second page. As I was explaining the illustration card, Student C started throwing his pencil case again. I asked him politely not to do it because the main character did not do it and would be sad if he continued to throw his pencil case. He stopped. I continued explaining that Student C needed to go to school every day because he would learn new things and make new friends. I said that the bus was waiting, and the main character was ready and excited to go to school. At this point, I asked him some questions, such as "Do you like going to school?". He nodded, to which I praised him for his interest.*

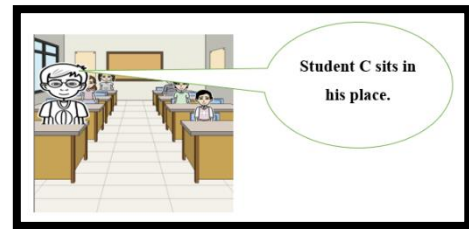


*As we continued to page three, Student C continued with his pencil case throwing. Even though it was distracting, I continued reading with my positive tone of voice and coaching sentences. After several incidences of throwing the same pencil case, he asked me to pick it up for him. So, I asked him if I picked it up, would he stop doing that and help me with the colouring and drawing? He started screaming and shouting. It took some time to calm him down. I had to use the tone the teacher used (based on prior observation) to try to control Student C. I also reiterated that such behaviour was not good, and it made people sad, including me.*

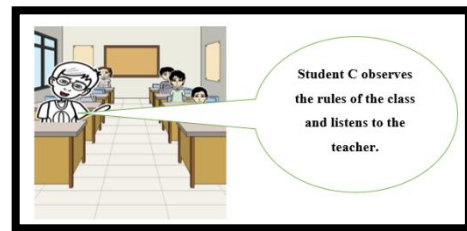




We proceeded with the fourth page after he calmed down. I ensured that my voice changed, using a more caring and patient voice in reading. I encouraged him to read, but he refused. I asked him if he wanted to tell me what happened in the story, but he also refused. He ignored me when I asked if he wanted to draw or colour with me. With this illustration, I really emphasized that it was really important for the main character to sit down and listen like what his classmates were doing. I explained that listening to the instructions or to the lessons of the teacher made Student C learn more, and following instructions made his classmates see that he was friendly.



When we flipped to the next page, I explained that the main character was talking while sitting in his place. The students were listening to what he was saying. I emphasized that he only started talking when the teacher gave him permission. I said that when the main character wanted to talk, he raised his hand and asked for the teacher's permission. I explained that this behaviour was good.



Then we proceeded to the sixth page, in which I explained that the main character was very happy because he knew he was loved by his classmates and teacher. I asked him, "Do you know why he is loved by his classmates and teacher?" I was surprised when he looked at me. I said because he listened and followed the instructions of the teacher, he greeted his classmates every day, he sat in his place and did not throw pencil cases or shout or scream. Because he did these, his classmates and teacher see that he is friendly and polite.



Notably, the pencil case throwing decreased starting with the highest frequency on the first day twenty-three times, the second day with seventeen times, and the lowest frequency on the third day with ten times.

As we entered the second week of the intervention, we proceeded with the routine, i.e., the greetings, reading of the SS, etc. I also asked him if he wanted to change the name of the main character, but he just ignored me. For almost the entire week, no improvements were demonstrated. The frequency of pencil case throwing was almost the same as the first week. The shouting and the screaming also continued. The slight progress was Student C's attempt at reading with me on some occasions. I observed that social story, when read based on what was written, did not seem to get his attention for a longer time. So, instead of reading exactly what was in the pictures, I improvised most of the time, using simple words for Student C to understand but with much more focus on the important points in the pictures. He also coloured the main character during the third day of the intervention.

However, during the third week of intervention, the following slight improvements were demonstrated: (1) Student C said "Hello" when I greeted him but refused to

*greet the entire class; (2) Student C participated more in reading compared to last week; (3) Student C coloured the main character in the SS story; (4) Student C had demonstrated improvement in his behaviour of throwing his pencil case with a much lower frequency (the highest with 15 times and the lowest was 8 times) compared to the first two weeks; (5) His screaming and shouting was not anymore as frequent as before; and (6) Student C showed a slight improvement in listening, when I suggested that we should read and colour, he followed.*

*The fourth week was much better because the throwing of the pencil case became much less frequent (12 times for the highest frequency and 6 times for the lowest). It was also during this week that Student C asked me to say some of the words while we were reading. I thought he found it hard to say, which was why I was saying it slowly and asking him to repeat, which he did. he also demonstrated more interest in colouring and drawing. Furthermore, his aggressive behaviour, particularly shouting, was also manifested during the intervention; however, this aggressive behaviour had become much less frequent in manifestation.*

#### Frequency Behaviour Chart (Weeks 1 to 4)

The Frequency Behaviour Chart during the four weeks of intervention revealed the following frequencies for social skills: started with 29 times in Week 1 and ended with 17 times in Week 4 for not listening to instructions and 28 times for Week 1 to 15 times in Week 4 for avoiding interaction. On the other hand, the frequencies for behaviour were 40 times in Week 1 to 23 times in Week 4 for hyperactivity (shouting and throwing things around). Although the frequencies seemed to indicate a decrease, the decrease cannot be considered very significant.

#### **Post-Intervention**

Based on the post-intervention interview conducted on the teacher, Teacher C stated that after witnessing the effects of SS intervention on Student C, she would like to employ the SS intervention in all her classes. The SS materials helped the students realise good behaviour without really realising the original purpose of the SS material. Teacher C was positive that the SS intervention would work on other students since the materials used would be developed based on the individual needs of the child; however, she acknowledged that the effects might take time to manifest. She also expressed her willingness to go through training with the use of the SS intervention. She would recommend the use of the SS intervention in all centers and extend the duration to more than a month.

Similarly, the researcher conducted the post-intervention interview with the mother of Student C. The mother indicated her willingness to recommend the use of SS intervention due to the

slight improvement she witnessed in her child. She explained that even though the improvement was slight, given that it was just conducted in one month, they (mother and father) were very happy with the effects of the intervention. Both she and her husband wanted the SS intervention continued to be conducted on their son. They also wanted that the Center should adopt this intervention.

*Frequency Behaviour Chart (Week 5)*

For the post-intervention observation, Student C manifested the following frequencies for social skills, 20 times for not listening to instructions and 23 times for avoiding interactions while for behaviour, 21 times for shouting/throwing things around the class.

## Student D

### *Pre-Intervention*

The researcher collected data concerning Student D in preparation for the creation of the SS intervention. From the school file, Student D was described as a 4-year-old female who was diagnosed with a moderate level of autism. In addition, the researcher was given the opportunity to conduct a pre-intervention observation for a week (Week 0) where she made a Frequency Behaviour Chart. The researcher's observations are reflected below.

*I was able to observe her behaviour and social skills in class. She shouted and screamed as well as threw her friends' things in class to get their attention. She exhibited tendencies of copying what her peers did in class. She did not like to be told to sit down and refused to listen to her teacher's request to sit still. The teacher had to speak loudly to get her attention. She had some peers she was willing to mingle with but ignored the rest. She exhibited behaviour of taking her peers' toys and speaking during her peer's turn to speak. Based on the Frequency Behaviour Chart (Week 0) for the pre-intervention observation, I recorded the following frequencies of her social skills and behaviour. Student D exhibited hyperactivity 59 times, bullying 60 times, inattention 52 times and 42 times for selective engagement.*

The researcher managed to conduct an informal conversation with the teacher, who was handling Student D. The informal talk with Teacher D lasted around seven minutes. Her field notes of the conversation are reflected below.

*Teacher D was a 29-year-old female who had been teaching autistic children for five years. She explained that she had a diploma in Education but had not been able to get training yet. When asked about types of intervention to improve a child's behaviour and social skills, Teacher D stated that teachers should play with the children and be friends with them so that the children can learn from the teachers and imitate their actions. Regarding the reason for a child's behaviour, Teacher D said that there are many reasons for such behaviour, but the most common is imitating how others behave.*

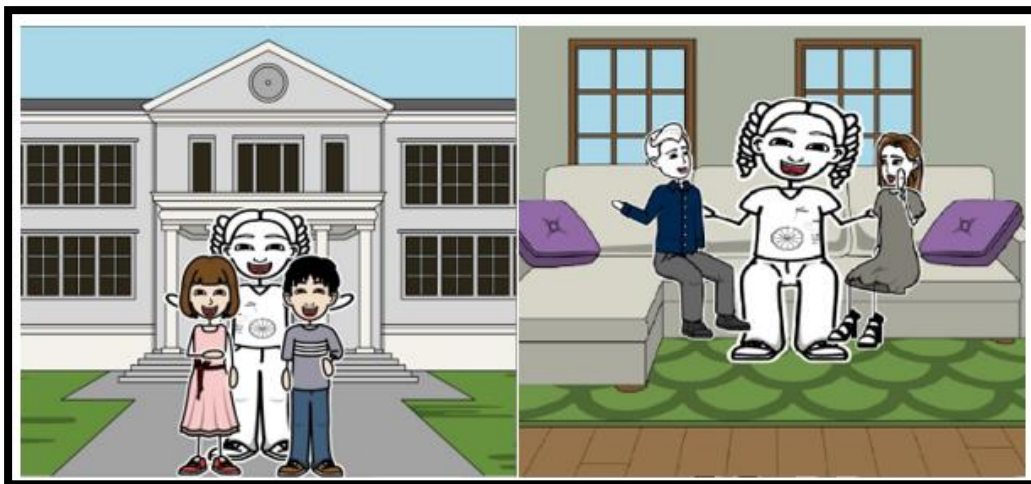
The researcher also managed to briefly talk to the mother of Student D when she came to pick her up from school. The interview lasted around five minutes, and the researcher's field notes are stated below.

*Student D's mother explained that she gradually noticed the difference in her child's behaviour when she was around four years old. They took their child to Riyadh, the capital city of the Kingdom of Saudi Arabia, to see the specialist. The doctor advised them to let Student D attend the special centre, referring to the school for autistic children. She indicated that she tried to teach her child some basic skills and communicate with her daily. However, Student D did not like to socialise and spent most of her time playing with her iPad, which was always in her hands. They did not try to remove the iPad because she became aggressive every time they tried.*

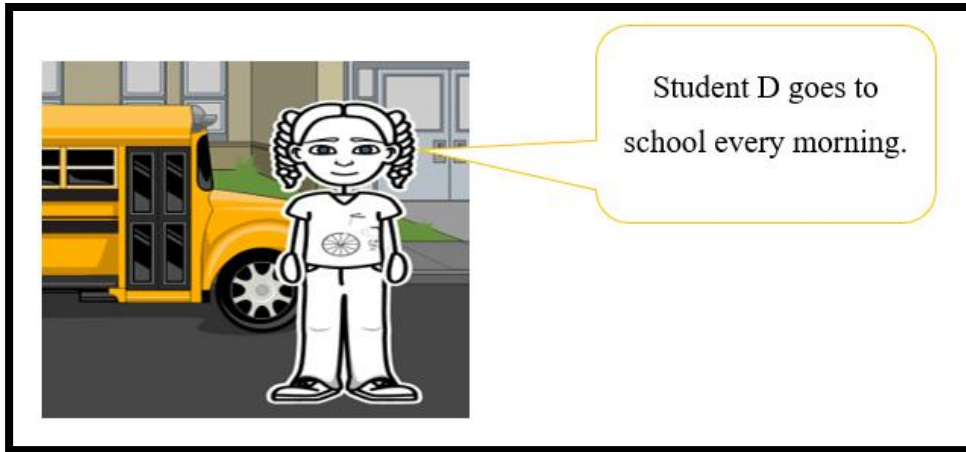
### ***Drafting of the Social Story***

Based on the collected data and the goal of SS (Criteria #1 & 2), the researcher got sufficient information concerning Student D to create a Social Story for her intervention. Guided by Criterion # 4, the researcher created the SS considering the abilities, capabilities, and personality of Student D. The SS for Student is presented below.

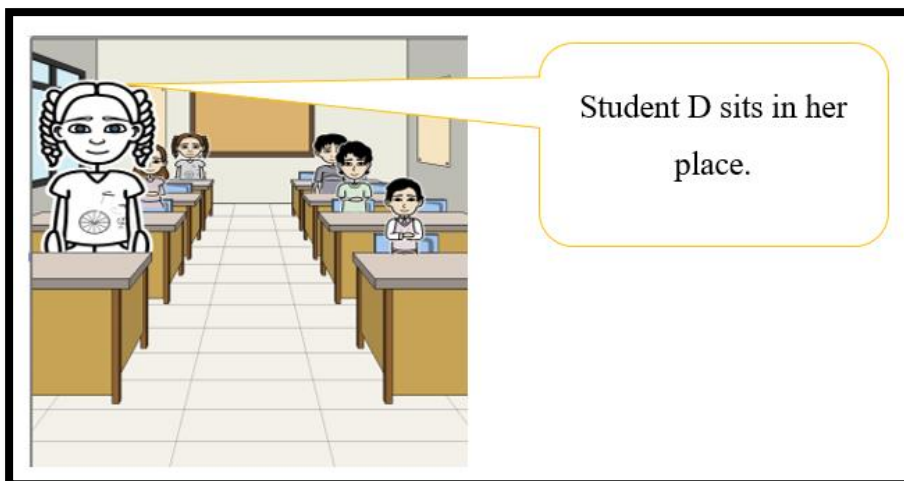
Guided by Criterion #3 and with the target goals in mind, the researcher developed the title of the intervention reflecting its topic, "Student D: A Polite Girl". As established, Student D had a very challenging behaviour, and the title reflected the target goals aimed to modify her behaviour, specifically, being polite and respectful. The illustration of the title page included images of home and school (setting), and in each image, the main character (Student D) was hugged by friends (school) and parents (home). This illustration stressed the idea that in these two settings, Student D needed to be polite and respectful, and the hugging showing love demonstrated the results of being polite and respectful.



Page 2 of the SS showed Student D in front of the school bus, ready to go to school. This illustration card was considered as the introduction of the SS. The introduction established the setting of the SS, which was the school, reinforcing the idea that the school was an important place where Student D should demonstrate polite and respectful behaviour.

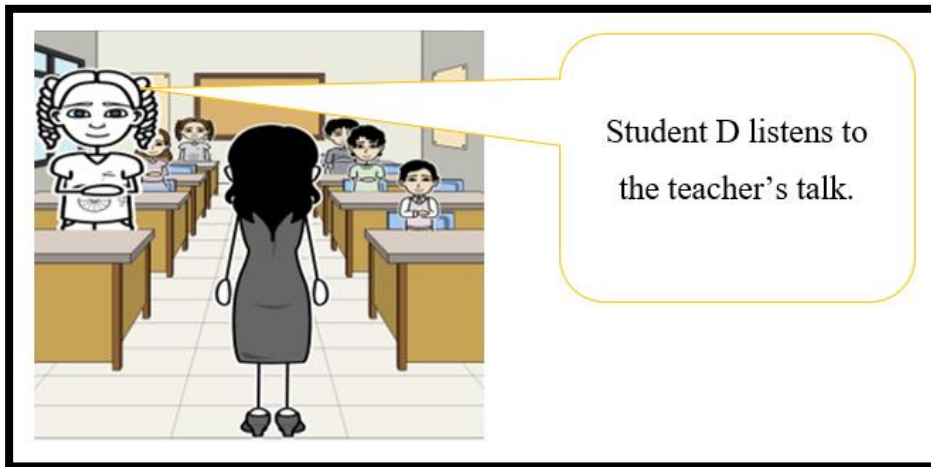


Page 3 of the SS is considered the first part of the SS's body. This illustration card demonstrated that the main character (Student D) was polite and followed school rules by sitting in her appointed seat. It also showed that the class is organised, quiet and ready for the lessons of the teacher. The main character, like the rest of the students, were all polite by quietly sitting in their places, waiting for the teacher to begin her lesson. This card reinforced the idea that Student D must follow class rules and must not show hyperactivity and aggressiveness in class.

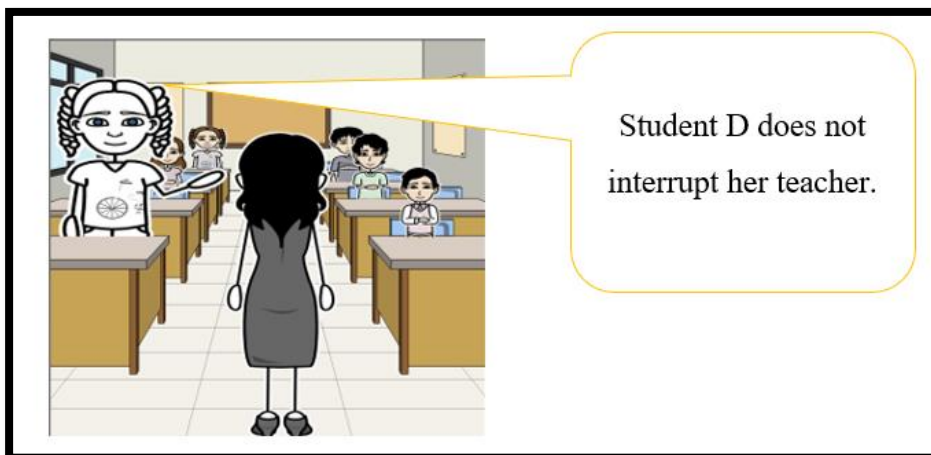


Page 4 of the SS is the second part of the SS's body. The illustration card demonstrated the teacher talking in front, and the main character and the other students were intently listening to her. This reinforced the idea that listening to the teacher is important and a way of showing respect. This illustration card also reinforced the idea that the main character did not go to sit

on other students' seats and take their things. This illustration aimed at addressing a variety of issues, including hyperactivity, aggressiveness, bullying, and inattention, which were identified challenges of Student D.

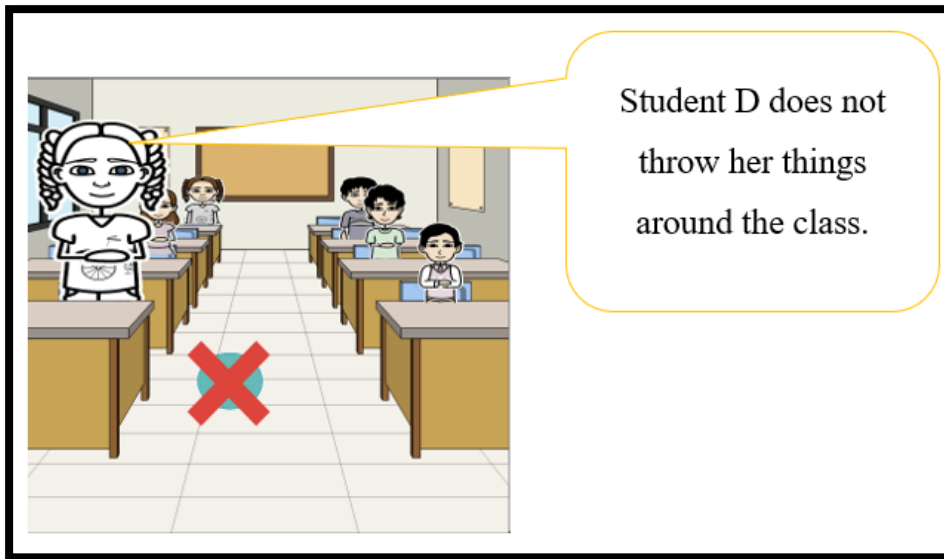


Page 5 of the SS is a continuation of the body of the SS. It illustrated the main character raising her hand because she wanted to ask something while the teacher was talking. This reinforced the idea that the main character did not interrupt the talking of the teacher but politely got the Teacher's attention by raising her hand. The card presented the idea that the class encouraged the main character to talk; however, talking can be done politely by asking for the teacher's permission. In doing so, the class is orderly and peaceful, best suited for all the students to learn.

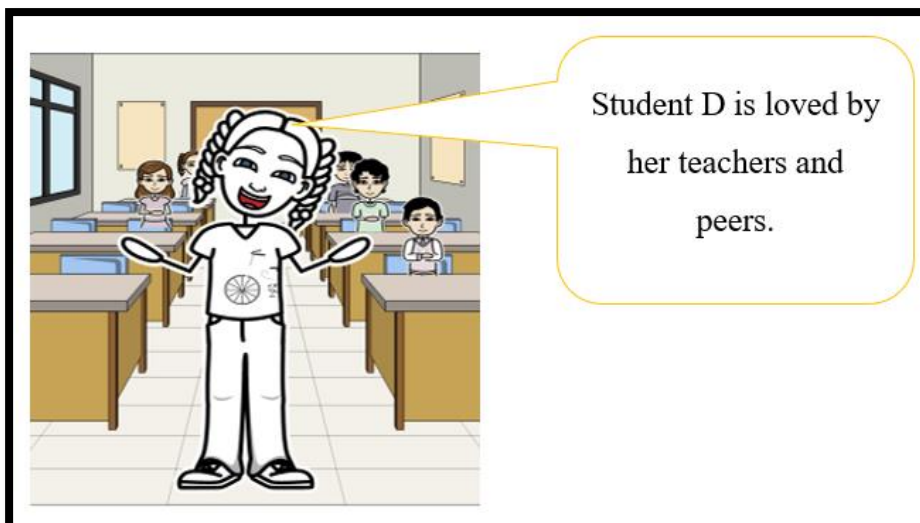


Page 6 is the last part of the SS's body. The illustration card illustrated an important point, the main character not throwing things around the class, aimed at achieving one of the target goals, i.e., hyperactivity. This card reminded Student D that throwing things around is disrespectful and impolite. The school must always be kept in an organised manner in order for students to learn better.





Page 7 is the conclusion of the SS. The conclusion demonstrated that good actions produced good results. In this case, the illustration showed that the main character (Student C) was loved by her classmates and teachers because she followed class rules, she did not disrupt the class, she listened to the teacher, she stayed in her seat, she politely raised her hand if she had any questions or request, she did not throw her things around, and she did not take things that did not belong to her.



All the sentences included in the conversations used simple words with literal meanings appropriate to the level of understanding of Student D. Moreover, the sentences used the simple present tense and a third person point of view laden with descriptive and positive language and tone (Criteria #5 & 8). The support story, which would be included during the implementation of the intervention, contained praises and a positive tone for encouragement (Criteria #7). Then this draft underwent review and revision in preparation for the

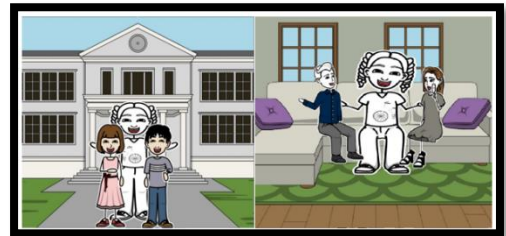


implementation (Criterion # 9) as it was presented to the teacher for consultation. The number of pages for the SS increased to seven pages as compared to other students due to the number of target goals.

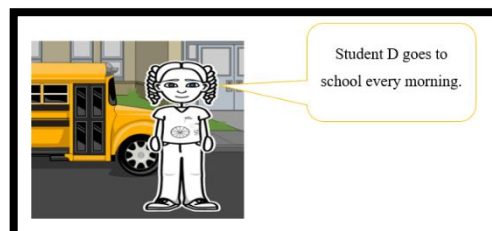
### ***SS Intervention***

Considering Criterion #10 of Gray's (2018) Principles, the SS intervention was ready for implementation. Like the rest of the participating students in this study, Student D's intervention was scheduled for 12 sessions of 45 minutes each and a frequency of three times a week. The following narratives reflected the researcher's observations of the SS intervention.

*On the first day of the intervention, which was usually the hardest, Student D was introduced to me, and I greeted her. She did not look at me, but she refused to greet me back. I introduced my name again, and I asked for her name. She started shouting and screaming. I had to let the teacher come in and deal with her for a while. Then with the teacher's assistance, she started to calm down. Then she was asked by the teacher to sit beside me for the storytelling, but she adamantly refused. She did not want to sit near me. I tried my best to use different strategies to get her to sit beside me. After a while, she did. By this time, I knew I had to extend the session since we were almost approaching 45 minutes. As she sat, I tried to entice her with the visuals of the SS. I showed and read the title page to her. It got her attention since the name of the main character is the same as her name. I explained the title page about the main character being polite and loved by her friends in school and parents at home. I tried to make my explanations very simple and easy for her to understand. It was clear that Student D had a very short attention span.*

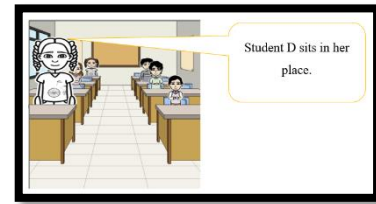


*As I flipped to the introductory page, she stood up and started going to other tables. The teacher had to request several times for her to go back to her table. When she did, I continued with the explanation of the second page. I made sure that my voice emanated patience, and I tried to be very coaxing with many coaching sentences used in order to get her to participate. After my explanation, I asked her if she wanted to read the conversation for me, and she refused. I asked her if she wanted to draw and colour, and she also refused. She started manifesting signs of restlessness and wanted to stand up and disrupt the others. I tried to keep her engaged with the SS, but it was proving to be very challenging.*



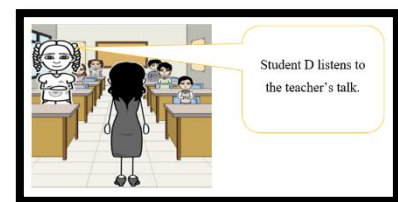
*As I proceeded with the third page, she started talking loudly in class and in some cases, shouted. It was already around an hour and twenty minutes, so I decided to stop for the day.*

*On our second day of the intervention, we started with greetings. She did not greet me back. As she sat down next to me, I showed her the SS and started with the title page. I asked her if she wanted me to change the name of the main character, and she said “No”. I continued with the explanation and flipped on to the next page. I also explained the importance of school. I asked her if she liked going to school, and she said “Yes”.*

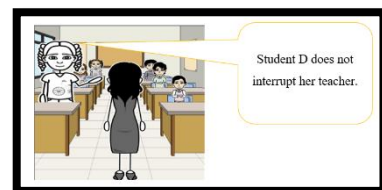


*Then I presented the third page. I explained that the main character knew that it was important to sit in her own seat and remain quiet so that the teacher could teach the lesson well to all students. I pointed out that all the other students in the image were being very good, polite, and respectful by sitting quietly, waiting for the teacher to teach. As I was reading the conversation, she also started talking loudly. In a firm tone, I told her that the main character did not do that because it was impolite. The main character always waited until the teacher was done talking before she asked for permission to talk to say something. She was silent. Then I asked her if she wanted to ask any questions or if she wanted something. She said that she wanted to colour, and I allowed her.*

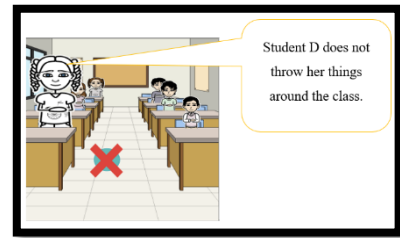
*When she was done colouring, we flipped to the next page. I explained that this image showed the main character listening to her teacher’s instructions. I explained why that is important. I asked her if she understood, and she nodded. By this time, she was showing signs of restlessness. So, instead of going to the next page, I asked her if she wanted to tell me about the card. She tried to tell me what she saw on the card. Although the description was very minimal, it was good, and I showed my appreciation by thanking her and praising her for her keen eyes.*



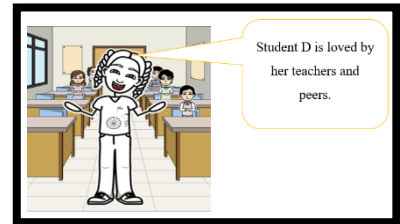
*Observing that she was engaged once more, I continued on to the next page. I pointed out what the main character was doing, emphasising that it was very polite not to interrupt the teacher or even her classmates when they were talking. I also added that the main character did not like to talk when it was not her turn. Her classmates were all doing the same thing. They all followed the class rules. I asked her if she wanted to be like the main character, and she did not reply. I asked her to read with me, and she did. She also wanted to colour, which I allowed her. After doing her task, she stood up and jumped around the class. With a firm voice, I asked her to return to her seat, which she did after repeating my request three times.*



*We continued with the next page. Right away, I pointed to the X in the illustration. I explained that this represented the main character's thing (a book or bag). I stated that this was an X because it is not polite to throw things around. The main character knew it; that is why she did not like doing it. Throwing things was not good, and it made other people, her friends, teachers, and even her parents, very sad.*



*As we continued to the last page of the SS, I noticed that she became quiet. So, I proceeded to explain the illustration card. I said that the main character was loved by her classmates and teacher because she was very polite. I repeated all the good actions done by the main character from page 2. I emphasised that the main character was smiling because she was happy. She knew that her classmates and teacher loved her.*



*When we finished, I thanked her for her attention and participation. I told her that it made me happy when she participated in our activity.*

*After the first week of intervention, there were signs of slight improvement. During the second week of intervention, I got more participation from Student D. She liked to colour, and there were times she even attempted to draw. In one instance, she tried to narrate what happened in the card. One major progress that I would like to consider was Student D's interest in listening to the SS as I narrated it. However, there were still cases of shouting and throwing things around as well as sitting in another student's seat. It was usually this time that she took things of her classmates that would cause the class to be disrupted. I made sure that she knew I was really sad when she did these. With such behaviour still persisting, I became more creative in trying to emphasise the points in the illustration cards, specifically, sitting in her own seat, listening, and following the teacher's instructions, not throwing things around, not shouting and not taking her friend's things.*

*As we entered the third week of the intervention, Student D started listening well to the story being narrated. It was the second day of the intervention week that she indicated her willingness to read the story by herself with my supervision. She also liked to colour. There were still instances where she stood up and sat next to one of her classmates. I asked her to come back so that we could finish, but she ignored me. What I noticed was that she would almost always talk or engage with this female student in her class. She would also take the things of the other classmates but not this female student's things. After two repeated warnings to come back, she did, and we continued with the SS. What was absent during this week was the loud talking and shouting. The throwing of things happened still, but the frequency had decreased. I observed that this usually occurred when she became restless; hence, when I observed that she became restless, I usually tried to get her engaged in an activity in the SS.*

*By the last week of the intervention, it seemed to be a bit normal for her to respond to my greetings. She also managed to sit down in her seat most of the time. But she*

*would only engage with students at her table or with the female student she liked. The throwing of things occurred once. The shouting and loud talking remained absent. Student D's participation in the SS increased; she read, indicated that the name of the character should not be changed, she drew or at least attempted to do so, she narrated in her own words some illustration cards, and she coloured. She even showed she cared when I was sad when she did something bad and knew when I was happy.*

#### Frequency Behaviour Chart (Weeks 1 to 4)

The researcher noted down the number of times Student D exhibited the identified themes and plotted them into a chart. The following frequencies were recorded: For hyperactivity, Student D started with 59 times for Week 1 and ended with 35 times for Week 4; she manifested bullying behaviour with 60 times for Week 1 and 38 times for Week 4; she also demonstrated inattention with 52 times for Week 1 and 35 times for Week 4; and for the selective engagement issue, 42 times for Week 1 and 31 times for Week 4.

#### *Post Intervention*

The researcher conducted a post-intervention interview with the teacher to gather her perspectives regarding the intervention's effects on the student. Teacher D expressed that the SS intervention would be suitable for all students because all children like to read stories. She further explained that the intervention was fun because it was a hands-on activity, and it would work well with the students. The intervention brought the students together and gave them the opportunity to listen and read. She also expressed interest in receiving training on the use of SS intervention because she witnessed how it worked with the student. She explained that if given the opportunity, she would employ the SS intervention for more than a month.

Similarly, the researcher managed to have a post-intervention interview with the mother of Student D. The mother expressed her happiness concerning the improvement that her child demonstrated with the help of the SS intervention even though she acknowledged that the improvement was slight. She also stated that she would recommend the intervention to be continued in the Centre because of the changes she saw in her child. She would also be interested in getting some training due to her interest in using the intervention with her child. Her ultimate goal is to see that her child feels better. She said that there were no other changes she would make to the intervention.

*Frequency Behaviour Chart (Week 5)*

For the post-intervention observation, Student D exhibited the following frequencies: 29 times for hyperactivity, 29 times for bullying, 29 times for inattention and 25 times for selective engagement. These data will help analyse the improvement/progress or lack of it when compared to the data in Week 0, the pre-intervention observation, which is discussed under the overall discussion of the findings below.

## Student E

### *Pre-Intervention*

The researcher collected data concerning Student E to evaluate his social skills and behaviour. The first data gathered was from his school file. Based on the file, Student E was a 6-year-old male diagnosed with a moderate level of autism. In addition, the researcher was given the opportunity to conduct a week-long pre-intervention observation. The result was charted in a frequency behaviour chart. The descriptive observation and the frequency of manifested behaviour are reflected below.

*The teacher gave me the opportunity to observe her class, and I focused on observing Student E and how he interacted with his peers. I noticed that Student E was hyperactive, moving around, and not following instructions. He also manifested signs of wanting to be friends with his classmates; however, he treats them roughly, causing his classmates to stay away from him. Also, he did not participate instantly in any conversation. He usually waited for a few minutes to reply and did not show any interest in initiating conversation. During my week-long observation, the following frequencies were recorded based on his specific social skills issues and behaviour: 37 times for bullying, 79 times for hyperactivity, 60 times for interrupting others, 18 times for avoiding initiating conversations, and 40 times for not following instructions.*

The researcher got the opportunity to have a fifteen-minute informal talk with the teacher handling Student E when she went to collect the consent forms. The researcher's field notes convey what was discussed in the conversation.

*I discovered that Teacher E, the teacher handling Student E, was a thirty-year-old female with six years of teaching experience. She explained that she got a Ph.D. in Education and received some training in handling autistic children. She stated that there were numerous types of interventions, such as those where the teacher served as a role model to the students. She said that there were others who would advocate having inclusive classes. So, according to her, it all depended on the uniqueness of the child. She discussed that the child's behaviour could come from what the child saw others are doing, especially family members.*

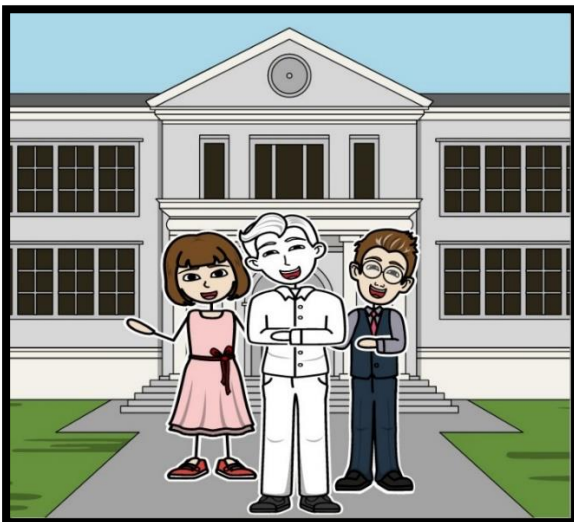
The researcher also managed to have an informal conversation with the mother of Student E when she came to pick up her son in school. The interview lasted around seven minutes, and the field notes of the researcher is reflected below.

*The mother explained that they discovered their son was different when he was about three years old. She said that it was her who initially saw the different personalities of Student E. So, she and her husband decided to take their child to Riyadh, the capital city of the Kingdom of Saudi Arabia, to see a specialist. The specialist advised them to have Student E attend classes in a Centre specialising in Autism so that he could improve his social skills and behaviour. The mother also explained that it was her who usually tried to engage Student E in talking and playing with him. Also, she explained that the family attempted to engage him in a conversation, but he prefers to be by himself. He seldom responded and, most of the time, ignored the entire family.*

### *Drafting of the Social Story*

In creating the SS for Student E, Criteria #1, #2, and #4 were particularly considered. A consultation with Teacher E was also done in order to get her perspectives regarding the target goals and the idea of the SS for the intervention. With Teacher E's agreement, the SS is developed and presented below.

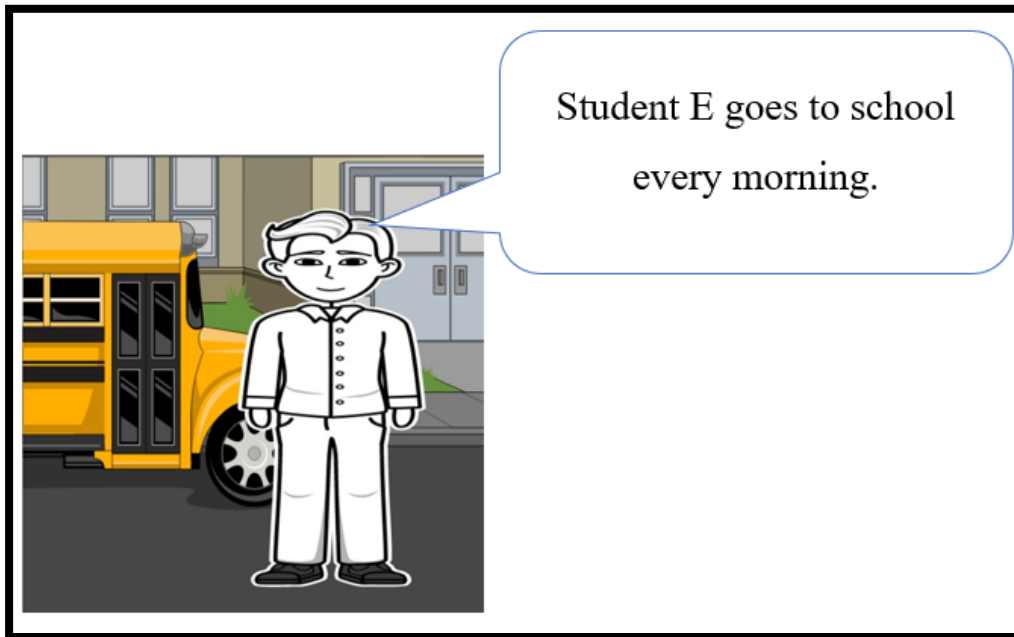
Following Criterion #3, page one of the SS is the title page, i.e., "Student E: The Friendly Boy". The title page captured the aims of the target goals. Being friendly suggested that the main character initiated and engaged in conversations as well as in exhibiting good behaviour, such as treating his friends politely, following the teacher's instructions, and being respectful by not interrupting others. The illustration card projected a smiling boy in the middle of a group of friends who loved him because he was very friendly. The background of the illustration card was the school, the setting.



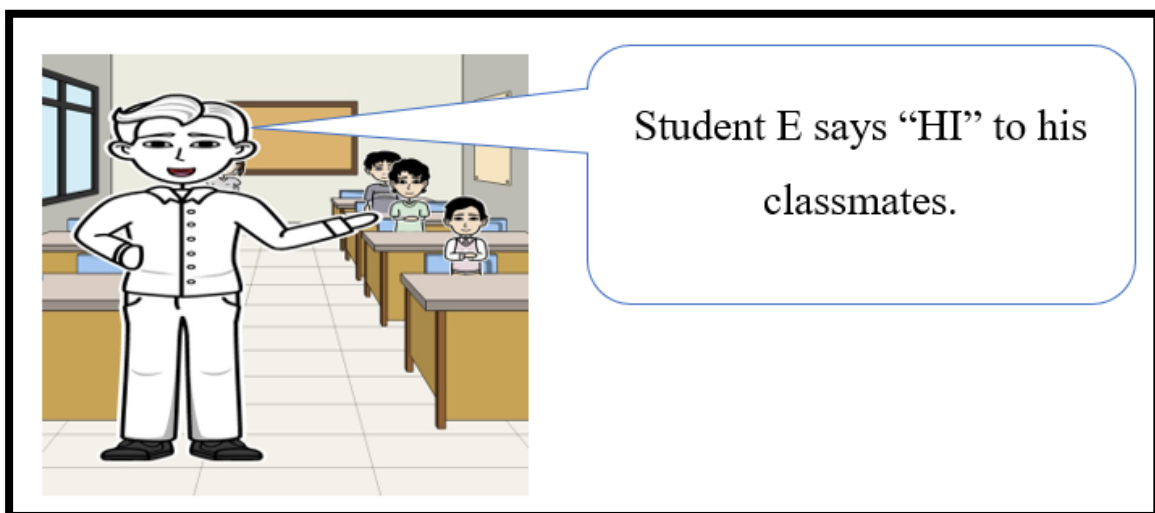
Page 2 of the SS is the introduction. The introduction showed that the main character was in front of the school bus, ready to go to school (setting). The time indicated was every day,



emphasising the importance of attending school every day. The image illustrated that the boy was dressed nicely.

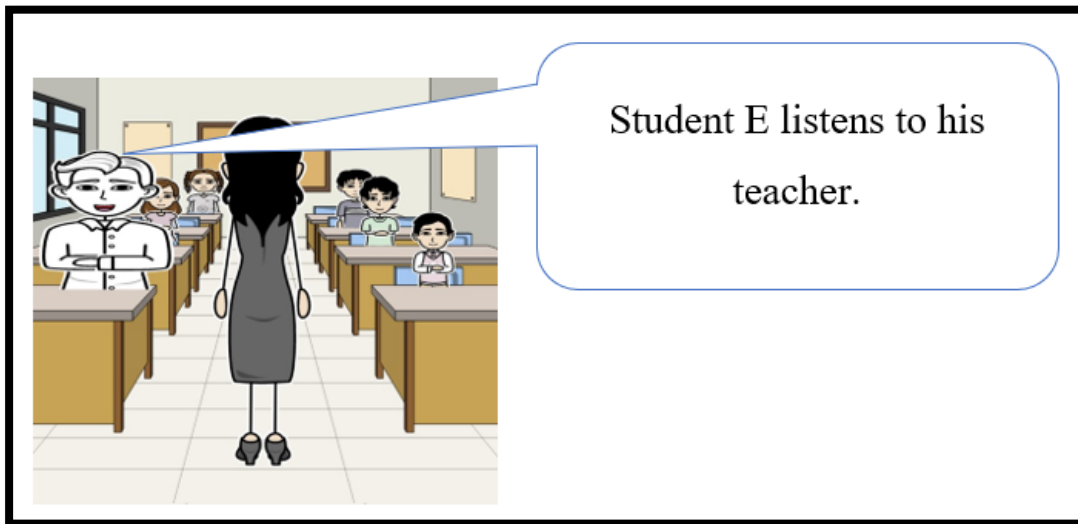


Page 3 is the first part of the SS's body. In this illustration card, the main character was greeting his classmates by saying "Hi". The greeting part would address his issue of avoiding interaction. By doing it in front of the class, he would be initiating conversation with the group.

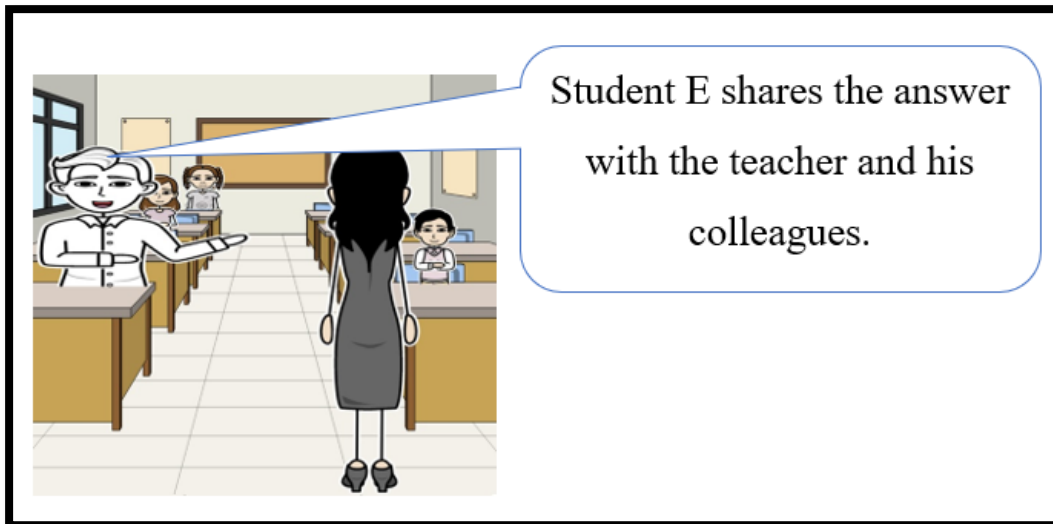




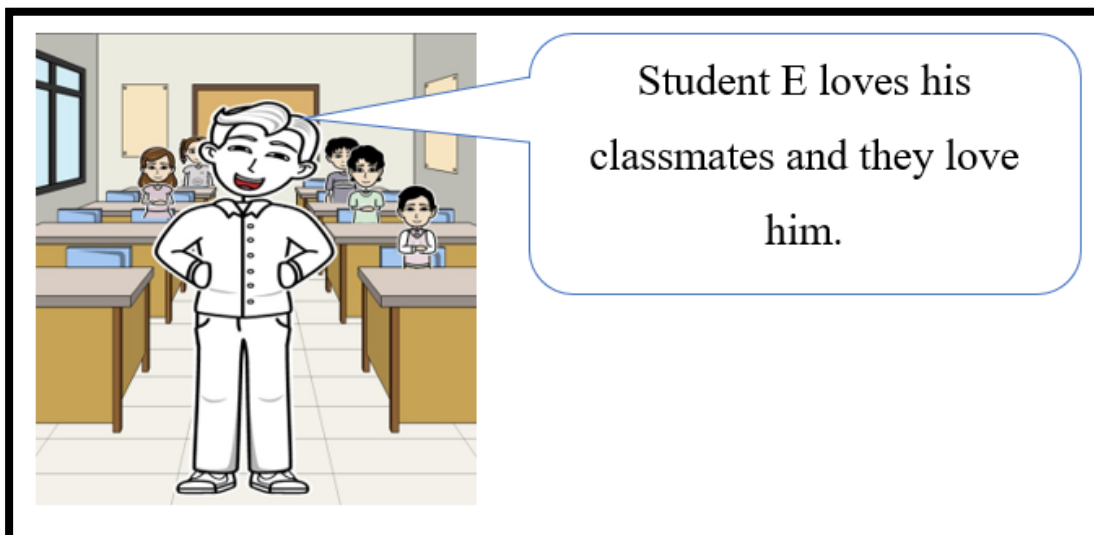
Page 4 of the SS is another part of the body. In this illustration card, the main character was shown sitting down quietly as the rest of the class while listening to the teacher. This particular illustration aimed to emphasise the idea that the main character needed to listen to the teacher. Furthermore, it also projected the need to follow class rules and stop being hyperactive or aggressive. In this manner, the class was seen organised, and better learning could happen.



Page 5 of the SS is considered another part of the body. This illustration card aimed at making Student E understand that it was important to participate in conversation as well as follow instructions of the teacher. This illustration card projected that the main character spoke when the teacher gave him permission to speak and participate; it implied that he should not interrupt while others were talking because it was considered impolite. He should wait for the teacher to give him permission to speak or that he should raise his hand to get the teacher's attention.



Page 6 is considered the conclusion of the SS. The illustration card presented the main character (Student E) smiling in class with the conversation, indicating that he loved his classmates that loved him back. This image and conversation described the result of the main character's good actions and behaviour, such as greeting his classmates, listening to the teacher's instruction, not interrupting others, not being hyperactive or aggressive, participating in class discussion, and following class rules. Because of this, his classmates viewed him as friendly, and because of that, they loved him.

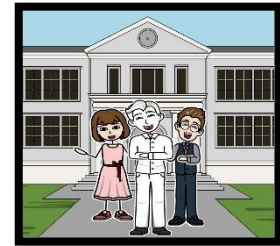


The six-page SS intervention for Student E contained simple words with literal meaning. The conversations were all descriptive with positive language and tone. It also used simple present tense, third-person point of view, and prepared coaching sentences for its support story (Criteria #5, 8, and 7).

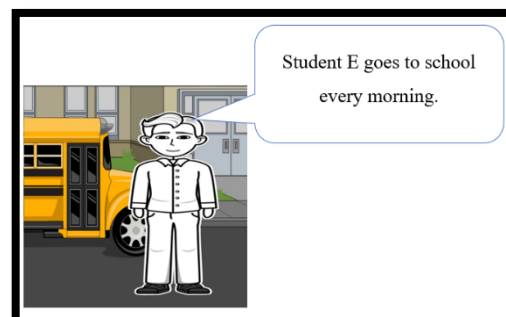
### SS Intervention

The SS intervention for Student E was scheduled for 12 sessions of 45 minutes for every session with a three-time frequency every week. By implementing Gray's (2018) Criterion #10, the SS intervention is deemed ready for implementation. The following is the researcher's narrative concerning Student E's SS intervention.

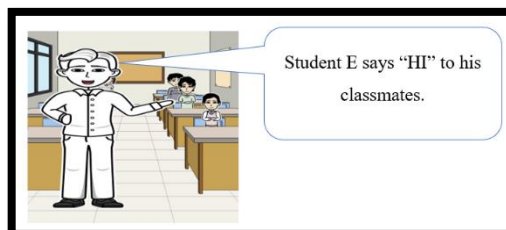
*During the first day of the SS intervention, I was first introduced to Student E. I greeted him and repeated my name. I asked him to greet me, and he did not say anything. When I asked for his name, it took him a while to say his name. When we began with the intervention, I showed him the title page of the storybook. He looked at the book and pointed at the name, which was exactly his name. I read it and said, "Student E," who is the main character of our story. Then I explained saying that the main character, "Student E", in the illustration card, looked happy because he was surrounded by his friends in school. I said because he was friendly, many of his classmates loved him. At this time, I knew he was very curious, which explained his interesting behaviour in listening to what I had to say.*



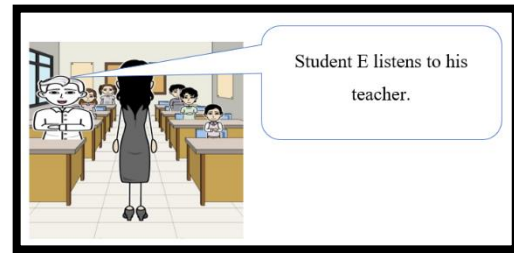
*Then I showed him the second page. I explained that the main character was ready, dressed nicely, was ready to go to school. He went to school every day because it was important. In school, he learned new things and made a lot of friends who loved him. I said that the main character was riding in the school bus to go to school every day. I asked him if he liked going to school and he said "Yes". I invited him to read the conversation with me, but he refused.*



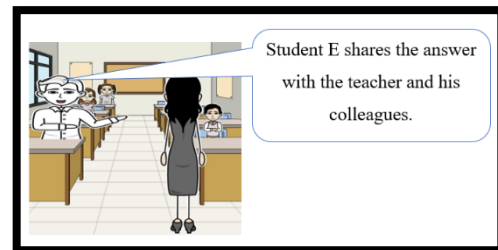
*Then I continued with the next page (3). I said that the main character was so friendly that every day when he reached the classroom, he greeted his classmates by saying "Hi" to them. I said that everyone liked a boy who was friendly. I asked him if he saw his father or mother, or grandparents greet other people. When he nodded, I said it was because they were friendly. I emphasised that he had to do the same every day in order to show people how friendly he was. I asked him if he wanted to say "Hi" to the class; he ignored me. However, he was still curious about the story.*



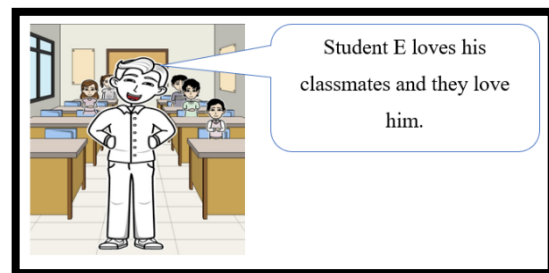
So, I flipped to the next page and showed him page 4. I explained that the illustration card showed a teacher standing in front of the class and talking to her students. The main character and the rest of the students are sitting down and very intently listening to the teacher. I explained that this is polite behaviour. I explained further that the main character did not interrupt, did not stand up and move around, but merely sat down and listened to what the teacher was teaching. I invited him to read the conversation, but he ignored me.



Then we moved to the next page (5). I asked him what the main character was doing. I waited for his reply, and after a minute or two, he said, talking. I said very good. I explained that the card showed the main character answering what the teacher asked. I stressed that Student E (main character) did not just talk, but he was asked by the teacher. When he was asked by the teacher, Student E responded right away. I also explained that the main character, when he had something to ask, he raised his hands and waited for the teacher to give him permission to talk. In that way, the class was organised, and everyone got a better chance to learn. I also extended my explanation by saying that the main character liked to make many friends. But he did not do that by forcing others to do what he wanted. The main character knew that he needed to show that he was friendly, and then he knew that his classmates would love him. I asked him if he wanted to colour or draw, but he ignored me. He wanted to proceed to the next page.



Then we reached the last part of the story. I was surprised that the SS managed to keep his attention this far. When I showed him the illustration card, I asked him if the main character looked happy. He said, "Yes". I explained that he was indeed very happy because he knew that his classmates, as well as his teacher, loved him because he was very friendly and polite. I said that everyone loved him because he greeted them every day, listened and followed the instructions of the teacher, followed class rules, did not keep on moving around but sat on his seat during class hours, and participated in class discussions. Because of this, everyone loved him. Before I ended, I thanked him for his attention and participation.



Notably, I was surprised by Student E's reaction. I was expecting difficulties during the first day. Instead, he showed great interest in the story, and it kept his attention until the end.

*As we began the second day of the first week of intervention, we began with the usual greetings, which he also reciprocated by saying "Hi". When I asked him to go in front of the class and do it, he refused. Before we began with the title page, I asked him if he wanted to change the name of the main character. At this time, he said "No". As we progressed with the story, I asked him if he wanted to read with me. I was surprised that he did. I praised him for his efforts. As we reached page 4, he asked me to change the name of the main character. He wanted it to be the name of his brother. So, I renamed the main character till the end of the story using the name of his brother.*

*On the third day of the intervention, the interaction became eventful. We began with the usual greetings, and he still refused to do that in front of the class. I intentionally used his name for the main character. At first, it seemed okay, but as we went on to the second page, he again requested to use the name of his brother for the main character, which I did. I asked him to read with, and he exerted efforts to do so. I asked him to draw and colour with me, but he ignored me. When we reached page 3, he stood up and moved around in class. He was trying to engage one of the students to play with him, and he was doing it not in a nice way. I called his attention, but he ignored me. I did it three times with the same results. Then the teacher came in and, with a firm voice, called his name and asked him to sit next to me. I took him around three or four minutes before he followed. I did not see any signs of restlessness; it was immediate when he stood up and left. I placed a note to be very keen in terms of looking for signs when he was getting bored. Overall, we were able to finish the story, and Student E participated in the reading. However, I made it very clear to him that I was really sad about what he did.*

*In the second week of intervention, slight improvements were observed. After our greetings, he greeted the class with "Hi". It was not loud; it was a little bit shy. However, that was a good effort and good progress. I praised him, and the teacher asked the class to say "hi" as well. Student E's interest in reading was more observable. He actually wanted to read the conversation more than once. And in some instances, he realised he was saying his name; he asked me to use the name of his brother as the main character. There were instances when I saw some obvious signs of restlessness, so I asked him to imitate me in drawing and telling the story. He found this very much interesting. He had attempted to draw, colour, and tell the story in his own words. It has to be noted that I have provided lengthy explanations and used coaching sentences to get him motivated.*

*The third week of the intervention indicated a little bit more progress. Student E managed to demonstrate listening and following instructions. I asked him specifically to colour the main character yellow, and he did. I asked him to draw illustration card #3 and tell me the story, he did. I kept on praising him. There were still instances where he wanted to play with his classmates and did not finish his task with me. What was surprising was the fact that calling him and asking him to return to his set took only one time. With one request, he immediately followed. I praised his action. When he sat down next to me, he made eye contact, and I inferred it to be checking if I was angry.*

*By the fourth week of the intervention, I felt happy with the improvements in Student E's behaviour. He had demonstrated interest in reading, and he was never*

*shy with me by asking me to repeat or retell the story. He drew and coloured as well as tried his best to tell the story. However, it was difficult for him to go in front and talk to the class or even greet them while standing in front. He had manifested his like for playing with his classmates, which I allowed during the second day of the last week of intervention. I observed his behaviour, and I noticed that he would play with them, but he did not talk to them. He would only play. So, on the last day of the intervention, I tried to emphasise the idea that he had to ask his classmates what they would like to play or ask any questions. Unfortunately, we ran out of time to address this particular goal more.*

### Frequency Behaviour Chart

Based on the 4-week observation while the SS intervention was being implemented, Student E exhibited the following frequencies for each of the specified themes identified. The Frequency Chart revealed that for bullying, Student A manifested 31 times in Week 1 and 15 times for Week 4; for hyperactivity, 73 times for Week 1 and 38 times for Week 4; for interrupting others, 48 times for Week 1 and 24 times for Week 4; for avoiding initiating conversations, 22 times for Week 1 and 20 times for Week 4; and for not following instructions, 38 times for Week 1 and 23 times for Week 4. All of the frequencies indicated a decrease in number as the intervention continued.

### *Post-Intervention*

The researcher conducted a post-intervention interview with the teacher to specifically gather her perspectives regarding the intervention. Teacher E thought that the SS intervention was reliable, and she would like to use this not only with autistic children but also with others. She stressed that she witnessed its feasibility. Furthermore, she hoped that the Centre would adopt this intervention to be widely used with all the students. She expressed her interest in getting training on the use of the SS intervention. She emphasised that this intervention should be expanded and be used for more than a month.

Similarly, the researcher conducted a post-intervention interview with the parent of Student E. It was mentioned that the father reported changes he had seen in his child in terms of initiating conversation with the family. The mother stated that her son asked his father questions and requested water while he was still under the third week of intervention. The mother reported how happy the father was seeing the improvement in his son's behaviour. The mother emphasised that he would recommend and would be interested in getting training in SS intervention not only for herself but also for the entire family to help Student E. They

would also recommend the use of SS intervention for the Centre because they witnessed the improvements. She stated that this intervention should be expanded in terms of duration.

*Frequency Behaviour Chart (Week 5)*

Based on the post-intervention observation (Week 5), the Frequency Behaviour Chart revealed the following frequencies: for bullying 13 times, 27 times for hyperactivity, 19 times for interruptions, 12 times for avoiding initiating conversations, and 13 times for not following instructions. These data were compared with the pre-intervention observation (Week 0) to determine the extent of improvement, which was discussed in the overall discussion of the findings below.

## Student F

### *Pre-Intervention*

The researcher gathered data pertaining to Student F, in order to evaluate her social skills and behaviour, necessary to determine the target goals for the intervention. The first data evaluated was Student F's school profile. Based on her chart, it was stated that she was a six-year-old female. She was diagnosed with a moderate level of autism. Furthermore, Student F was observed for a week by the researcher in order to assess particularly the frequencies of the Student F's manifestation of certain social skills and behavior. The descriptive observation as well as the results of the Frequency Behaviour Chart from the pre-intervention observation are reflected below.

*My initial impression of Student F was that she had no issues concerning social interaction skills. I saw her engaging in conversations and initiating conversations with her classmates. However, I noticed that in most instances, it took a bit of time for her to respond when asked. It was not clear in the beginning, but it became prominent the longer I observed her. Student F also manifested the inclination to imitate what the other students were doing. She was hyperactive, running, and shouting. She liked shouting out answers to the teacher's questions even though the question was directed to another student. Additionally, I charted the frequencies of her social interaction skills and behaviour, and the results for Week 0 (pre-intervention observation) were: 59 times for hyperactivity, 43 times for delay in communication, 42 times for not following instructions and 51 times for interrupting others.*

The researcher had the opportunity to have a ten-minute informal conversation with the teacher in charge of Student F. In the conversation, the researcher managed to get information regarding her and her educational background. Her responses concerning Student F were included in the thematic analysis discussed below. These are the field notes concerning Teacher F.

*In our conversation, I learned that Teacher F was thirty-five years old. She has been handling autistic children for nine years, with a Master's degree in Autism. When asked regarding intervention for autistic children, she stated that autistic children were the same as the other children. The only difference was that autistic children needed more time to process right from wrong. She stressed the importance of the teacher's patience in this aspect. Concerning behaviour, she believed that autistic children develop them because they copy the actions of other members of the family.*



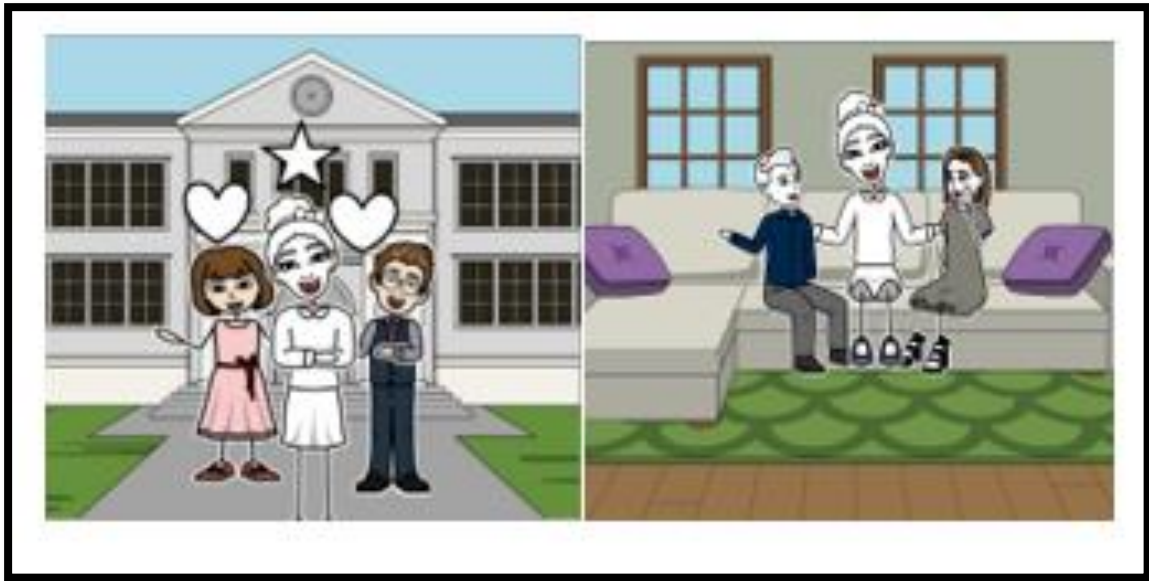
Similarly, the researcher had an informal talk (five minutes) with the parent of Student F, who came to pick her daughter after school. In our conversation, I managed to discover Student F's history of autism. The field notes of the informal talk are reflected below.

*The mother of Student F revealed that they discovered Student F had autism when she was about two years old. She said they noticed the difference in Student F's behaviour. So, they took her to the specialist in Riyadh, a city in Saudi Arabia. After she was diagnosed, the doctor advised them to enroll Student F in a special school for children with autism. The mother discussed that Student F engaged in minimal conversations with the family. The mother also revealed that Student F did not like to be told what to do.*

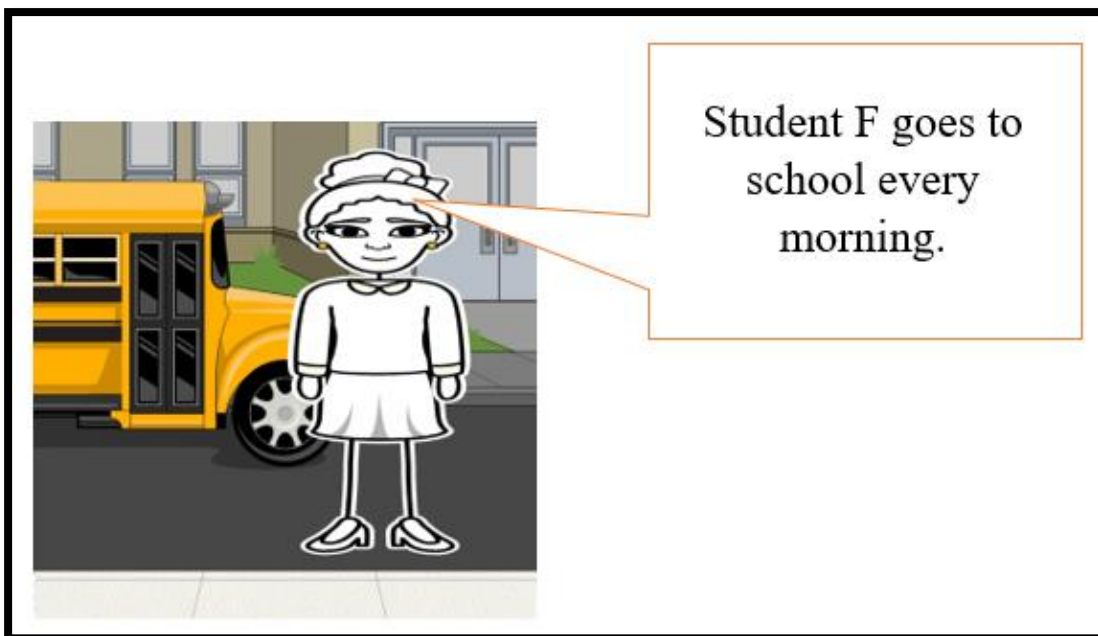
#### *Drafting of the Social Story*

Gray's (2018) Criteria #1 and 2 were considered in the development of the SS for Student F. Based on the collected data, the SS was also developed based on Student F's capabilities and personality (Criterion #4). It has to be noted that Teacher F agreed with the draft of the SS, and it is presented below.

In a storybook format (Criterion #3), the SS began with page 1, the title page, i.e., "Student F's Good Behaviour". The title reflected the main focus of the SS intervention, which was correcting Student F's hyperactivity and following instructions. Having the knowledge of Student F's propensity to copy other students, the title "Good Behaviour" emphasises the ideas of what was considered to be good behaviour, and that Student F needed to copy the good behaviour of the main character in the SS. The illustration card for the title page included images of a school where the main character (Student F) was hugged by many of her classmates, and on the other side was the image of a home where the main character was hugged by the family. The image in the illustration card revealed the results of having good behaviour, which was being loved by many.

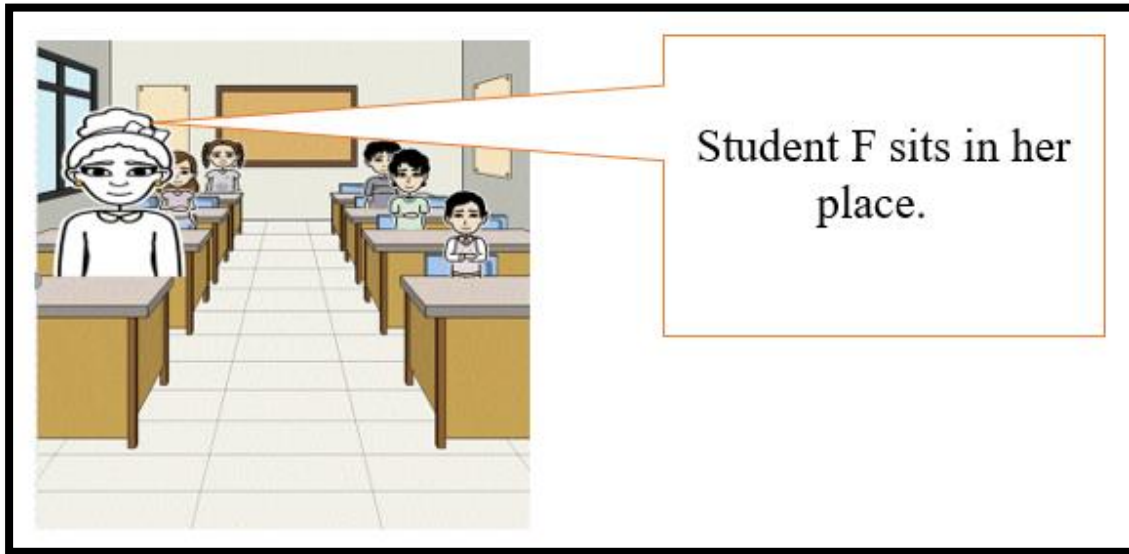


The next page (2) is considered the introduction, where the setting of the SS is introduced. The illustration card presented the main character standing in front of the school bus and ready to go to school. The idea of going to school must be stressed in instructions for Student F to understand the importance of going to school. It is the introduction because the ideas to be reinforced all occurred in this setting.

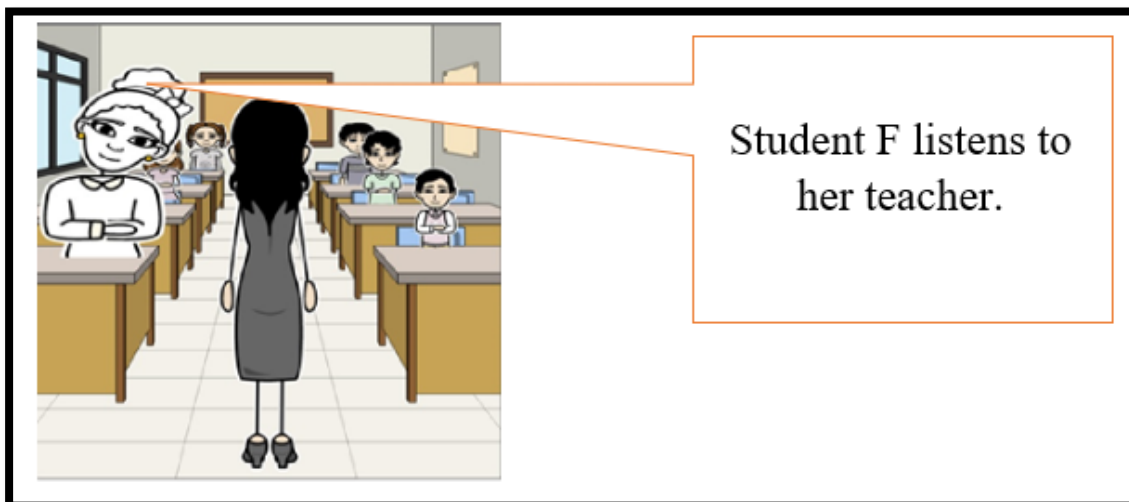


Page 3 of the SS is the first of the body. In this illustration card, the main character was seen to be sitting down quietly in her own seat like the rest of the class. The idea being reinforced here was the fact that Student F must listen and follow what the teacher asked. She should not

run around the class and shout. This would address the target goal of following instructions and lessening her hyperactivity.

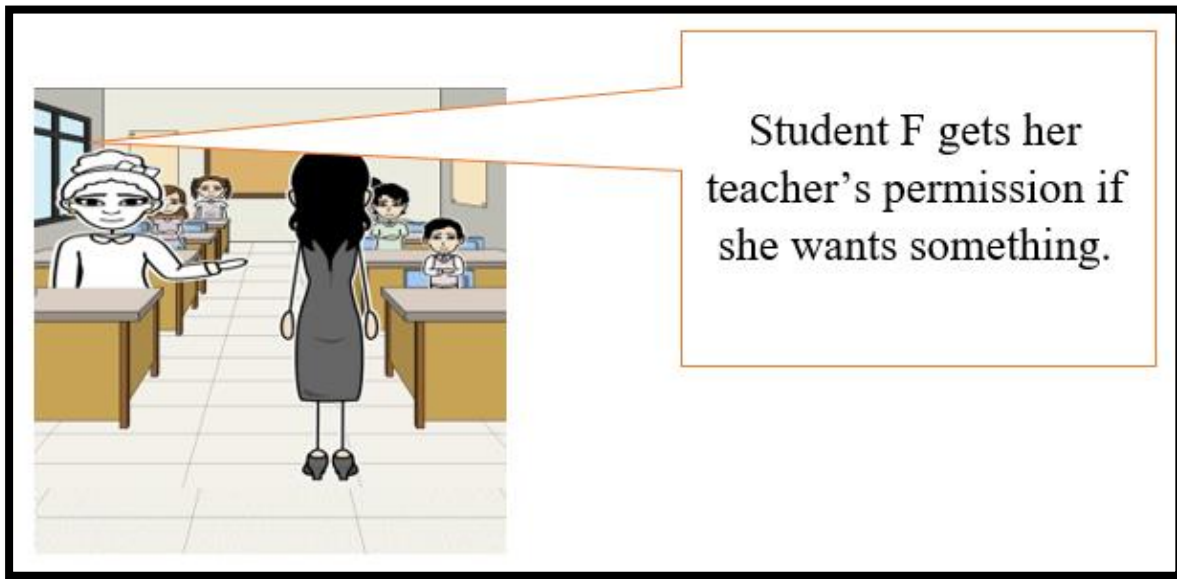


Page 4 of the SS is another part of the body. In this illustration card, Student F was shown to be listening to the teacher as the teacher was explaining the lesson in front of the class. The idea of listening is very important so that Student F would get the idea that by listening, she would be able to quickly understand what the teacher was saying. In doing so, when she was asked, she would be able to reply on time. Listening also reinforces the idea that she should not be moving around the class and creating distractions and disruptions.

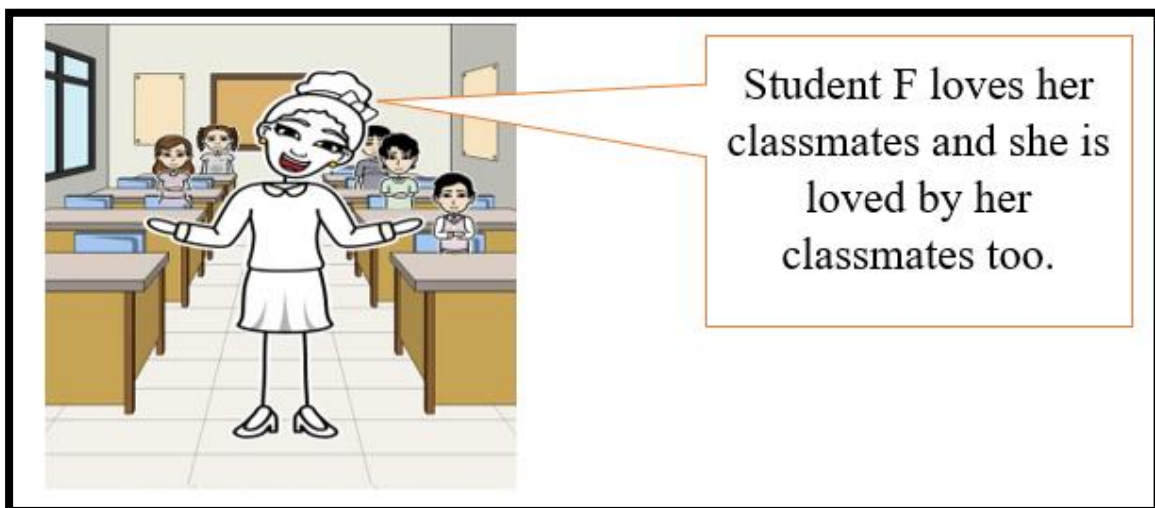


Page 5 of the SS is the last part of the body. This illustration card was targeting the achievement of the goals. The image demonstrated that the main character would first seek the permission of the teacher before she should say something. This reinforced the idea that

Student F could not just do what she wanted. Getting the permission of the teacher is important and classified as good behaviour. This targeted the goal of lessening hyperactivity.



Page 6 of the SS is considered the conclusion part. The illustration card depicted Student F smiling, knowing that her classmates (in the background) loved her and she loved them as well. The image reinforced the idea that having good behaviour, such as sitting in her own seat, listening and following the teacher's instructions, getting the teacher's permission when she wanted to say something, and not running around or shouting, would make her loved by her classmates and teacher. Her classmates and teacher viewed her as friendly and lovable.



The six-page SS for Student F contained simple words with literal meaning deemed appropriate for Student F's understanding. Simple present tense, third-person point of view, and descriptive sentences were used (Criterion #8). It also used positive language, tone, and

message (Criterion #5). The support stories were not provided here but prepared to be used in the implementation, which included praises and encouragement (Criterion #7). It has to be noted that consultation with Teacher D was conducted regarding the target behaviour and the SS draft. The draft underwent review and revision (Criterion #9). With the agreement of Teacher D, the implementation of the SS developed for Student F is reflected below.

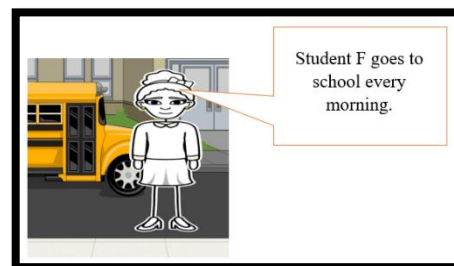
### *SS Intervention*

Notably, Criteria #10 was considered before the implementation of the SS. Like the rest of the intervention, Student F's intervention was scheduled for 12 sessions of 45 minutes for every session with a 3-time frequency in a week. The researcher's narratives below illustrated how the SS intervention was conducted to target both the social skill challenges and behaviour issues of Student F.

*The first day of intervention was eventful. It was the day when Student F was really hyperactive. Before introductions, I saw her moving around the classroom. When her attention was called, it took them two times to ask her to go back to her seat. When she did, she was introduced to me. I greeted her, and she greeted me. I asked for her name, and she responded. I explained to her that I had a story that I would like to share with her. It got her attention. I showed her the title page and waited for her reaction. She said her name, which was registered on the title page. I read the title, "Student F's Good Behaviour". I explained that the main character, Student F, was loved by many people because of her good behaviour in school and at home. I asked her if she wanted to know what were the good behaviours of Student F, and she replied, "Yes". I said we would go through that.*

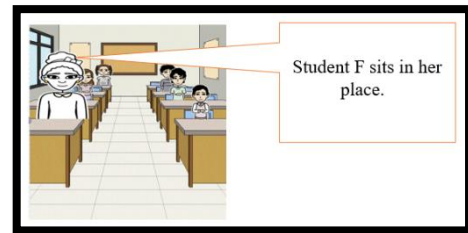


*So, I flipped on to the introductory page (2) of the SS. Since I noticed that she had no difficulties in engaging in conversation, I used a different strategy. I tried a more communicative approach by asking her what she saw on the illustration card. It took around almost three minutes before she answered back, "Student F, go to school". I enthusiastically said, "yes, you are correct". I explained that the main character always goes to school, and she went by riding the school bus. The introductory page was developed with the introduction of the setting (school) in mind. I asked her again, "Do you like to go to school?" She did not reply right away, but after a minute she said "Yes". I asked why. She said, "play with friends". I said, "that's right". I also stated that the school was a good place for her to learn new things and make new and more friends.*

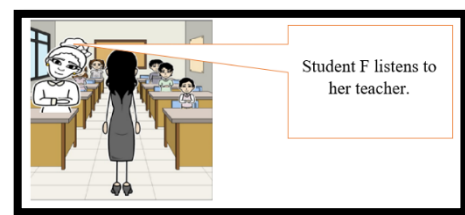




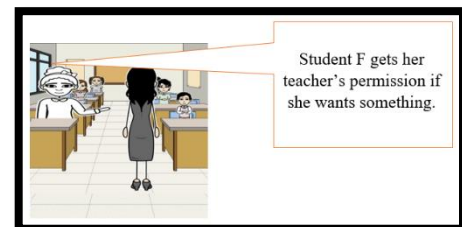
Before we continued on to page 3, I asked her if I should change the name of the main character. She said, "No". When I showed her page 3, which is the first part of the SS's body, I asked her what the main character doing was. It took a bit of time for her to reply, and she said, "sitting down". I asked her to read the conversation with me, and she did. I explained that the main character was sitting down in her seat. All the other students were also doing the same thing. They were doing this because the teacher asked them to do so. Because the students had good behaviour, everyone followed the instruction of the teacher. No one was running or moving around. The class was organised. I explained further that because of this, the class learned many things. I asked her if she wanted to colour and she said "Yes".



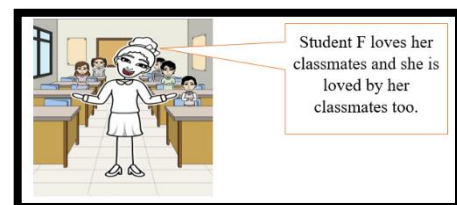
Then we continued to the next page (4), which was another part of the body. I asked her again regarding the illustration card. It was obvious that she was facing issues in responding immediately, but she participated. I explained that the main character listened to the teacher's instructions and followed the class rules. By listening, the main character learned many things from the teacher. The other students were also doing the same thing. This was demonstrating good behaviour. I emphasised that the main character never interrupted the teacher while she was talking. Interrupting was bad behaviour.



Then we proceeded with page 5, which was the last part of the body. I explained that the illustration card depicted the main character being polite by asking the teacher's permission when she wanted something. I stated that if the main character wanted to speak, ask a question, or request something, she raised her hand and got the teacher's permission. I also explained that when the teacher asked another student questions, the main character did not shout or give the answer. She knew that doing that was bad behaviour. I stated that if the main character knew the answer, she would raise her hand and get her teacher's permission to give the answer.



The conclusion page of the SS was shown to Student F. I told her that the illustration card showed the main character smiling. I explained that she was smiling because she felt happy having many classmates whom she loved, and she was also loved in return. Her classmates loved her because of her good behaviour, such as sitting in her place and not moving or running around, listening to the teacher's talking, following class rules, and asking the teacher's permission when she wanted to do or ask something. Because of this good behaviour, the teacher and the classmates loved her, and she was happy.



*Notably, I did not face any difficulties during the first day of the intervention. Student F participated in answering my questions, though most of the time, it took her some time to respond, and the eye contact was missing. She also participated in the reading. She did not draw but coloured the main character in the SS. She did not also indicate restlessness or the need to move or run around the classroom; this may be due to the fact that she was interested in the SS.*

*When we began the second day of the intervention, we started with the usual routine of greetings. Before we proceeded with the SS, I asked her if she wanted to change the name of the main character, and she said, "No". Then I showed her the title page, and I asked her if she remembered about the illustration card. She managed to give me a story based on her own words regarding the title page. Of all the students participating in the study, Student F was able to provide me with a nearly complete answer. I did the same thing with the rest of the pages. When we reached page 4, she got distracted and wanted to move around. So, I asked her to draw page 4 and also asked her to tell me the story. She got her focus again, drew, and narrated the story. Then I explained that if the main character exhibited bad behaviour like running or moving around in the class, many of her friends and the teacher would feel sad.*

*During the third day of the intervention, there were several instances where she wanted to lead in telling the story. She wanted me to listen as she told the story in her own words. I praised her for her efforts and encouraged her to continue. There were instances where I asked her a question, and she was shouting the answer. I had to remind her that responding to the question can be done in a calm way and answering in a natural way without shouting because I could hear her well. At times when she stood up and wanted to move around, I kept reminding her that the main character, "Student F", did not like doing that because that is not good behaviour. She would sit down again and continue with the intervention.*

*As we entered the second week of the intervention, the telling of the story kept amending; meaning, that there were more explanations emphasising the ideas of following instructions and lessening hyperactivity. For instance, page 5 support story expanded to the main character respecting the teacher if the teacher did not call her but called other students to answer the question. I elaborated that the main character did not shout or get angry when she was not called. Even if she knew the answer to the questions, she would not shout at them and wait for the teacher to call her. Another example was page 6, where the explanation expanded to say that the main character, who was smiling, knew that she was a model of good behaviour for the entire class and that all the students like to copy her behaviour.*

*The third week of intervention projected many clear improvements in Student F's behaviour. There were instances where she showed signs of restlessness, and the approach to employ was to get her to focus again on the task by asking her question or to perform a task. It could be noted that in several instances where she provided answers to question, she started glancing at me. Her restlessness had decreased in frequency. Also, she demonstrated a love for reading and colouring. Her drawing, coupled with the narration of the story, had improved.*

*Everything seemed to be working with Student F as we entered our last week of intervention. However, one thing that was evident was the fact that her response time had not improved. It still took her time to respond to questions, and the time-lapse varied – there were instances where they were less than a minute, but others were three to five minutes longer. On a positive note, Student F demonstrated progress in following instructions.*

#### Frequency Behaviour Chart (Weeks 1 to 4)

Based on the Frequency Behaviour Chart, a record of the observation of Student F's behaviour and social skills frequencies during SS intervention for four weeks, the following results were: 85 times for hyperactivity in Week 1 to 62 times in Week 4; for delays in communication, Student manifested this behaviour 50 times in Week 1 and then 48 times in Week 4; and not following instructions, 42 in Week 1 and 27 in Week 4. Overall, the results indicated a very slight improvement in delays in communication, a slight improvement in hyperactivity and critical progress in instructions order.

#### *Post-Intervention*

The post-intervention interview of the teacher also revealed that Teacher D would recommend the intervention to be used on all students in all the classes at the Centre, because changes, although minimal, they are gradually happening. She also expressed her interest in attending or participating in courses in SS intervention to help her students.

The post-intervention interview of the parent of Student F also revealed her and her family's recognition of the impact of SS intervention. She stated that she would recommend the use of the SS intervention in the Centre because she had seen the progress in her child. She further elaborated that the SS intervention helped her child, which is the reason why she would like to get training in SS intervention.

#### Frequency Behaviour Chart (Week 5)

The Frequency Behaviour Chart for Week 5, the post-intervention observation, the following results were 29 times for hyperactivity, 29 times for delays in communication, 25 times for not following instructions and 29 times for interrupting others. These data were compared with the pre-intervention observation data to determine the improvement of the student and, consequentially, the impact of the SS intervention. This was discussed in the overall discussion of findings below.



**Teacher Assistant**

Notably, the entire time when the SS intervention was being implemented on all the participants, there was a Teacher Assistant who was present and observing the implementation of the intervention. As with the teachers, I also had an informal chat with the Teacher Assistant, and my field notes are reflected below.

I learned that she was twenty-seven years old. She holds a Bachelor's degree in Special Education with more than 60 courses on autism. She has been assisting in handling autistic children for four years. The Teacher Assistant revealed that she believed in mixed classes, i.e., mixing autistic children with those who are not autistic. She said it would benefit the autistic child so that he/she would not feel they are different. She strongly believed that autistic children learned more by imitating. She said that social skills and behaviour are copied from people who are close to the child, like the family.

Interestingly, the Teacher Assistant's feedback regarding the intervention was worth mentioning. She enthusiastically stated that there were big changes with the children. She noted that the participants responded to the story and read it with me. She also mentioned improvements in initiating conversations. She stated that she saw the participants initially starting conversations with me as we went through the intervention. She also noticed that the participants were showing emotions and feelings while reading the SS and when during school break as they dealt with their classmates. She also mentioned that some of the participants showed progress in eye contact and sharing of toys. She stressed that some of the participants needed more time with the intervention due to slight improvements.

Personally, she wanted to have training in how to deliver the SS intervention because she had seen the "work magic" with the children. She said that it would take time to create and develop, but it is worth the effort and time. Because she had seen the effectiveness, she would like to recommend this intervention to be applied to all students, not only for autistic children but also the others who are not.

With mostly positive feedback gathered after the intervention, the researcher deemed it necessary to provide a summarised version of all overall findings to provide a fuller understanding of the impact of SS intervention. The overall analysis of the themes is provided next.

## APPENDIX 6– PARTICIPANTS’ FREQUENCY BEHAVIOUR CHART

Student A Frequency Behaviour Chart																				
Week	Sunday				Monday				Tuesday				Wednesday				Thursday			
Week 0 (Pre)	5	6	6	3	4	5	6	2	6	5	4	4	6	5	5	5	6	6	6	4
Week 1	5	5	6	4	5	6	4	3	5	5	5	4	6	6	6	6	5	5	5	5
Week 2	4	4	4	3	4	5	3	3	3	4	3	3	4	4	5	6	3	4	3	4
Week 3	3	3	3	3	3	4	4	4	3	3	3	3	4	4	4	3	3	3	3	3
Week 4	3	2	3	3	3	2	3	2	3	3	2	3	3	3	3	2	2	2	2	2
Week 5 (Post)	2	2	1	2	1	2	3	3	2	2	2	2	2	1	2	3	1	2	2	2

Student A’s colour-coded Key	
Avoids answering	
Avoids initiating conversations	
Avoids interaction	
Dislikes sharing	

Student B Frequency Behaviour Chart																				
Week	Sunday				Monday				Tuesday				Wednesday				Thursday			
Week 0 (Pre)	5	6	6	5	6	6	6	4	6	6	5	5	6	5	5	5	6	6	6	4
Week 1	5	5	6	4	5	6	4	3	5	5	5	4	6	6	6	6	5	5	5	5
Week 2	4	4	3	3	4	5	3	3	3	4	3	3	3	3	3	5	3	4	3	4
Week 3	3	3	3	3	3	3	3	3	3	4	3	4	4	3	3	3	2	3	2	2
Week 4	3	2	3	2	3	2	3	2	3	2	2	3	2	2	2	2	2	2	2	2
Week 5 (Post)	2	3	1	2	1	2	2	3	2	2	2	2	2	1	2	3	1	3	2	2

Student B’s colour-coded Key	
Avoids answering	
Avoids initiating conversations	
Avoids interaction	
Dislikes sharing	

Student C Frequency Behaviour Chart																				
Week	Sunday				Monday				Tuesday				Wednesday				Thursday			
Week 0 (Pre)	9	6	6		9	5	6		1 2	5	5		1 2	5	5		12	6	6	
Week 1	9	5	6		7	6	6		7	5	5		8	6	6		9	7	5	
Week 2	7	6	5		6	5	6		5	6	5		8	5	5		7	6	6	
Week 3	5	5	5		6	5	5		7	4	5		5	4	4		4	4	5	
Week 4	4	3	3		5	4	3		5	4	2		4	4	3		5	2	4	
Week 5 (Post)	5	5	4		4	3	5		4	5	5		3	4	4		5	3	5	

Student C's colour-coded Key	
Hyperactive/Throwing things Shouting	
Do not want to listen to instruction	
Avoids interaction	

Student D Frequency Behaviour Chart																									
Week	Sunday					Monday					Tuesday					Wednesday					Thursday				
Week 0 (Pre)	1	1	13	6		13	14	1	8		1	15	1	8		1	1	7	7		9	9	1	13	
	4	2						2			2		0			1	0						0		
Week 1	1	1	13	6		13	14	1	8		1	15	1	8		1	1	7	7		9	9	1	13	
	4	2						2			2		0			1	0						0		
Week 2	1	1	12	6		12	11	1	7		1	11	1	7		9	9	9	5		8	7	8	4	
	3	1						1			2		3												
Week 3	9	9	9	5		9	9	9	8		8	8	8	8		7	7	7	6		6	5	6	7	
Week 4	8	9	8	4		7	7	7	7		7	6	7	7		6	8	7	4		7	8	6	5	
Week 5 (Post)	7	6	7	5		6	6	6	5		5	5	5	5		6	6	6	5		5	6	5	5	

Student D's colour-coded Key	
Hyperactivity	
Bullying	
Inattention	
Selective Engagement	

Student E Frequency Behaviour Chart																									
Week	Sunday				Monday				Tuesday				Wednesday				Thursday								
Week 0 (Pre)	9	1	1	3	7	8	1	1	2	8	7	1	1	4	8	7	1	1	5	9	6	1	1	4	8
		5	4				5	3				7	0				6	2			6	6	1		
Week 1	8	1	1	4	8	5	1	1	3	7	6	1	9	4	7	6	1	8	6	9	6	1	9	5	7
		5	2				5	0				4					5				4	4			
Week 2	7	1	1	3	8	5	1	9	3	6	5	1	8	3	6	6	9	5	6	7	5	9	7	4	6
		3	0				0					1													
Week 3	5	1	9	3	6	3	1	9	4	5	3	9	8	3	5	4	7	7	3	6	3	9	7	3	7
		2					0																		
Week 4	4	1	6	3	4	3	8	5	2	5	3	6	5	3	5	3	7	4	2	4	2	7	4	2	5
		0																							
Week 5 (Post)	3	9	4	2	3	4	6	5	3	3	2	4	3	2	3	2	5	4	3	2	2	3	3	2	2

Student E's colour-coded Key	
Treats classmates roughly/bullying	
Hyperactive	
Interrupting	
Avoids initiating conversations	
Does not follow instructions	

Student F Frequency Behaviour Chart																				
Week	Sunday				Monday				Tuesday				Wednesday				Thursday			
Week 0 (Pre)	1	1	13	6	13	14	1	8	1	15	1	8	1	1	7	7	9	9	1	13
	4	2					2		2		0		1	0					0	
Week 1	1	1	13	6	13	14	1	8	1	15	1	8	1	1	7	7	9	9	1	13
	4	2					2		2		0		1	0					0	
Week 2	1	1	12	6	12	11	1	7	1	11	1	7	9	9	9	5	8	7	8	4
	3	1					1		2		3									
Week 3	9	9	9	5	9	9	9	8	8	8	8	8	7	7	7	6	6	5	6	7
Week 4	8	9	8	4	7	7	7	7	7	6	7	7	6	8	7	4	7	8	6	5
Week 5 (Post)	7	6	7	5	6	6	6	5	5	5	5	5	6	6	6	5	5	6	5	5

Student F's colour-coded Key	
Hyperactive	
Interruptive	
Delays Communication	
Does not follow orders	

## APPENDIX 7 – Fidelity Test

### SS PRACTICE SESSION

Y= Yes, the step was duly administered and completed

N= No, the step was not completed or missed by the researcher

- \_\_\_\_\_ Call children to the table
- \_\_\_\_\_ “it is time for our story session”
- \_\_\_\_\_ Read the title to the participant child
- \_\_\_\_\_ involve them to repeat the title
- \_\_\_\_\_ Read the Social Story
- \_\_\_\_\_ Say, “Let’s practice what is read and learnt today”
- \_\_\_\_\_ perform the skill
- \_\_\_\_\_ make the child practice the skill with another child in the classroom
- \_\_\_\_\_ Provide performance feedback
- \_\_\_\_\_ Repeating and practising practice until the child has practised the skill 3 times
  
- \_\_\_\_\_ The second child will practice the skill with another child \_\_\_\_\_ Teacher will prompt.

## APPENDIX 8 – PARTICIPATING TEACHERS’ AND PARENTS/GUARDIANS INTERVIEWS

### Student A Profile

<i>Descriptive Information</i>	
<b>Participant’s Research Code</b>	<b>A</b>
Age (4-6 years)	5-year-old
Gender (M/F)	M
Diagnosis (Autism)	Autism
Level of autism	<b>Moderate</b>
Level of social skills interaction (High/Moderate/Low)	<b>Low</b>  Lack of prompting and answering in social contexts and both avoided the initiation of conversations and interactions.
Level of unexpected behaviour (High/Moderate/Low)	<b>Low</b>
Target social skills	To initiate and interact in conversations
Target unexpected behaviour	None

### Informal Interview with the Teacher A: Field Notes

I and Teacher A had a friendly conversation for about five minutes about her teaching background, perspective on interventions for autistic children, and Student A’s social and behaviour skills. The informal conversation happened in the school one day when I went to collect the consent form for the SS intervention. I learned that Teacher A has a Bachelor’s degree in Special Education and underwent more than 30 courses on autism. She had been teaching for eight years. When I asked her regarding the use of teachers’ intervention aimed at improving autistic children’s social skills and unexpected behaviour, she stated, *“I did not learn about any intervention theory during my university years, except for the inclusive education. Inclusive education is the only intervention that is promoted and recommended to use in the KSA.”* She also mentioned that the child’s unexpected behaviour is linked with the child’s upbringing, and each child manifests different characteristics. Teacher A also discussed Student A’s characteristics stating that *“He avoids the initiation of conversations and interactions. He prefers to stay quiet and does not participate, and he prefers not to speak in class to teachers and classmates.”* Teacher A also commented that Student A was very quiet - *“He likes his own things to be next to him and hates to share, and he interacts only if something in class happens.”*

## Post- Intervention Teacher A's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement?

Yes, there is a big change in A's behaviour. He is starting to initiate conversations. He also started listening to his peers and interacting with them.

2. After the intervention, does the child ask for help in a clear, understandable way? Explain changes.

I can see that he is starting to ask for help from me, but that is not always the case. For example, before the social story intervention, he used to stand up and walk towards the end of the classroom to play with the toys. However, after the social story intervention, he learned to ask before standing up and going to the toys. This is not always the case, but it is getting better. So, if we say he goes to the toys three times, he asks 1 out of 3 of the times.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Yes, now he is telling us what makes him sad what he likes, he does not. So, A is starting to show emotions and speak a word or two about his feelings, such as I am sad or I am happy.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

A, sometimes concentrates, and sometimes he does not. He fiddles with his pencil case and prefers to draw while I teach. However, if I do call out his name, he leaves the pencil and tries to listen to the class. He does not cooperate if I ask for general help; however, if I call out his name to do a task, he stands up and comes to help.

5. What other changes have you noticed in the child's social skills? Explain

A started to play with his peers and share toys with them.

6. What other changes have you noticed in the child's behaviour? Explain.

He listens to me and doesn't interrupt class. He shows eagerness to try new tasks.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

I can answer this question as yes, simply because I have seen the slight improvement by my own eyes. However, this intervention must keep on going for a longer period of time. I have seen a slight improvement in one month; however, I am confident that A can improve much more if the use of social story intervention is ongoing.

8. Do you recommend using social story intervention? Explain

Totally yes. Children like this and there have enjoyed this intervention and learned from it.

9. Do you want to receive training on social story intervention? Why?

Yes, we would love to get training and learn the techniques of social story intervention to use with children.

10. What changes, if any, will you make to the social story intervention?

I will let the intervention last more than a month. And keep on with the intervention till the student overcomes the unexpected behaviour.

### **Informal Interview with the Paren/Guardian A: Field Notes**

I went to school to collect the consent forms from the guardians of the participating students. I managed to have a ten-minute conversation with Student A's mother (guardian) when she came to pick him up after school, I discovered that the mother was a busy woman, and she had other children to take care of. She expressed interest in talking about Student A. She mentioned that she noticed the difference in Student A's personality and characteristics when he was about two years old. She said that Student A *"is not like his brothers. He acts differently and is always quiet and does not initiate in conversations."* So, they brought him to a specialist hospital in Riyadh. The doctor said he has moderate autism and recommended taking the child to a special needs centre. She also mentioned that she tried to make her child engage in conversation by playing games with him, especially question and answer, but most of the time, he liked to be alone. She stated that *"All of his brothers as well as his father initiate conversation and try to let him speak his mind. However, he prefers to keep quiet and answers with one word or sometimes ignores the whole question and plays with his hands and does not make eye contact."*

### **Post- Intervention: Parent/Guardian A's semi-structured in-depth interview Script**

1. After the implementation of the social story intervention, have you noticed any changes in your child's behaviour and social skills? What are they? Explain changes.

Yes, he is answering in full answer and does not ignore as much as before.

2. After the intervention, does your child engage in conversations without encouragement?

Rarely. He speaks his opinion without being acknowledged.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Sometimes, he started to ask for water or if he could go out to the garden to play with his ball.

4. After the intervention, does your child acknowledge family members' feelings and emotions? Explain changes.



Sometimes, he does express his feelings towards his father; when he's done playing ball with him, he says he is happy. And sometimes, when his brothers do not want to play with him, he says he is sad.

5. What other changes have you noticed in your child's behaviour? Explain.

He started to listen to his father and me when we spoke to him; he made more eye contact than before. He does not ignore as much as before and tries to answer in more than one word.

6. What other changes have you noticed in your child's social skills? Explain.

He plays with his brothers and listens to them when they talk.

7. Do you recommend using social story intervention? Explain

Yes, it made a difference in my child's behaviour.

8. Do you want to receive training on social story intervention? Why?

I would love to get training so I can use this intervention with my child.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, I am happy with the change in my child's behaviour and wish that it continues. My child has changed in his behaviour slightly, which made me happier.

10. What changes, if any, will you make to the social story intervention?

I want the intervention to last for more than one month. My child will be better, and his behaviour will need more than one month to change.

## Student B Profile

<i>Descriptive Information</i>	
<b>Participant's Research Code</b>	<b>B</b>
Age (4-6 years) Gender (M/F) Diagnosis (Autism)	5-year-old F  Autism
Level of autism (High/Moderate/Low)	<b>Moderate</b>
Level of social skills interaction (High/Moderate/Low)	<b>Low</b>  Lack of prompting and answering in social contexts and both avoided the initiation of conversations and interactions.
Level of unexpected behaviour (High/Moderate/Low)	<b>Low</b>
Target social skills	To initiate and interact in conversations
Target unexpected behaviour	None

### Informal Interview with the Teacher B: Field Notes

I managed to have a conversation with Student B's teacher in school when I went to collect the consent form. During my ten-minute informal talk with Teacher B, I learned that she was 35 years old. She has a Bachelor's degree in Business Administration but stated that he received training from the Ministry of Education and in-house workshops. She has been teaching for seven years. I talked a little about SS intervention as a good intervention for autistic children. I asked her if she had heard about SS intervention or other interventions for children with autism. She explained that the most important thing that the teacher should know is how to handle autistic children and understand how their minds work. She elaborated that the teacher needs to play with the child and be friends with them in order for them to learn from her as a role model. They need to like the teacher in order for them to copy the teacher's actions and reactions. She also stressed that the autistic child's social skills, characteristics, and behaviour reflected the family's background and their treatment of the child. Sometimes, she said, children copied unacceptable behaviours from family, which could be a reason for some unexpected behaviour of the autistic child. She mentioned that Student B *"prefers to keep quiet most of the time and nods her head with yes or no. She does not like to participate in conversations."* She added that Student B *"enjoys being alone. She does not like to be in pairs when given a task in class. Her toys are limited to one doll that she takes it everywhere."* She thought that Student B was a shy type.

### Post- Intervention: Teacher B's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement?

Not all the time, but I can see she is better than before. Even though B prefers to keep quiet most of the time and nods her head with yes or no, I can see that there are times she joins doing class tasks and listens to my instructions.

2. After the intervention, does the child ask for help in a clear, understandable way? Explain changes.

Not all the time, but I can see she is better than before. She is starting to say please and waits for my answer to her question.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Not all the time, but I can see the difference in behaviour. She is starting to understand emotions. And relates a sad face to being sad and a happy face for being happy

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

Yes, she is listening to my instructions but not to her peers.

5. What other changes have you noticed in the child's social skills? Explain

She is willing to share her toys and plays with her peers, but not all of them. She is close to two of her female peers, and they are the only ones who she talks to and plays with. She ignores all others.

6. What other changes have you noticed in the child's behaviour? Explain.

B is starting to follow the rules and asks her peers to do so by showing them. For example, she goes next to her peer says please and does the intended 'rule' or 'instructions

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

Social story intervention is reliable and will work for all children, regardless of their different personalities. It is simply because each child is targeted with a social skill that he/ she needs to improve.

8. Do you recommend using social story intervention? Explain

Sure, I do! Because I have seen improvement with B, and would like to see more improvement with other students.

9. Do you want to receive training on social story intervention? Why?

Yes, I do want to learn more about social story intervention because it will help me with my students.

10. What changes, if any, will you make to the social story intervention?

I will let it last for more than a month, and I will ask for it to be recommended to be used in all the KSA.

### **Informal Interview with the Parent/Guardian B: Field Notes**

One day when I collected the consent form from Student B's mother, I was able to chat with her regarding her child for five minutes. She mentioned that they observed Student B was a bit different when she was around two years old. It was noticeable because she had four other children. Their personalities and characteristics were totally different compared to Student B. So, they took Student B to a specialist in Riyadh, and the doctor advised us to attend to her needs before it was too late. *She stated, "I ask her to play with her sisters or me and even ask her to tidy up her room, but she will ignore me and will not say anything."* The mother stressed that Student B *"doesn't start conversations, and she does not answer when she is called or asked to do something."* The mother also said that her child has a special doll. She commented that her child would communicate with the doll than with her family, will not share her doll with others (*She doesn't share her toys. She prefers playing with her doll rather than communicating with family members*). She apologised saying that she was really busy and would not be able to have a long chat with me.

### **Post- Intervention: Guardian's semi-structured in-depth interview Scripts**

1. After the implementation of the social story intervention, have you noticed any changes in your child's behaviour and social skills? What are they? Explain changes.

After the intervention, she is starting to allow one of her sisters, the one she likes the most, to play with her doll and initiates the questions, 'do you want to play with me?'

2. After the intervention, does your child engage in conversations without encouragement?

Yes, she does ask selected people that are close to her for water, playing, and says please and thank you. If you are not a favourite, she prefers to answer by nodding her head as a yes or a no.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Sometimes she tries to do it by herself.

4. After the intervention, does your child acknowledge family members' feelings and emotions? Explain changes.

Yes, she tells us if she is happy or sad.

5. What other changes have you noticed in your child's behaviour? Explain.

Yes, she now tells us if she is happy or sad. She is starting to sit with us in the living room and tries to pay attention. She does not bring her doll with her to play with and ignores us.

6. What other changes have you noticed in your child's social skills? Explain.

She is starting to bring short storybooks that are on the shelf to her father, myself, or his sister to read for her.

7. Do you recommend using social story intervention? Explain

Yes, and I do. It has made a difference in my child's behaviour.

8. Do you want to receive training on social story intervention? Why?

Yes, I want to learn more about this intervention as it is has proven its feasibility.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, I do want them to use this intervention on my child and keep on working with her to improve her behaviour.

10. What changes, if any, will you make to the social story intervention?

I will make it last for more than one month.

## Student C Profile

<i>Descriptive Information</i>	
<b>Participant's Research Code</b>	<b>C</b>
Age	4-year-old
Gender	Male
Diagnosis	Autism
Level of autism (High/Moderate/Low)	<b>Moderate</b>
Level of Social interaction skills (High/Moderate/Low)	<b>Low</b>  He refused to listen to instructions or directions and avoided interaction.
Level of unexpected behaviour (High/Moderate/Low)	<b>High</b>  Shouts and throws things across the room to get attention.
Target social skill	To be polite with others and listen to instructions.
Target unexpected behaviour	To lessen his level of aggression

### Informal Interview with the Teacher C: Field Notes

I got the chance to talk to Teacher C in school for seven minutes when I went to her to collect the consent form for the intervention. She stated that she has a Bachelor's degree in Special Education and an MA in Autism. She also added that she attended around seventy workshops on autism. She has been teaching children with ASD for ten years. When I told her about SS intervention, she stated that intervention would depend on each child since they were all unique; hence measures should depend upon the child's characteristics. She added that in Saudi Arabia, inclusive education is used because they believe that autistic children can also learn from other children of the same age and be friends with them. This would also be beneficial in terms of socialising so that they would not feel different. She also mentioned that family background, specifically family behaviour would impact the autistic child's behaviour and social skills. Concerning Student C, Teacher C mentioned that Student C exhibited characteristics of not answering. She said, "*Student C prefers to stay quiet and nods his head for a yes and no answer.*" Teacher C also noted that Student C has aggression issues. She said, "*He shows unexpected behaviour, such as aggression, shouting, and throwing things across the room to get attention.*"

### Post- Intervention: Teacher C's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement?  
  
No, C still prefers to keep quiet and nods his head for no and yes answers.
2. After the intervention, does the child ask for help in a clear, understandable way?  
Explain changes.

Yes, he is starting to ask for help, especially when wanting to go to the toilet.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

C is starting to understand emotions; he is starting to know that aggressive behaviour is not allowed and harms his peers and teachers. He now understands that being aggressive can make others afraid and sad.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

C still prefers to sit alone; however, if asked or spoken to, he tries to lower his voice and answers in a polite manner.

5. What other changes have you noticed in the child's social skills? Explain

He is starting to follow directions and respect personal space.

6. What other changes have you noticed in the child's behaviour? Explain.

He does not interrupt his peers in class.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

It is reliable, and I would like to use it for all classes. It makes them realize the behaviour without them knowing.

8. Do you recommend using social story intervention? Explain

Yes, I do recommend it; it worked with C so it will work with others. Although it will take time.

9. Do you want to receive training on social story intervention? Why?

Yes, I do. I want to know more about this intervention.

10. What changes, if any, will you make to the social story intervention?

I want it to last more than one month. And I want it to be implemented in all of the Centre.

### **Informal Interview with the Parent/Guardian C: Field Notes**

I talked to Student C's mother when she came to pick Student C up after school. I went to her to collect the consent form for the intervention. We managed to discuss Student C's behaviour and social interaction skills at home. She started explaining that she was a busy mother who had to balance work, doing household chores, and taking care of her child. She mentioned that Student C was an only child. She explained that her husband did not have time to interact with Student C because of work. Her husband works sixteen hours a day.

When he came home from work, Student C would be asleep, and when he left for work, Student C would still be sleeping. She explained that their neighbours brought to their attention the difference in their child's personality when their child was about three years old. They decided to take him to Riyadh and see a specialist. The doctor advised them to let a specialist work with their child to make it better for him. She stated that she tried to engage with her child. However, her child did not interact with her. The mother said, "*Most of the time, he ignores me.*" She further said, "*Even if he sees me, he doesn't answer me; he only nods.*" The mother also mentioned Student C's aggression: "*He is an only child, and when I try to speak to him, he shouts and screams.*" She apologised for the short time she gave me and explained that she was in a hurry.

### **Post- Intervention: Parent/Guardian C's semi-structured in-depth interview Script**

1. After the implementation of the social story intervention, have you noticed any changes in your child's behaviour and social skills? What are they? Explain changes.

I saw changes in him. He is being less aggressive and asks to go to the toilet.

2. After the intervention, does your child engage in conversations without encouragement?

He does not talk to his father. Even if he sees him, he doesn't answer him; he only nods or sometimes ignores.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Yes, two days ago, Friday, he asked his father for water. The father felt happy.

4. After the intervention, does your child acknowledge family members' feelings and emotions? Explain changes.

I guess he is starting to show emotions and acknowledge feelings. He hugged me after I gave him chocolate.

5. What other changes have you noticed in your child's behaviour? Explain.

He listens to me more than before. He still shouts and screams but lesser now.

6. What other changes have you noticed in your child's social skills? Explain.

He stops and makes eye contact when he is being spoken to.

7. Do you recommend using social story intervention? Explain

Yes, I would be recommending this intervention. Even though there is little improvement, it has only been a month. But his father and I are happy with these improvements.



8. Do you want to receive training on social story intervention? Why?

Maybe when I have time.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, it is working with him; I want them to continue.

10. What changes, if any, will you make to the social story intervention?

I will have more time to be dedicated to the child and keep it as a primary way in the centre.

## Student D Profile

<i>Descriptive Information</i>	
<b>Participant's Research Code</b>	<b>D</b>
Age (4-6 years) Gender (M/F) Diagnosis (Autism)	4-year-old F Autism
Level of autism (High/Moderate/Low)	<b>Moderate</b>
Level of social skills interaction (High/Moderate/Low)	<b>Moderate</b>  Dealing only with people she liked
Level of unexpected behaviour (High/Moderate/Low)	<b>High</b>  Taking toys, shouting, throwing things around
Target social skills	To learn how to listen and communicate politely with others.
Target unexpected behaviour	Lessen her level of aggression

### **Informal Interview with the Teacher: Field Notes**

I got the chance to talk to Student D's teacher for seven minutes in school when I went there to collect the consent form for the intervention. I learned that Teacher D has a Diploma in Education with no training received in autism. She has been teaching for five years now. I talked to her a little about SS intervention. When I inquired regarding her knowledge of good interventions for autistic children, she stated that the most important thing that teachers should do is play with the children and be friends with them so that the children will get the chance to learn and copy the teacher's actions. Teacher D elaborated that autistic children or children in general imitate other people, especially those surrounding them like family members. According to her, this was one of the reasons why autistic children develop certain unexpected behaviour. We talked a little about Student D's social skills and behaviour in class. She mentioned that Student D had some unexpected behavioural issues. She said, "*Student D was loud. She seeks attention by shouting and throwing her friend's things across the class. She threw the pencil and papers around the class.*" She explained that it was sometimes challenging to make Student D follow instructions and class rules. She had to use a different voice tone when talking to her so that she would follow. "*She does not like to be told to sit down and ignores all the teacher's requests of sitting quietly in class. The teacher needs to speak in a high tone in order for her to respond; she usually responds after three or four times of being warned.*" Teacher D also mentioned Student D's inclination to bully her classmates. She mentioned that "*D has a habit of taking her classmates' toys.*" Also, Teacher D said that Student only mingled with some of her classmates. She stated, "*She has certain classmates that she is willing to mingle with.*" She did mention that she was looking forward to seeing what the intervention could do to Student D. If there would be an improvement, Teacher D stated that it would be excellent.

## Post- Intervention: Teacher D's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement?

Yes, she started to respond to my requests a maximum of two times. She also started to sit and listen when in group activities. She does not scream or shout so much now.

2. After the intervention, does the child ask for help in a clear understandable way? Explain changes.

Yes, she started asking if I needed help in moving things or within the classroom.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Yes, much better but not with all students in the centre. She will interact only with students at her table but ignores others who are not during group activities.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

Yes, she started to follow the rules and listen to instructions.

5. What other changes have you noticed in the child's social skills? Explain

She does not stand and jump as frequently as before.

6. What other changes have you noticed in the child's behaviour? Explain.

She listens to me. I noticed she seldom takes toys from her classmates.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

It will be suitable for all students because all children like to be read a story.

8. Do you recommend using social story intervention? Explain

Yes, it is a fun activity; it works well with them. It brings together listening and hands-on activity as they will read it back too.

9. Do you want to receive training on social story intervention? Why?

Yes. Because it works.

10. What changes, if any, will you make to the social story intervention?

Use it for more than a month.

### **Informal Interview with the Parent/Guardian D: Field Notes**

I talked to Student D's mother for five minutes when she came to pick her child up from school. During the course of our conversation, I got the impression of the mother as being shy. Her responses were not really that substantial; however, the information managed to make me understand Student D better.

During our conversation, I learned that Student D's parents detected a difference in her behaviour when she was four years old. The mother stated that she noticed the difference. So, they took her to Riyadh to see a specialist. The doctor advised them to enroll their daughter in a special centre. The mother indicated that she tried to talk to her daughter daily and tried to teach her basic skills. However, the mother added, "*She does not like to socialise. She uses her iPad a lot. Always in her hands and play with it. She gets angry and violent when you try to remove it.*" Unfortunately, I did not get the chance to talk to her more since she was in a hurry.

### **Post- Intervention: Parent/Guardian D's semi-structured in-depth interview Script**

1. After the implementation of the social story intervention, have you noticed any changes in your child's behaviour and social skills? What are they? Explain changes.

She changed for the better; she doesn't ignore as much when she is asked a question. She doesn't jump from one chair to the other and can sit still for a while.

2. After the intervention, does your child engage in conversations without encouragement?

Yes, she asks questions but not a lot. She still prefers to keep quiet.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Rarely, she try to do things herself. I am happy with the small improvement.

4. After the intervention, does your child acknowledge family members' feelings and emotions? Explain changes.

Yes, she tells me what she feels, i.e., if she is sad or happy. But not a lot.

5. What other changes have you noticed in your child's behaviour? Explain.

Nothing

6. What other changes have you noticed in your child's social skills? Explain.

She respects the person and ignores less than before.

7. Do you recommend using social story intervention? Explain

Yes, because of the change that I see now.

8. Do you want to receive training on social story intervention? Why?

Yes, I need to learn more about this intervention so I can use it with her. I want my child to feel better.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, I will be happy to see changes in my child.

15. What changes, if any, will you make to the social story intervention?

Nothing

## Student E Profile

<i>Descriptive Information</i>	
Participant's Research Code	E
Age(4-6 years)	6-year-old
Gender (M/F)	M
Diagnosis (Autism)	Autism
Level of autism	<b>Moderate</b>
Level of social skills interaction (High/Moderate/Low)	<b>Low</b>  Avoid communication and delay in his response
Level of unexpected behaviour(High/Moderate/Low)	<b>High</b> Hyperactive, aggressive and has bullying behaviour
Target social skills (High/Moderate/Low)	To initiate conversations and follow orders.
Target unexpected behaviour	To lessen his aggressiveness

### Informal Interview with the Teacher E: Field Notes

I got the chance to talk to Teacher E for fifteen minutes when I came to gather the consent form. I learned that Teacher D has a Ph.D. in Education and has some training in autism. She did not mention what the training was and how many she underwent. She mentioned that she had been teaching for six years. When we discussed interventions, she stated that there were numerous types, such as those where the teachers served as role models. She also mentioned that others recommended the use of inclusive classes. She said that intervention should depend on the case of the unique child. She explained that most children in general, especially autistic children, develop social skills and behaviour based on what they see and imitate. For younger children, she said, they mostly imitate what they see in the family. Pertaining to Student E, the teacher stated that Student E showed issues in his social skills and behaviour. According to Teacher E, Student E *“does not participate instantly in any conversation; he waits for a few minutes to reply.”* Teacher E also mentioned that it was challenging to make Student E follow order or class rules. She said, *“The student does not follow orders.”* Teacher E indicated that Student E was hyperactive, *“He is hyperactive and wants to be friends with his classmates.”* The teacher also stated that there were indications that Student E wanted to make friends, but his manner of treating them was rough. She stated, *“He treats other students roughly and interrupts them.”*

### Post- Intervention: Teacher E's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement?

Yes, sometimes, he is better now. He engages in the classroom as he tries to answer in class whenever I do ask him a direct question. However, he still doesn't initiate to start a conversation with his peers.

2. After the intervention, does the child ask for help in a clear, understandable way? Explain changes.

Yes, he does understand to ask for help.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Yes, he tries to be friendly with his peers; he tries not to treat them roughly. However, he does not like to start the conversation. He wants to just sit and play but does not talk to them.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

Yes, he is starting to follow directions.

5. What other changes have you noticed in the child's social skills? Explain

Yes, as I said before.

6. What other changes have you noticed in your child's behaviour? Explain.

I have observed that he started to recognise emotions of sadness, happiness, or anger. The raised in the tone of my voice, he associated it with anger, so he usually follows my request.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

Yes, it is reliable, and I would want the intervention to be used not only for autistic students but also for all others. It has proven its feasibility.

8. Do you recommend using social story intervention? Explain

Yes, I hope the centre approves of using this intervention and we can start using it with the children.

9. Do you want to receive training on social story intervention? Why?

Yes, to help my students.

10. What changes, if any, will you make to the social story intervention?

Make it for all students and use it for more than a month.

### **Informal Interview with the Parent/Guardian E: Field Notes**

I talked to the mother of Student E one day for seven minutes when she came to pick him up from school. I waited for her since I needed to collect the consent form for the intervention. In our conversation, the mother revealed that they saw the difference in his

personality when he was about three years old. So, they took him to Riyadh to see a specialist. The specialist advised them to take the child to a centre specialising in autism so that our child could improve his social skills and behaviour. She said that knowing the uniqueness of her child, she tried to play with her son and engage him in conversation. She said, *“Yes, we all do try to speak with him and give him a push to start conversations, but he prefers to be alone, not responding and most of the time just ignoring us.”* Even though I could see that the mother was enthusiastic about discussing her son, the time she gave me for the informal talk was short. I was not able to get the more detailed information regarding Student E’s behaviour and social skills manifested at home.

### **Post- Intervention: Parent/Guardian E’s semi-structured in-depth interview Script**

1. After the implementation of the social story intervention, have you noticed any changes in your child’s behaviour and social skills? What are they? Explain changes.

Yes, I can see the change; although it is minimal, there are improvements. He is starting to ask questions. He wants to know the answers. He still needs encouragement to speak, but he is better.

2. After the intervention, does your child engage in conversations without encouragement?

No, only if he needs something like water and a toilet.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Yes, he asked us to get the things that he wants, as I mentioned above.

4. After the intervention, does your child acknowledge family members’ feelings and emotions? Explain changes.

Yes, he knows when his father or myself are mad. And if his sister is crying, he sits next to her and puts his head in her lap to soothe her.

5. What other changes have you noticed in your child’s behaviour? Explain.

He now listens better. He does put his eyes into mine and tries to make contact when spoken to.

6. What other changes have you noticed in your child’s social skills? Explain.

He now respects his sister and does not throw her things everywhere in the house.

7. Do you recommend using social story intervention? Explain

Yes, it really helped change my son.

8. Do you want to receive training on social story intervention? Why?



I love to get training, not only for myself but for the entire family. All of us need to learn how to use this intervention because it is helping my son. And we want to see him better.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, children like it, and it is changing them to be better.

10. What changes, if any, will you make to the social story intervention?

I will let it last for more than a month.

## Student F Profile

<i>Descriptive Information</i>	
<b>Participant's Research Code</b>	<b>F</b>
Age (4-6 years)	6-year-old
Gender (M/F)	F
Diagnosis (Autism)	Autism
Level of autism	<b>Moderate</b>
Level of social skills interaction (High/Moderate/Low)	<b>Moderate</b>  Not following instructions and delay in responding in communication
Level of unexpected behaviour (High/Moderate/Low)	<b>High</b> Very hyperactive – running around and shouting
Target social skills (High/Moderate/Low)	To learn how to follow orders
Target unexpected behaviour	To lessen her hyperactivity

### Informal Interview with the Teacher F: Field Notes

I managed to talk to Teacher F for ten minutes in school concerning her educational background and qualifications and about Student F when I went to her to collect the consent form for the intervention. In our conversation, I discovered that she was thirty-five years old. She has an MA in Autism and underwent some training but did not reveal what and how many there were. I talked a little about SS intervention, and she seemed interested. When I asked her about what she thought of the best intervention in terms of improving the social skills and unexpected behaviour of an autistic child, she mentioned that autistic children were not different compared to other children. Teachers just need to show them and work with them closely. She also added that teachers need to be patient because autistic children need more time to process right from wrong. She elaborated that autistic children were prone to imitation and what they saw, they copied. This is critical, according to her, because whatever they copied would become their behaviour. She said that the unexpected behaviour of an autistic child was reflective of the family's behaviour, i.e., what the child saw his mother, father and siblings doing. Concerning Student F, Teacher F stated that in conversation, Student F *"needs extra minutes to comprehend and answer back."* Teacher F also stated that Student F was hyperactive and sometimes aggressive. She said, *"The student enjoys shouting, running around the class."* She also added *"The student did not follow orders."* She said that her behaviour distracted her class, and it was challenging to really handle her. She expressed great hope that the SS intervention would be able to improve Student F's behaviour.

### Post- Intervention Teacher F's semi-structured in-depth interview Scripts

1. After the intervention, does the child engage in conversations without encouragement? Yes, she does engage in conversations; she speaks with her friends and initiates conversations. One thing is clear her answer when she communicates back takes time, although now it is a bit faster.

2. After the intervention, does the child ask for help in a clear, understandable way? Explain changes.

Yes, she asks for help when she needs it; however, she tries to do things herself. She feels she is old enough to be dependent.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Yes, she is starting to accept the fact that she needs to wait to speak, i.e., until I call her name out. Although she sometimes shouts the answers without being called upon. She is better now.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

A lot better, even her eye contact is better, and she looks at me when answering.

5. What other changes have you noticed in the child's social skills? Explain

She changes. She asks friends to play with her, and she is starting to accept me asking her to do things.

6. What other changes have you noticed in your child's behaviour? Explain.

She started to listen to me and follow classroom rules.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

Yes, it is, and I recommend using it for all the centre's classes. Change is visible even though it is minimal but gradual!

8. Do you recommend using social story intervention? Explain

Yes, as I mentioned above.

9. Do you want to receive training on social story intervention? Why?

Yes, to learn and help students

10. 14. What changes, if any, will you make to the social story intervention?

For now, nothing, but I would like to make it for all students.

### **Informal Interview with the Parent/Guardian F: Field Notes**

It was a great opportunity for me to be able to have a chat with Student F's mother when she came to pick him up from school one day, even though it only lasted five minutes. The mother mentioned that they noticed Student F's different behaviour when she was two years old. So, during that time, they took their child to Riyadh to see a specialist. The doctor advised

them to look for a special school for their child. The mother revealed that Student F “*engages in minimal social conversations with us.*” She added that it was challenging for them to encourage her to talk. She also added that Student F “*does not like to be told what to do.*” The mother pointed out, “*She enjoys shouting and interrupting me.*” It was interesting to hear the mother’s account of Student F’s behaviour at home. Unfortunately, she had to cut the conversation short because she still had to go somewhere.

### **Post- Intervention: Parent/Guardia F’s semi-structured in-depth interview Script**

1. After the implementation of the social story intervention, have you noticed any changes in your child’s behaviour and social skills? What are they? Explain changes.

She started to listen, follow directions, and make eye contact when answering.

2. After the intervention, does your child engage in conversations without encouragement?

Yes, sometimes. But better than before.

3. After the intervention, does your child ask for help in a clear, understandable way? Explain changes.

Yes, she tells me what she wants.

4. After the intervention, does your child acknowledge family members’ feelings and emotions? Explain changes.

Yes, she acknowledges the emotions of all family members.

5. What other changes have you noticed in your child’s behaviour? Explain.

She started to listen to the family and accept different views or orders. She also followed when I asked her to tidy her toys.

6. What other changes have you noticed in your child’s social skills? Explain.

I can see that her response to the conversation has become a bit faster. Still, there were times it took a bit longer, but now mostly, she answers quickly.

7. Do you recommend using social story intervention? Explain

Yes, I would recommend the intervention; it has shown a change in my child.

8. Do you want to receive training on social story intervention? Why?

Yes, I want to get training. I need her to be better.

9. Do you want the Centre to continue social story intervention with your child? Why?

Yes, it's nice and helpful.

10. What changes, if any, will you make to the social story intervention?

Nothing.

### **Informal Interview with the Teacher Assistant: Field Notes**

In our conversation, which lasted around ten minutes, I learned that she was twenty-seven years old. She has a Bachelor's degree in Special Education with more than 60 courses on autism and has been assisting in handling autistic children for four years. She mentioned that she believed in inclusive classes, mixing autistic children with those who are not. She added that mixing them would be beneficial for the autistic children so that they would not feel they were different. Regarding behaviour and social skills, the Teacher Assistant explained that most autistic children imitated the actions and behaviours of other people, especially those that were close to them. So, issues in an autistic child's social skills and behaviour reflected the family's behaviour and treatment of the child.

After the four-week intervention, I conducted a post-intervention interview with the Teacher Assistant. The questions and responses are reflected below.

### **Post- Intervention Teacher Assistant's semi-structured in-depth interview Scripts**

1. After the intervention, does the child engage in conversations without encouragement?

Big change! I've seen the change in the child. They have also responded to the story and read it together with the researcher.

2. After the intervention, does the child ask for help in a clear, understandable way? Explain changes.

The initiation of conversations was starting to happen with the researcher, and they did sometimes ask questions about the story.

3. After the intervention, does the child acknowledge peers' and teachers' feelings and emotions? Explain changes.

Feelings and emotions were shown when reading, and within the break time, I can see them showing emotion when trying to engage with peers.

4. After the intervention, does the child concentrate and cooperate in class? Explain changes.

Some of the children but not all of them. They still need time.

5. What other changes have you noticed in the child's social skills? Explain

Each child has shown a change in their own way. Eye contact, sharing toys are two examples.

6. What other changes have you noticed in your child's behaviour? Explain.

I have mentioned above.

7. In your opinion, is the intervention technique reliable to use for all children with ASD bearing in mind their unique personalities? Why? Why not?

Yes! I want this technique to be implemented in all classes. I have seen it work magic with the children. It will take time, but it is worth the time and effort.

8. Do you recommend using social story intervention? Explain

Yes. I recommend using it. It is effective.

9. Do you want to receive training on social story intervention? Why?

Yes, I want to master this intervention to start working on it with all the students.

10. What changes, if any, will you make to the social story intervention?

Apply it to all children, not only for Autism.

## APPENDIX 9 – NVivo Results

### DEMOGRAPHIC PROFILES

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#### Codes\\Themes\\01. Age

##### Files\\A

Age  
5-year-old

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##### Files\\B

Age  
5-year-old

---

##### Files\\C

Age  
4-year-old

---

##### Files\\D

Age  
4-year-old

---

##### Files\\E

Age  
6-year-old

---

##### Files\\F

Age  
6-year-old

#### Codes\\Themes\\03. Gender

##### Codes\\Themes\\03. Gender\\Female

##### Files\\B

Female

---

##### Files\\D

Female

---

##### Files\\F

Female

---

##### Codes\\Themes\\03. Gender\\Male

##### Files\\A

Male

---

##### Files\\C

Male

---

##### Files\\E

Male

---

#### Codes\\Themes\\04. Participant's Research Code

##### Files\\A

Participant's Research Code  
A

---

##### Files\\B

Participant's Research Code  
B

---

##### Files\\C

Participant's Research Code  
C

---

##### Files\\D

Participant's Research Code  
D

---

##### Files\\E

Participant's Research Code  
E

---

##### Files\\F

Participant's Research Code  
F

### Themes

## **SOCIAL SKILLS\Communication\Avoids answering**

### ***A Parent***

Yes, all of his brothers as well as his father initiate conversation and try to let him speak his mind. However, he prefers to keep quiet and answers with one word or sometimes ignores the whole question and plays with his hands and does not make eye-contact.

### ***C Parent***

Not with me, even if he sees me he doesn't answer me, he only nods or sometimes ignores.

### ***F Parent***

Yes we try she ignores.

## **SOCIAL SKILLS\Communication\Avoids initiating conversations**

### ***A Parent***

He is not like his brothers. He acts differently and always quiet and does not initiate in conversations.

### ***B Parent***

She doesn't share her toys and does not start conversations.

### ***B Teacher***

B prefers to keep quiet most of the time and nods her head with yes or no.

### ***E Parent***

Yes we all do try to speak with him and give him a push to start conversations.

## **SOCIAL SKILLS\Engagement\Hates sharing**

### ***B Parent***

She doesn't share her toys

## **SOCIAL SKILLS\Engagement>Selective in interactions**

### ***B Parent***

Yes, she does ask selected people that are close to her for water, playing and says please and thank you. If you are not a favourite, she prefers to answer with nodding her head as a yes or a no.

### ***C Parent***

His mother says that he listens to her more than before.

## **Codes\Themes\03. After Intervention\Following instructions**

### ***C Teacher***

He is starting to follow Directions

### ***D Teacher***

Yes she started to follow the rules and listens to instructions.

### ***E Teacher***

Yes he is starting to follow directions.

### ***F Parent***

Listening, following directions, , making eye contact.

She started to listen to the family, and accepts different views or orders when I ask her to tidy her toys.

### ***F Teacher***

Listen to me and follow classroom rules.

## **03. After Intervention\Improved communication**

### ***A Teacher***

I can see that he is starting to ask for help from me, but that is not the case always. For example, before the social story intervention, he used to stand up and walk towards the end of the classroom to play with the toys. However, after the social story intervention, he learned to ask before standing up and going to the toys. This is not always the case, but it is getting better. So, if we say he goes to the toys 3 times, he asks 1 out of 3 of the times.

### ***B Teacher***

Not all the time but I can see she is better than before. She is starting to say please and waits for my answer on her question.

### ***C Parent***

His mother says he stops and makes eye-contact when he is being spoken to.

### ***D Parent***

She respects the person and ignores less than before.

### ***D Teacher***

Yes, she started to respond to my requests after a maximum of two times.

### ***E Parent***



He does put his eyes into mine and tries to make contact when spoken to.

***F Parent***

Yes sometimes. But better than before.

***F Teacher***

Yes she does engage in conversations, she speaks with her friends and initiates conversations.

A lot better, even her eye contact is better and she looks at me when answering.

**03. After Intervention\Improved in recognising emotions**

***A Parent***

Sometimes, he does express his feelings towards his father when he's done playing ball with him he says he is happy. And sometimes, when his brothers do not want to play with him he says he is sad.

***A Teacher***

yes now he is telling us what makes him sad what he likes he does not. So, A is starting to show emotions and speak a word or two about his feelings. i.e. I am sad or I am happy.

***B Parent***

Yes she tells us if she is happy or sad.

***B Teacher***

She is starting to understand emotions. And relates a sad face to being sad and a happy face for being happy

***C Parent***

I guess he is starting to show emotions and acknowledge feelings. He hugged his mother after giving him a chocolate.

***C Teacher***

is starting to understand emotions, he is starting to know that aggressive behaviour is not allowed and harms his peers and teachers. He know understands that being aggressive can make others afraid and sad.

***D Parent***

Yes she tells me what she feels if she is sad or happy. But not a lot .

***D Teacher***

Yes much better but not with all students in the centre.

***E Parent***

Yes he knows when his mother or myself are mad. And if his sister is crying he sits next to her and puts his head in her lap to sooth her.

***F Parent***

Yes she acknowledges emotions of all family members.

**03. After Intervention\Improvement in behaviour**

***B Parent***

She is starting to sit with us in the living room and tries to pay attention. She does not bring her doll with her to play and ignore us.

***B Teacher***

B is starting to follow the rules and asks her peers to do so by showing them. For example, she goes next to her peer says please and does the intended 'rule' or 'instructions

***C Teacher***

he is starting to know that aggressive behaviour is not allowed and harms his peers and teachers. He know understands that being aggressive can make others afraid and sad.

***E Teacher***

There is improvement as I stated above.

***F Teacher***

Yes she is starting to accept the fact the she needs to wait to speak i.e. until I call her name out. Although she sometimes shouts the answers without being called upon. She is better now.

**03. After Intervention\Improvement in behaviour\Improved hyperactivity**

***D Teacher***

She does not stand and jump as frequently as before.

***E Parent***

Respect his sister and does not throw her things everywhere in the house.

**03. After Intervention\Improvement in behaviour\No longer interrupts others**

***C Teacher***

He does not interrupt the peers in class.

**03. After Intervention\Improvement in Cooperation**

### *A Teacher*

sometimes concentrates and sometimes he does not. He fiddles with his pencil case and prefers to draw while I teach. However, if I do call out his name, he leaves the pencil and tries to listen to class. He does not cooperate if I ask for general help, however, if I call out his name to do a task, he stands up and comes to help.

### *D Teacher*

She also started to sit and listen when in group activities.

### **03. After Intervention\Improvement in initiating conversations**

#### *A Parent*

Yes he is answering in full answer and does not ignore as much as before. Sometimes, he started to ask for water or if he can go out to the garden to play with his ball.

#### *A Teacher*

Yes there is a big change in A's behaviour. He is starting to initiate conversations.

#### *B Parent*

However, after the intervention she is starting to allow one of her sister, the one she likes the most to play with her doll and initiates the questions 'do you want to play with me?'

Yes, she does ask selected people that are close to her for water, playing and says please and thank you. If you are not a favourite, she prefers to answer with nodding her head as a yes or a no.

#### *C Parent*

Yes, two days ago, Friday, he asked me for water. I felt happy.

#### *C Teacher*

Yes, he is starting to ask for help especially when wanting to go to the toilet.

#### *D Parent*

Yes, she asks questions but not a lot. She still prefers to keep quiet.

#### *D Teacher*

Yes she started asking if I need help in moving things or within the classroom.

#### *E Parent*

No, only if he needs something like water and toilet.

Yes he asked us to get the things that he wants as I mentioned above.

#### *E Teacher*

Yes he does understand to ask help.

#### *F Teacher*

Yes she asks for help when she needs it, however she tries to do things her self. She feels she is old enough to be dependent.

She changes, she asks friends to play with her and she is starting to accept me asking her to do things.

### **03. After Intervention\Improvement in reading**

#### *B Parent*

She is starting to bring short story books that are on the shelf to her father, myself or his sister to read for her.

### **03. After Intervention\Improvement in sharing**

#### *A Teacher*

A started to play with his peers and share toys with them.

#### *B Teacher*

She is willing to share her toys and plays with her peers but not all of them. She is close to two of her female peers and they are the only ones who she talks to and plays with. She ignores all others.

### **03. After Intervention\Less aggressive**

#### *C Parent*

His mother says that he did change, he is being less aggressive, and asks to go to the toilet.

#### *D Parent*

She doesn't jump from one chair to the other and can sit still for a while.

### **03. After Intervention\Respecting personal space**

#### *C Teacher*

Respect Personal Space.

### **03. After Intervention\Started answering**

#### *C Teacher*

C still prefers to sit alone, however, if asked or spoken to, he tries to lower his voice and answers in a polite manner.

### *D Parent*

She changed to the better, she doesn't ignore as much when she is asked a question.

### *E Parent*

Yes I can see the change although it is minimal but there are improvements. He is starting to ask questions

### *E Teacher*

Yes sometimes, he is better now. He engages in classroom as he tries to answer in class whenever I do ask him a direct question.

### *F Teacher*

Yes she does engage in conversations, she speaks with her friends and initiates conversations.

### **03. After Intervention\Started listening**

#### *A Parent*

He started to listen to me and his father when we speak to him, he does more eye contact than before. He does not ignore as much as before, and tries to answer in more than one word.

Plays with his brothers and listens to them when they talk.

#### *A Teacher*

He also started listening to his peers and interacting with them.

He listens to me and doesn't interrupt class. He shows eagerness to try new tasks.

#### *B Teacher*

Yes she is listening to my instructions but not to her peers.

#### *D Teacher*

Listens to me

#### *E Parent*

wants to know the answers, he still needs encouragement to speak but he is better.

#### *F Parent*

Listening, following directions, , making eye contact.

She started to listen to the family, and accepts different views or orders when I ask her to tidy her toys.

### **03. After Intervention\Still does not initiate conversations**

#### *C Teacher*

No, C still prefers to keep quiet and nods his heads for no and yes answers.

#### *E Teacher*

However, he still doesn't initiate to start a conversation with his peers.

Yes he tries to be friendly with his peers however, he does not like to participate start the conversation. He wants to just sit and play but does not talk to them.

### **03. After Intervention\Still ignores other students**

#### *B Teacher*

Yes she is listening to my instructions but not to her peers.

## **Key Themes – Student A**

<b>Aspect</b>	<b>Main Theme</b>	<b>Sub-Themes</b>	<b>codes</b>
<b>SOCIAL SKILLS</b>	<b>Communication</b>	<b>Avoids answering</b>	
		Lack of prompting and answering in social contexts.	Avoiding1
		A, at the beginning of the intervention was a quite person who ignores when his name was said.	Ignoring1
		<b>Avoids initiating conversations</b>	
		He avoids the initiation of conversations and interactions.	Avoiding2
		<b>Lack of prompting</b>	
	Lack of prompting and answering in social contexts.	Ignoring2	
	<b>Engagement</b>	<b>Avoids interactions</b>	

		He avoids the initiation of conversations and interactions.	Avoiding3
		He prefers to stay quiet and does not participate.	Ignoring3
		He prefers not to speak in class to teachers and classmates	Ignoring3
		<b>Hates sharing</b>	
		He likes his own things to be next to him and hates to share and interact if something in class happens.	Notsharing1

Student A was mainly identified with social skills problems. This was observed by the fact that the main themes were communication and engagement.

### Key Themes – Student B

Aspect	Main Theme	Sub-Themes	codes	
SOCIAL SKILLS	Communication	<b>Avoids answering</b>		
		Lack of prompting and answering in social contexts	Avoiding1	
		<b>Avoids initiating conversations</b>		
		both avoided the initiation of conversations and interactions.	Avoiding2	
		<b>Lack of prompting</b>		
			Lack of prompting and answering in social contexts	Ignoring2
	Engagement		<b>Avoids interactions</b>	
			Both avoided the initiation of conversations and interactions.	Avoiding2
			She prefers playing with her doll rather than communicating with family members, teachers and classmates.	Notsharing
			<b>Does not play with siblings</b>	
			Her mother says she also does not like to play with her siblings at home.	Ignoring2
			<b>Enjoys being alone</b>	
			She enjoys being alone. She does not like to be in pairs when given a task in class.	Avoiding2
			<b>Hates sharing</b>	
		Her toys are limited to one doll that she takes everywhere.	Notsharing	

### Key themes – Student C

Aspect	Main Theme	Sub-Themes	codes
PROBLEM BEHAVIOURS	Hyperactivity, Inattention	<b>Hyperactive/Aggressiveness</b>	
		He was further reported to show unexpected behaviour, i.e., Aggression, shouting, and throwing things across the room to get attention.	Aggression
		Both the classmates and family of C were afraid of his sudden change in mood.	Moodchange
		<b>Hyperactive/Throwing things</b>	
		C participated in the social story intervention for 4 weeks. The first week, I observed that he threw his pencil case across the room after the first half-hour of the day. The first week started with 21 times and ended with 17 times,	Throwing

		having the lowest frequency of 10 on Wednesday.	
<b>SOCIAL SKILLS</b>	<b>Engagement</b>	<b>Avoids interactions</b>	
		His teachers and guardians reported that C exhibited a lack of social engagement and required extra attention from parents and teachers to remain engaged on a task.	Avoiding1
	<b>Communication</b>	He does not listen.	Ignoring1

### Key Themes – Student D

Aspect	Main Theme	Sub-Themes	codes	
<b>UNEXPECTED BEHAVIOURS</b>	<b>Bullying</b>	<b>Takes other students' toys</b>		
		Takes their toys	Aggression	
	<b>Hyperactivity</b>	<b>Loud</b>		
		During the first week of the intervention, D, was loud.	Noisy	
		<b>Shouting</b>		
		Shouting	Shouting	
		She seeks attention by shouting and throwing her friend's things across the class.	Shouting	
		<b>Throwing things</b>		
		Throwing things across the room to get attention	Throwing	
		She seeks attention by shouting and throwing her friend's things across the class.	Shouting	
	Threw the pencil and papers around the class	Throwing		
	<b>Inattention</b>	<b>Ignoring</b>		
		She does not like to be told to sit down and ignores all the teacher's requests to sit quietly in class.	Ignoring1	
		The teacher needs to speak in a high tone in order for her to respond; she usually responds after three or four times of being warned.	Ignoring1	
		She ignores all her other classmates and speaks during their turn	Ignoring1	
<b>Stubborn</b>				
However, using different tones while reading with her, I got her attention. D was not an easy case to deal with. D was stubborn for two weeks of the intervention.		Difficult		
<b>SOCIAL SKILLS</b>	<b>Engagement</b>	<b>Selective in interactions</b>		
		She has certain classmates that she is willing to mingle with.	Avoiding1	

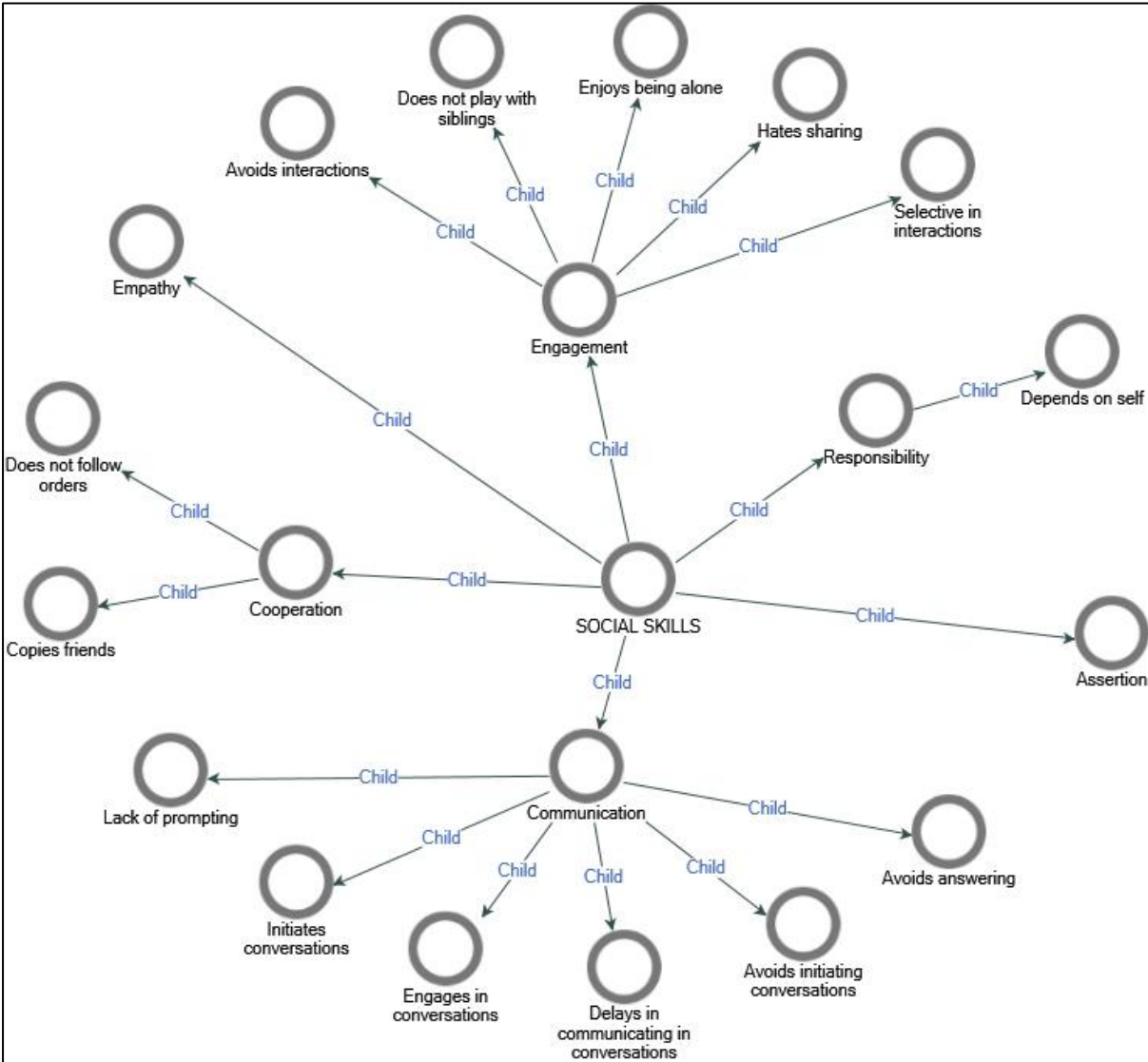
### Key Themes – Student E

Aspect	Main Theme	Sub-Themes	codes	
<b>PROBLEM BEHAVIOURS</b>	<b>Bullying</b>	<b>Treats classmates roughly</b>		
		wants to be friends with his classmates but treats them roughly.	Aggression	
	<b>Hyperactivity</b>	<b>Hyperactive</b>		
		Hyperactive	Hyperactive	
		Student E is hyperactive	Hyperactive	
Hyperactive and wants to be friends with his classmates	Hyperactive			

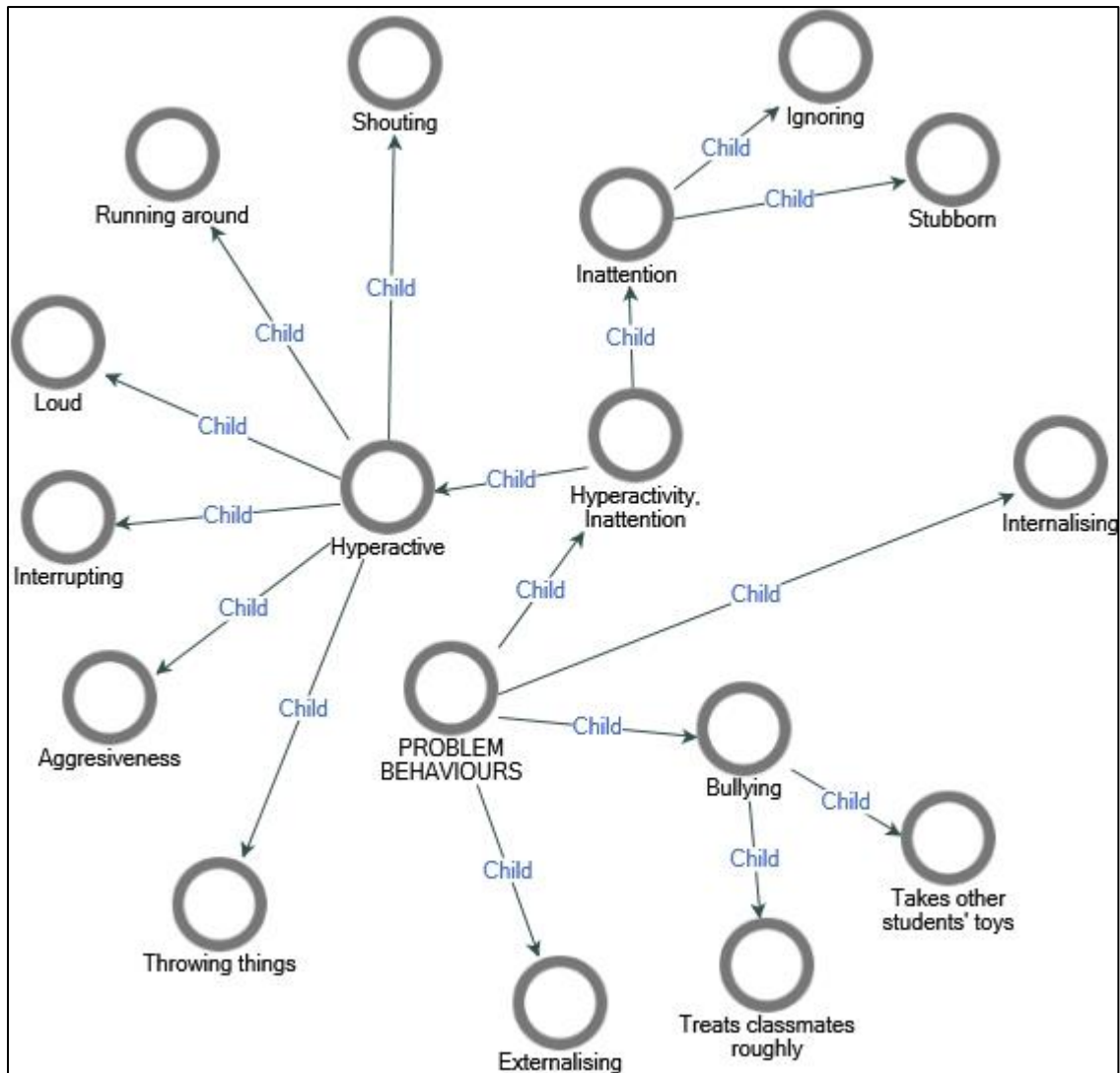
		He was reported by teachers and guardians as a hyperactive autistic male.	Hyperactive
		<b>Aggressiveness</b>	
		...but treats them roughly	Aggression
		<b>Interrupting</b>	
		interrupting teachers and parents	Interrupting
<b>SOCIAL SKILLS</b>	<b>Communication</b>	<b>Avoids initiating conversations</b>	
		does not like to initiate any conversation	Avoiding 1
		has shown interest and was asking me questions about the story	Engaging
		<b>Delays in communicating in conversations</b>	
		He does not participate instantly in any conversation; he waits for a few minutes to reply	Slowresponse
		he waits for a few minutes	Slowresponse
		Student E's father reported the changes directly to me as he stated that he started to initiate conversations with his family	improvedresponse
	<b>Engagement</b>	<b>Does not follow orders</b>	
		does not follow orders	difficult

### Key Themes – Student F

<b>PROBLEM BEHAVIOURS</b>	<b>Hyperactivity</b>	<b>Hyperactive</b>	<b>codes</b>
		Hyperactive	Hyperactive
		<b>Interrupting</b>	
		Interrupting teachers and parents	Interrupting
		<b>Running around</b>	
		Running around class	Hyperactive
		<b>Shouting</b>	
		She enjoys shouting.	Shouting
<b>SOCIAL SKILLS</b>	<b>Communication</b>	<b>Delays in communicating in conversations</b>	
		She needs extra minutes to comprehend and answer back.	Slowresponse
		<b>Engages in conversations</b>	
		She was engaging in conversations and tried to initiate conversations with her classmates.	Engaging
		<b>Initiates conversations</b>	
		Tries to initiate conversations with her classmates and helps the teacher in explaining.	Engaging
	<b>Engagement</b>	<b>Copies friends</b>	
		F copies her friends in class.	copying
		<b>Does not follow orders</b>	
		Not following orders	Difficult



**Thematic Map including the refined codes – Social Skills**



**Thematic Map including the refined codes – Unexpected Behaviours**



