Stay, Play, and Talk: A Peer-Mediated Social Skills Program for Children
with Autism Spectrum Disorder and Other Social Communication Difficulties
(Phase IV)

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Abstract

Stay, Play, And Talk: A Peer-Mediated Social Skills Program for Children with Autism Spectrum Disorder (ASD) and Other Social Communication Difficulties is in its fourth phase of research within a Kindergarten classroom in Ontario, Canada. Its purpose was to introduce a peer-mediated social skills program while observing the effects on peer-to-peer socialization operations and skills increases for those children identified as having social communication difficulties or the characteristics of ASD. Results indicate that all three participants demonstrated an increase in their social communication skills with their typically-developing peers.
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Dedication

To Tony, without whom I would have never chosen to return to school and pursue my dreams.
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CHAPTER ONE: INTRODUCTION TO THE STUDY

Autism Spectrum Disorder is recognized as the most common neurological disorder among children (Autism Society Canada, 2010). 1 in every 66 children in Canada are identified with ASD (Public Health Agency of Canada, 2018). ASD is defined as a neurodevelopmental syndrome that is described by the deficits in social reciprocity and communication, and by unusual restricted, repetitive behaviours (Lord, Cook, Leventhal, & Amaral, 2000). Leo Kanner first introduced the concept of Autism in 1943. Since the disorder was introduced, its profile and symptomology have undergone numerous changes. Currently, the most widely accepted definition of ASD is based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published by the American Psychiatric Association.

Prior to 2013, the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (Text Revision) (DSM-IV-TR) classified its symptoms into three separate domains – social interaction, communication, and restricted, repetitive behaviours – with diagnostic sub-types including Autistic Disorder, Pervasive Developmental Disorder-Not Otherwise Specified, Asperger’s Disorder, Rett’s Disorder, and Childhood Disintegrative Disorder (Harstad, Fogler, Sideridis, Weas, Mauras, & Barbaresi, 2015). With the newly revised DSM-5, however, the diagnosis of the characteristics associated with what was known before as simply autism or its related disorders (DSM-5) is consolidated into a single umbrella of disorders known as Autism Spectrum Disorder (ASD) (Harstad et al., 2015). ASD categorizes symptoms into two domains: i) social communication and ii) restricted, repetitive patterns of behaviour, interests, or activities (American Psychiatric Association, 2013). The criteria in DSM-5 outlines that individuals must demonstrate symptoms of ASD from early childhood, even if they are not recognized until a later age (American Psychiatric Association, 2013). The designation of ASD serves to provide a range of social communication deficits and restricted, repetitive behaviours in
order to determine the severity level of a child’s diagnosis. Once a severity level can be established, a decision whether the child requires support – categorized as very substantial, substantial, or merely support – can be established.

The change in criteria from the DSM-IV-TR to the DSM-5 further promotes earlier diagnosis and provides sanctions for those whose symptoms may go unnoticed until the increasing social demands of school and life exceed their capacity (American Psychiatric Association, 2013). Because of the delays in functional communication skills are often experienced by young children with ASD, maladaptive behaviours are often displayed as a means of communicating the needs and wants of these children (Lee, Chou, & Feng, 2017). Once these types of communication patterns are formed, the maladaptive behaviours can become severe and cause social embarrassment for the children in school social situations as well as in the community (Lee et al., 2017). It is important to note that many children with ASD possess adequate functional communication skills, but the lack of social skills and the inability to identify social situations can lead to confusion and the misunderstanding of interpersonal relationships. The restrictive or repetitive patterns of behaviour directly impact social interactions and can lead to interrupting social interactions with their peers and the inability to maintain meaningful social conversations (Lee et al., 2017). As a result, children with ASD often experience social isolation (Bauminger & Kasari, 2000; Bauminger, Shulman, & Agam, 2003), have a higher level of distress while involved in social situations (Tantam, 2003), and have elevated levels of anxiety in social situations (Bellini, 2006). As a result, many children with ASD or other social communication difficulties will receive a dual diagnosis, most commonly associated with anxiety, at some point throughout their development. In 2011, researchers reviewed 31 studies that focused on the presence of anxiety disorders in children with ASD and
concluded that approximately 40% had also been diagnosed with an anxiety disorder (van Steensel et al., 2011).

The current trend towards inclusive education in Ontario may promote the development of a variety of educational and functional skills that benefit children with social communication difficulties, such as those experienced by children with ASD whether a formal diagnosis has been given or not; however, social interactions do not occur naturally when integrating these children into mainstream classrooms with their typically-developing peers (Lee et al., 2017). In inclusive classrooms, children with social communication difficulties often exhibit their isolation while they demonstrate a strong desire to form friendships with their peers (Tantam, 2003). Consequently, social skills need to be targeted and taught in line with the curriculum in order to support the needs of the children with social communication difficulties (Weiss & Harris, 2001).

**Background and Statement of the Problem**

ASD is a lifelong condition, which can prove to be debilitating without intervention. ASD can be identified as early as in the first two years of a child’s life (Matson & Rieske, 2013). To date, there are no known causes or cures, although there is ongoing crucial research examining many possible causes. Currently, associations such as Autism Speaks are strongly committed to advancing the understanding of ASD and looking at how genetic and environmental risks may be contributing factors in the development of ASD. Although there are no definitive studies to date that conclude the causes of ASD, research shows that early intervention and incorporating evidence-based practices can positively impact children’s development, particularly a noteworthy increase in social skills (Magiati, Tay, & Howlin, 2012; Prior, Roberts, Roger, & Williams, 2006). For a practice to be considered evidence-based (empirically supported), there must be evidence of the efficacy of the treatment/intervention
based on data from participants in several single-subject experiments or from groups of subjects in both randomised and non-randomized, controlled trials (Schlosser & Sigafoos, 2008).

Peer-mediated intervention is one example of an effective early-intervention strategy. Early intervention is well-established as one of the most common and effective forms of treatment for young children with ASD (Matson & Goldin, 2013). Early intervention is a critical component to the successful inclusion of students with ASD in mainstream classrooms. Early Intensive Behavioural Intervention (IBI) is recognized as the first comprehensive intervention program for young children with ASD (Lovaas, 1981). IBI is typically intensive and takes place in the homes and centre-based childcare facilities of young children. The principles of IBI are based on Applied Behaviour Analysis (ABA), with initial emphasis on Discrete Trial Training (DTT), which takes place one-on-one with the child (Reichow, 2012). Lovaas (1987) published the first results of IBI, concluding that 47% of children with ASD receiving IBI achieved higher outcomes than those who did not receive the intervention.

IBI treatment for young children with ASD and other social communication difficulties have been shown to produce large gains in cognitive, language, and social development (Howlin, Magiati, & Charman, 2009). As previously discussed, IBI incorporates the principles of ABA as a means to increase prosocial behaviors, as well as decrease behavioral excesses, such as those defined as maladaptive behaviours typically seen in individuals diagnosed with ASD (MacDonald, Parry-Cruwys, Dupere, Ahearn, 2014). When compared to other groups of children with ASD who received other forms of treatment, the groups who received IBI treatment achieved significantly larger gains in their social development (MacDonald et al., 2014).

**Purpose of the Study**

Education in Ontario is in the midst of change and has made large strides in supporting early learners. With a complete transformation from traditional half-day Kindergarten programs,
Ontario is redefining how early learners begin their education. Striving to support high-quality learning opportunities, Ontario has developed a two-year Kindergarten curriculum that supports high-quality learning while giving every student the equal opportunity to learn in the way that is best suited to their individual strengths and needs. As described in The Kindergarten Program (Ontario Ministry of Education, 2016), extensive changes have occurred since the initial roll out of the full-day, two-year program. On September 1, 2012, the Accepting Schools Act was introduced, which requires all school boards in Ontario to “provide safe, inclusive, and accepting learning environments in which every student can succeed” (Ontario Ministry of Education, 2013, p. 2). This change in legislation is part of an action plan that will focus on equity and inclusive education as well as safe schools’ strategies (Ontario Ministry of Education, 2013). As a result, there is growing need to develop and study strategies and interventions that will provide educators with effective, evidence-based approaches to support the unique needs of each student.

Ontario is Canada’s most diverse province. The call for change in education is a result of the needs of the complex and ever-changing population within the province (Ontario Ministry of Education, 2012). The estimated prevalence of ASD varies in Canada. Studies in North America, Europe, and Asia identify that approximately 1% of their population has been identified with ASD, while supporting the claim that this number is steadily rising (Government of Canada, 2015). More recently, the Public Health Agency of Canada (March, 2018) reports that 1 in every 66 (15.2 per 1,000) children (ages 5-17) are identified as having ASD. Although the prevalence rates in of ASD in Ontario are consistent with the other provinces and territories, the numbers are much higher as the population of Ontario represents approximately 38% of all people living in Canada (Statistics Canada, 2018). Currently, the Public Health Agency of Canada is working with stakeholders and key experts in the field of ASD to develop and implement a national surveillance system to track the rates of prevalence (Government of Canada, 2015).
The need for effective evidence-based intervention for these students is increasing. Although there are many intervention options available for educators to use with children with such social communication difficulties, only some offer evidence of their effectiveness by research, and many have either weak or no empirical evidence that supports their effectiveness (National Autism Center, 2009; Odom, Boyd, Hall, & Hume 2010; Prior, Roberts, Rodger, Williams, & Sutherland, 2011). However, peer-mediated interventions have been shown to be one of the most researched and effective methods for increasing social interaction skills in this population (McConnell, 2002). Several studies have demonstrated the effectiveness of peer-mediated approaches in children with social issues, characteristics of ASD, or a diagnosis of ASD (Kohler, Greteman, Raschke, & Highnam, 2007; Laushey & Heflin, 2000). Stay, Play, and Talk is one example of a peer-mediated approach that incorporates teaching typically-developing children ways to successfully interact with children with social communication difficulties, along with adult prompting in the application of these behaviours. This peer-mediated intervention has its roots in the Buddy Skills Training Program that aimed to teach buddy skills to preschool-age children (English, Shafer, Goldstein, & Kaczmarek, 1997). English et al. (1997) based the Buddy Skills Training Program on the assumption that all children want to develop friendships. In order for some children with disabilities to attain the friend-making goal, however, they may require intervention due to difficulties in developing the skills needed to interact effectively with others, defined as social communication difficulties; similarly, typically-developing peers may not know how to interact with them, and educators may lack experience needed to promote friend making skills between children with disabilities and their typically-developing peers (1997).

As a result of children beginning school as young as 3 years-old in Ontario, intervention strategies are needed now more than ever in order to accommodate students’ needs in a formal
classroom setting. *Stay, Play, and Talk* is an example of an evidence-based peer-mediated intervention. This peer-mediated social skills intervention program designed to use with children with ASD and other social challenges and their peers (All Kids Belong, Fanshawe College, & Thames Valley Children’s Centre, 2011). Social skills are defined differently across studies, and the behavioural outcomes also vary according to each child’s needs or the specific social behaviours targeted in the intervention (Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010). Despite the variations in definition, social skills interventions mainly target specific skills within three general domains: communication, play skills/shared activities, and challenging/disruptive behaviour. While general communication difficulties are a hallmark symptom of ASD, this intervention targets deficits in communication, while developing the child’s ability to attend to others, initiate contact, interpret both the initiations and responses of others, and express ideas. These skills are necessary for children to interact and develop the foundations upon which lasting and functional relationships are built (Rotheram-Fuller et al., 2010).

This collaborative pilot project was first implemented in 2011 involving both staff and faculty members from All Kids Belong, Fanshawe College, and Thames Valley Children’s Centre (All Kids Belong et al., 2011). The research project is currently in its fourth phase and involves faculty, staff, and students from Brock University, the University of Guelph, Fanshawe College, and the Halton Catholic District School Board (HCDSB).

Using one component of the data collected as a collaborative research group, this paper will focus on evaluating social communication outcomes of the children receiving the *Stay, Play, and Talk* intervention in a single-case research design framework.
Purpose Statement

The purpose of this research study is to identify and assess the effectiveness of a peer-mediated social skills program called Stay, Play, and Talk. The program is designed to increase the peer play skills of Kindergarten-aged children identified as having social communication difficulties and their peers who are typically-developing within an inclusive Kindergarten classroom environment. This intervention is the fourth phase of a pilot project, with similar research frameworks having previously occurred in various jurisdictions. The first three phases of this research study were conducted within inclusive early years settings in Ontario (Maich, 2015). These previous phases of research presented the newly developed Stay, Play, and Talk program, while examining the effects of implementation on peer-to-peer socialization opportunities for children with social communication difficulties (Maich, 2015). In phase one, two kindergarten-aged participants with ASD in the SPT program demonstrated increases in social interaction units (single-subject design), particularly during structured activities (Maich, Hall, van Rhijn, & Squires, 2018). In phase two, nine preschool-ages participants with social skill difficulties, characteristics of ASD or a diagnosis of ASD demonstrated significant increases in peer play skills (pre/post-measures) following participation in the SPT program (Maich, Hall, van Rhijn, & Squires, 2018). Lastly, in phase three, thirty-nine preschool-aged participants (n=16) demonstrated more significant increases in their social skills development (pre/post-measures) following their participation in the SPT program compared to a preschool-aged control group (n=13) in the same childcare centre (van Rhijnin, Osborne, Ranby, Maich, Hall, Rzepecki, & Hammerich, 2018).

The main question guiding this study is: how effective is the Stay, Play, and Talk intervention at increasing the social communication skills of children with ASD and other social communication difficulties? Three sub-questions are explored, including: i) how are the total
number of utterances made between the subject and their typically-developing peer(s) affected by the intervention?; ii) how are the total number of relative utterances between the subjects and the typically-developing peer(s) affected by the intervention?; and iii) how are the number of interactions that are initiated by the subject targeted at the typically-developing peer(s) affected by the intervention? These questions will explore the trends in the participants’ social skill behaviours during the intervention to better understand the effectiveness of the *Stay, Play, and Talk* program.

**Importance of the Study**

This is the fourth phase in a series of research studies that have taken place in a variety of early learning settings across Ontario. The intention of conducting this research study is to positively impact the social skills development, among other social communication skills, of children with ASD. Results from this study can be used to increase the understanding of the importance of early intervention and how it can be effectively implemented in a classroom setting. These results may indicate that with this type of intervention, the social skills of those with ASD and other social communication difficulties may increase, resulting in positive outcomes in school performance.

**Conceptual Framework**

A framework consisting of six developmental domains has been established in order to accurately assess a child’s developmental progress including physical, motor, perceptual, cognitive, speech and language, and social-emotional challenges (Allan & Marotz, 2010). Although each domain is separated into its own category, it is important to note that each is “integrally related to and interdependent with each of the others in the overall developmental process” (Allan & Marotz, 2010, p. 37). Ontario’s Kindergarten Program curriculum reflects the developmental domains of early childhood (Ontario Ministry of Education, 2016). The six areas
of learning highlighted in this curriculum – Personal and Social Development, Language, Mathematics, Science and Technology, Health and Physical Activity, and the Arts – are based on these developmental domains (Ontario Ministry of Education, 2016). The levels of development across the six domains will vary in each individual child within the classroom; developmental disabilities may be directly related to the levels of development children reach. Developmental disabilities are a collection of disorders that are a result of impairments in physical, learning, language, or behaviour development (Centers for Disease Control, 2015). Many of these conditions become more apparent as they tend to impact a child’s day-to-day functioning in the classroom.

Social impairments and difficulties with social communication and interpersonal interaction are the core features of ASD (DSM-5, 2013). Specifically, impairments in social interaction are known to affect one’s ability to develop and maintain friendships (Kuo, Orsmond, Cohn, & Coster, 2011). This can be the result of the lack of capacity to understand what others are thinking or feeling, otherwise known as empathy (Kuo et al., 2011). Research suggest that these levels of social impairments do not decrease over time; in fact, both impairment and distress have been shown to increase in children with ASD during adolescence if no intervention takes place (Kuo et al., 2011). Adolescence may be particularly difficult for children with social communication difficulties as the social environment they are a part of begins to increase in complexity, and they become more aware of their social impairment (Tantam, 2003).

ABA is one of the most commonly used interventions for children with ASD (Mohammadzaheri, Koegelm Rezaee, & Rafiee, 2014) and is rooted in theories of learning and operant conditioning (Mohammadzaheri, et al., 2014; Lovaas, 1987). The field of ABA has produced mounting evidence that suggests that this type of intervention is a promising strategy
for children with ASD (Virués-Ortega, 2010). Several models of ABA intervention exist; however, they all share a common framework:

- Interventions begin in children as young as 3 to 4 years of age;
- Intensive intervention processes can range from 20 to 30 hours per week;
- Intervention is customized to target the specific needs of the child;
- Multiple behaviour analytic methods are designed to foster adaptive repertoires;
- Interventions begin with one-on-one training and gradually evolve to group activities and natural contexts;
- Typical developmental sequences guide intervention goals;
- Parents are trained in the intervention strategies in order for them to actively participate.

This type of intervention can be used to improve some of the symptoms that are characteristic of children with ASD (Virués-Ortega, 2010). *Stay, Play, and Talk* follows the models of ABA and shares a common framework with other effective interventions.
CHAPTER TWO: LITERATURE REVIEW

Many theories have been proposed to explain what strategies could be beneficial for children with ASD. Although the literature covers a wide variety of such theories, this review will focus on explaining the socialization of and the development of prosocial behaviour in children with social communication difficulties. This review will also examine inclusion, ASD-specific evidence-based interventions, and peer-mediated social skills programs as ways to support the unique set of needs of children with ASD.

Social Communication Difficulties and the Development of Socialization and Prosocial Behaviour in Children with ASD and Other Social Communication Difficulties

Although the symptoms of ASD vary greatly in each child, the disorder is marked by impairments in social interactions and the inability to effectively communicate with others (American Psychiatric Association, 2013). The difficulties can range from failure to initiate and maintain eye contact with others to the inability to generate conversations. Given that children are beginning school as young as 3 years-old and are expected to thrive in social environments such as a classroom, it comes as no surprise that increasing social communication skills among those with ASD is the most common target of interventions within schools (Weiss & Harris, 2001).

Young children with ASD and other social communication difficulties are often less-likely to display age-appropriate social behaviours than typically-developing peers of the same age group (Lane, Gast, Ledford, & Shepley, 2017). For instance, children with ASD experience difficulty in abilities related to social interaction and communication with others (Casenhiser, Shanker, & Steinben, 2011). These social communication difficulties can cause children to experience little enjoyment while interacting with peers (Bieberich, & Morgan, 2004; Scambler, Hepburn, Rutherford, Wehner, & Rogers, 2007; Snow, Hertzig, & Shapiro, 1987), in both joint
and shared attention with others (Aldred, Green, & Adams, 2004; Carpenter, Nagell, & Tomasello, 1998; Kasari, Freeman, & Paparella, 2006; Kasari, Gulsrud, Wong, Kwon, & Locke, 2010; Loveland & Landry, 1986; Mundy & Crowson, 1997; Watson & Flippin, 2008), and in understanding and expressing verbal and non-verbal communication (Casenhiser et al., 2011).

Children with social communication difficulties have the same desire to pursue social relationships with their peers, but they lack the skills needed to be successful at it. Play is widely acknowledged as being one of the most important methods for children’s intellectual, physical, emotional, and social development (Lifter, Foster-Sanda, Arzmariski, Briesch, & McClure, 2011; Piaget, 1962). Unfortunately, children with ASD and other social communication difficulties lack the skills that are required to play with their peers, and therefore, they often miss out on these age-appropriate opportunities to practice prosocial behaviours. As a result, Occupational Therapists (OTs) working with young children with ASD and other social communication difficulties will often focus their classroom-based interventions on developing coping skills in the different learning environments – for instance, in the classroom, on the playground at recess, etc. – in order to facilitate the socialization of these children (Richardson, 2002). OTs can facilitate social skills therapy with a child with ASD or other social communication difficulties that focuses on behavioural techniques such as conditioning, reward-based reinforcement strategies, as well as delivering social skills training (Gokhale & Sawant, 2015). Contemporary theoretical and practice frameworks among OTs support the focus on the interactions that occur between the child with ASD and other social communication difficulties and their social environment (Dunn, Brown, & McGuigan, 1994; Law et al., 1996; Yerxa et al., 1989).

1 This occurs when two individuals share a common interest in an object/subject/event and there is an understanding between the two people that they both express the common interest. This is a developmental milestone that is achieved around 9 months of age in typically-developing children.
Conceptually, *socialization* is the process by which one acquires knowledge, skill sets, and the disposition that directly contributes to development of being a more or less effective member of society (Weidman, 1998). Dunn, Rouse, and Seff (1994) echo these beliefs while adding that *socialization* is the process that contributes to a child’s development of the attitudes, beliefs, values, and skills that are needed to effectively participate in their own daily social life. Moreover, Bragg (1976) describes the socialization process as the way children acquire knowledge and skills, the values and attitudes, and the habits and modes of thought of the society to which he or she belongs. The theory of socialization plays an integral part of early childhood because children have the opportunity to interact with a number of people – including parents, teachers, and peers – from a very young age. These interactions play an important role in children’s daily high-quality learning opportunities (Shire et al., 2014).

The development of pro-social behaviours, more specifically, directly influences the formation of friendships in early childhood (Odom, Schertz, Munson, & Brown, 2004). Prosocial behaviours that are often under-developed in young children with ASD and other social communication difficulties can also impact their long-term success in both academic and social settings, such as school (Lane, Stanton, Chapman, Jamison, & Phillips, 2007). In particular, social communication difficulties can lead to exclusion within social situations and feelings of loneliness (Brewster & Coleyshaw, 2010). A study by Wallace et al. (2017) published in the *Journal of Autism and Developmental Disorders* utilized the Social Responsiveness Scale (2nd edition) to measure the social-communicative functioning and repetitive behaviours of 324 children. The findings revealed that children who were not identified with ASD or other social communication disorders demonstrated age-related improvements within their social communication functions, while an age-related decline was observed in those children who were identified as having ASD or other social communication difficulties (Wallace et al., 2017). If
early intervention is not implemented, such social impairments will increase as the child moves through school, and will be the direct contributor to the decreased formation of meaningful friendships and greater feelings of isolation and loneliness, resulting in elevated feelings of anxiety which can ultimately lead to depression (Orsmond, Krauss, & Seltzer, 2004; Rotheram-Fuller et al., 2010; White & Roberson-Nay, 2009). Social communication difficulties in early childhood have also been directly linked to the development of Social Anxiety Disorder (Halls, Cooper, & Creswell, 2015); specifically, Rapee and Spence (2004) believe that the lack of social skill development in children can lead to negative reactions from peers, which fosters negative beliefs and avoidant behaviours in children in social situations as they get older.

Increasing age-appropriate prosocial behaviours – such as staying, playing, and talking – in young children with ASD and other social communication difficulties requires educators to target specific behaviours that promote positive peer-to-peer social interactions (Lane et al., 2017). Specifically targeting areas such as initiating conversation and playing are recognized as prosocial developed behaviours across early childhood (Babcock, Hartle, & Lemme, 1995). Successful social functioning in early childhood requires the ability to process and generate appropriate responses to the often subtle and complex information that is gathered by children when involved in social situations within their world (Jameal, Vyas, Bellesi, Casswell, & Channon, 2015). While there are many studies that examine the cognitive impairments of children with ASD and other social communication difficulties, there is very little research that looks directly at how these impairments translate into social functioning and its impact on social interactions, specifically prosocial behaviours such as sharing, for instance (Jameal et al., 2015).
Inclusion and Inclusive Education Practices

Prior to 1970, it was an uncommon practice to see children with exceptionalities learning side-by-side with their typically-developing peers (Canadian Research Centre on Inclusive Education, n.d.). While there was a shift in the education system beyond 1970, the movement began with school administrators and educators simply bringing children with exceptionalities into mainstream classrooms as visitors. Although this represents a step in the right direction, the policy-makers within the Ontario education system recognize that this strategy was not ideal and was not reflective of the core principles of inclusion; consequently, the beginning stages of the creation and implementation of inclusive education were born.

Kaweski (2011) believes that inclusive education is first and foremost an attitude, a value system validated from years of research that strives to include children with varying abilities in all aspects of the school experience, regardless of their individual exceptionality. Pragmatically, inclusive education is a practice used in schools as a means to provide students who were traditionally excluded from mainstream classrooms experiences with rich, standards-based content across the curriculum and meaningful participation with all peers their age (Kaweski, 2011).

Inclusive education is based on the principles that all children can learn when they are presented with the appropriate support, recognizing the importance of belonging and friendship as an integral part of positive and meaningful childhood development (Hines & Johnston, 1996). According to Vygotsky (1978), learning has its foundation built on the ability to interact with others. Once this has occurred, information is then integrated on the individual level. Social interactions play a fundamental role in the process of cognitive development in children. In contrast to Piaget’s theory that development precedes leaning, Vygotsky believed that social learning does, in fact, precede development. Vygotsky (1978) states that “Every function in the
child’s cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)” (p. 57). Vygotsky’s theory recognizes that a child’s mental functioning is twofold: First, the actual level of development in which the child can do for themselves; and second, the potential level of development that can be accomplished in cooperation with a more competent peer (Daneshfar & Moharami, 2018). From this, Vygotsky adopted the Zone of Proximal Development (ZPD) to support his framework. ZPD is defined by Vygotsky as “the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). The general conception of ZPD is an interaction between a more competent person and a less competent one on a task, so that the interaction will result in the development of the less competent one (Chaiklin, 2003). When the theory is applied in terms of social skills development, children with ASD and other social communication difficulties can benefit from learning these skills from their typically developing peers in an inclusive classroom.

In Ontario, the focus on including students in inclusive classrooms is more prevalent than ever before. While recognizing diversity in all students, inclusive education is, “based on the principles of acceptance and inclusion of all” (Ontario Ministry of Education, 2009, p. 4). All Ontario school boards therefore must provide students with exceptionalities an appropriate special education programme and services that are suited to their individual education needs (Ontario Ministry of Education, 2012). Individual students’ needs are reflected in how the curriculum is delivered, the environment in which it is delivered, as well as the school community as a whole. Diversity is celebrated; differences are honoured and nurtured with respect (Ontario Ministry of Education, 2012). While the focus on inclusion of children with
ASD has been increasing (Symes & Humphrey, 2010), researchers identify that simply including these students in inclusive classrooms without the explicit instruction on how to develop prosocial peer-to-peer interactions is not enough to facilitate the development of social functioning among those identified as having social communication difficulties (Ferraioli & Harris, 2011; Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011).

While inclusive education is intended to support and educate children with a wide range of abilities and preferred learning styles (Maich & Belcher, 2012), children with ASD and other social communication difficulties present a unique set of challenges while learning and interacting with their peers in an inclusive classroom. Both policy-makers and educators must remember that there are equally important academic and social objectives of successful inclusive education (Freitag & Dunsmuir, 2015). For children to be fully included in an inclusive classroom, they should become full and active participants within the environment, while being accepted and valued members of the school community (Farell, 2000). It has been reported that children with ASD and other social communication difficulties are more than 20 times more likely to be excluded from school than their typically-developing peers (Barnard, Prior & Potter, 2000), which does not fit with the intended outcomes of inclusion within the education system.

“Inclusion, in and of itself, is not a stand-alone intervention” (von der Embse, Brown, & Fortain, 2011, p. 23). Programs such as Stay, Play, and Talk are thus designed in order to explicitly teach diversity within inclusive classrooms while focusing on the foundational skills needed to develop positive peer-to-peer interactions and friendship building – which, ultimately, will close the gap between academic and social objectives that may not be met without intervention. Sailor (1996) reminds us that while educators are allocated resources that are designed to support students in inclusive classrooms, the efficacy of each intervention needs to
be evaluated in order to determine its suitability within the classroom and to identify if it meets the specific needs of students.

**Evidence-Based Interventions**

Inclusion of all children is in the spotlight in Ontario education (Ministry of Education, 2012). Studies suggest that educators in inclusive classrooms are faced with mounting pressure to incorporate evidence-based interventions to support the diverse needs of all students (Locke et al., 2015). Many teachers have expressed concerns about the movement to inclusive education, as they feel unprepared and lack the training and resources needed to be successful (Cassidy, 2011). Based on these expressed concerns, there is a growing need to develop and test evidence-based interventions in order to support educators in inclusive classrooms.

*Evidence-Based Interventions* (EBIs) have become the standard in the field of education (National Autism Center, 2009); these are instructional techniques that are supported by meaningful research which is able to prove their effectiveness, thus representing a critical tool necessary for bridging the research-to-practice gap while improving the outcomes of those involved (Locke et al., 2015). Lindgren and Doobay (2011) identify that one of the major barriers to the adoption of EBIs for children with ASD and other social communication difficulties is the general lack of consensus on how to effectively identify and evaluate so-called ‘scientifically valid’ and ‘effective’ interventions. For a practice to be deemed scientific or evidence based, it must meet a set of predetermined standards, yield positive results/outcomes, and undergo a peer-review process (Lindgren & Doobay, 2011). In addition, the results must be validated by a scientifically-based practice that includes random samples of subjects that are assigned to a control group and an experimental group with a series of replications of well-controlled studies using single-subject designs (Lindgren & Doobay, 2011). However, these validation techniques have been criticized for being too narrow, in addition to having negative
effects on ASD evidence-based research practices, because these types of studies are difficult to conduct in real-life settings such as in classrooms (Lindegren & Doobay, 2011). Simpson (2005) provides a balanced perspective for educators to reference when evaluating evidence-based interventions to use with children with ASD and other social communication difficulties with the following guidelines:

- Regardless of whether the intervention claims to be evidence-based, one must be diligent to confirm whether it has been scientifically validated (e.g. peer-reviewed);
- Rigorous methods of determining an ASD-specific intervention’s actual validity can include, but is not limited to, single-subject design, correlational studies, quasi-experimental design, and randomized controlled trials;
- Information about the effectiveness of an intervention that a) comes from a single source that is not supported by other research or a detailed literature review and b) lacks vigorous peer review, resulting in little to no empirical evidence, should not be considered as an effective ASD-specific evidence-based intervention;
- While determining whether or not an EBI is valid, one must still make considerations that the specific needs of the child with ASD or other social communication difficulties are being targeted and met with the intervention prior to implementation (not a ‘one-size-fits all’ approach);
- Like all EBI practices, the potential risks associated with the intervention must also be considered carefully. These include, but are not limited to, cost, time-commitment, adverse effects, etc.

Conclusively, Simpson (2005) recognizes that there are no universally effective EBIs for children with ASD and other social communication difficulties; however, the most successful
inclusive education programs include several evidence-based interventions and teaching models, while simultaneously attending to the unique sets of needs of the children in the classroom.

**National Standards Project**

One of the ways to determine how effective an intervention is involves looking directly at the research that has been conducted. Phase One of the National Standards Project (NSP1) was designed to help the caregivers and educators of children with ASD in the selection process for interventions, ensuring they target each specific need of the child while helping to achieve their full potential (National Autism Center, 2009). This project was established in order to serve three specific purposes: i) to assist with the identification of the level of researched support that is available to be used with children with ASD that are under the age of 22; ii) to assist parents, caregivers, and educators with understanding how to integrate the research into their intervention decisions; and iii) to assist with the identification of the limitations of ASD-specific intervention research (National Autism Center, 2009).

NSP1 began with the development of a model for evaluating the scientific literature around interventions designed for those with ASD, followed by the development of the Scientific Merit Rating Scale (SMRS) as a means to objectively evaluate the effectiveness of an intervention. The SMRS encompasses five critical dimensions of experimental rigor to determine the extent of the effectiveness of the intervention: i) *research design*, meaning the degree to which the experimental control was demonstrated; ii) *measurement of the dependent variable*, meaning the extent to which accurate and reliable data were collected and how these data were represented; iii) *measurement of the independent variable*, meaning the extent to which treatment fidelity was established; iv) *the ascertainment of the participant*, meaning the degree to which well-established diagnostic tools/procedures were used to determine eligibility; and v) *generalization*, the extent to which researcher attempted to objectively demonstrate the spread of
the treatment effects across time, settings, stimuli, responses, and persons) (National Autism Center, 2009). In addition, each study included in the research project was also subject to treatment effects ratings that include beneficial, ineffective, adverse, and unknown. The studies were also subject to ratings or classifications in the areas of treatment classification, strength of evidence classification, and treatment sub-classification.

After careful review and classification of 775 studies, the project identified 11 treatments as being effective interventions with beneficial effects. These include i) Antecedent Package; ii) Behavioural Package; iii) Comprehensive Behavioural Treatment; iv) Joint Attention Intervention; v) Modeling; vi) Naturalistic Teaching Systems; vii) Peer Training Packages; viii) Pivotal Response Treatment; ix) Schedules; x) Self-Management; and xi) Story-Based Intervention.

In NSP1, 33 studies were included in the Peer Training Package. The interventions included in this category involve teaching peers the required skills and strategies for the facilitation of play and social interactions with children who are identified as having ASD. The peers in the studies include both classmates and siblings of children with ASD (Odom et al., 2010). The reviewer noted that some of the common names for these specific intervention strategies include, “peer networks, circle of friends, buddy skills package, Integrated Play Groups™, peer initiation training, and peer-mediated social interactions” (Odom et al., 2010, p.48). Of the 33 studies reviewed, there were increases in communication skills, interpersonal skills, and play skills observed in children with ages ranging from 3 to 5 years, 6 to 9 years, and 10 to 14 years (Odom et al., 2010).

Although this project was intended to assist with the selection of interventions, the National Autism Center (2009) states that:
...research findings are not the sole factor that should be considered when treatments are selected. The suggestions made here refer only to the research findings component of evidence-based practice and should be only one factor considered when selecting treatments. (p. 75)

Phase Two (NSP2) reviewed studies published between 2007 and 2012. As in NSP1, the focus of this publication was to evaluate both educational and behavioural intervention literature targeting children with ASD (National Autism Centre, 2015). Phase Two of the National Standards Project (NSP2) was published in 2015 in order to provide up-to-date information on the effectiveness of the broad range of EBIs for children ages 0 to 22 years-old with ASD. NSP2 provides an updated summary of the literature available to support the needs of children with ASD, while updating the original findings in Phase One, adding information and evaluating where the interventions had moved from established or unestablished categories within Phase Two. Unlike NSP1, NSP2 includes established interventions for individuals with ASD over the age of 22; because of this addition, the literature search included research that spanned over a greater number of decades, going back as far as 1987 (National Autism Centre, 2015).

NSP2 consisted of four main goals: i) to generate an update to the published NSP1 focusing on peer-reviewed interventions that had been published after NSP1; ii) to open the review to include interventions for individuals with ASD over the age of 22; iii) to incorporate feedback from NSP1 in order to effectively report on the beneficial interventions; and iv) to provide a practical understanding of how the interventions included can be integrated into programs (National Autism Centre, 2015).

Similar to the NSP1, NSP2 utilized the Scientific Merit Rating Scale (SMRS) software to collect and organize the data. The SMRS was developed as a means to objectively evaluate whether the methods used in each study were strong enough to determine the effectiveness of the
intervention on children with ASD (National Autism Centre, 2015). The information gathered using the SMRS allowed the researcher to determine if the results in each study were valid enough to conclude that similar results would be expected in other studies that included equal or better research methodologies.

The SMRS employed two classes of research design: group and single subject. Here, research design, “reflects the degree to which experimental control was demonstrated. Research design is tied to the number of participants and/or groups involved, the extent to which attrition or intervention disruption occurred, and the type of research design employed” (National Autism Center, 2015, p. 23). The measurement of the dependant variable category considered two types of data: test, scale, checklist, etc. and direct behavioural observation, while the measurement of independent variables,

…describes the extent to which intervention fidelity was adequately established.

Intervention fidelity is tied to implementation accuracy, the percentage and type of sessions during which data were collected, and the extent to which intervention fidelity was reliably measured. (National Autism Centre, 2015, p. 23)

The category of participant ascertainment,

…refers to the degree to which well-established diagnostic tools and procedures were used to determine eligibility for participant inclusion in the study as well as the extent to which diagnosticians and evaluators were independent and/or blind to the intervention conditions. Participant ascertainment is also tied to the use of Diagnostic and Statistical Manual for Mental Disorders (DSM-5, APA 2013) or International Classification of Diseases (2010) criteria. (National Autism Centre, 2015, p. 23)

Lastly, the category of generalization and maintenance of intervention effect(s) is defined as,
…the extent to which researchers attempted to objectively demonstrate the spread of interventions effects across time, settings, stimuli, responses, or persons. Generalization is also tied to the type of data collected (e.g., objective versus subjective). (National Autism Centre, 2015, p. 23)

For each of the aforementioned dimensions of scientific merit that were defined, a score between 0 and 5 was assigned (National Autism Centre, 2015).² For this study, 0 represents a poor score, while 5 represents a strong score. Scores of 3, 4, and 5 indicated that there was sufficient rigor had been applied, and the scores suggest that similar results would be likely when applied to another study that utilized equal or better research methods (National Autism Centre, 2011). A lower score of 2 indicates that initial evidence suggests positive effects of an intervention; however, more research is necessary to confirm the effects (National Autism Centre, 2011). Lastly, a score of 0-1 indicates that there is insufficient scientific evidence of the effectiveness of the intervention and its implementation can result in ineffective or harmful effects when applied to a population of individuals with ASD (National Autism Centre, 2015).

The intervention classification remained mostly unchanged, with the exception of the addition of Behavioural Interventions, which is the result of combining Behavioural Package and Antecedent Package into one larger category rather than two specific categories (National Autism Centre, 2011). After identifying the interventions, the strength of evidence classification system criteria was applied, which reflects on the quality, quantity, and consistency of the findings summarized by three classifications: i) established, where the study must provide sufficient evidence to confidently determine that the intervention produces favourable outcomes for the participants; ii) emerging, where the intervention produces favourable outcomes for the

² The formula used by the National Autism Centre to establish a SMRS score was: Research Design (.30) + Dependent Variable (.25) + Participant Ascertainment (.20) + Procedural Integrity (.15) + Generalization and Maintenance (.10), rounded to the nearest whole number (National Autism Centre, 2011).
participants, though high-quality studies must consistently show this outcome before firm conclusions can be drawn; and iii) unestablished, where little to no evidence is produced to allow a firm conclusion about the effectiveness on the participants (National Autism Centre, 2015).

Intervention targets are comprised of two subcategories: skills increased, and behaviours decreased (National Autism Centre, 2015). Firstly, skills increased includes 10 development skills as intervention targets: i) academic; ii) communication; iii) high cognitive functions; iv) interpersonal; v) learning readiness; vi) motor skills; vii) personal responsibility; viii) placement; ix) play; and x) self-regulation (National Autism Centre, 2015). Behaviours decreased is divided by four areas of challenge that interventions target to decrease in children with ASD, including i) general symptoms; ii) problem behaviours; iii) restricted, repetitive, non-functional patterns of behaviour, interest, or activity (RRN); and iv) sensory or emotional regulation (SER) (National Autism Centre, 2015).

NSP2 includes 389 studies. Based on the findings utilizing the SMRS and other classifications, 14 established interventions were identified for children 0 to 22 year-olds, concluding that they are considered effective interventions for participants with ASD. 18 emerging interventions were identified as providing some evidence of effectiveness with children 0 to 22 years-old, though more research is necessary to conclude that they are effective. Lastly, the study identified 13 interventions as being unestablished for children 0 to 22 years-old, which concludes that they provide no sound evidence of their effectiveness on participants with ASD. The research findings of NSP2 conclude that the following 14 interventions are considered established for individuals 0 to 22 years-old:

- Behavioural Interventions
- Cognitive Behavioural Intervention Package
- Peer Training
- Pivotal Response Training
• Comprehensive Behavioural Treatment for Young Children
• Language Training (Production)
• Modelling
• Natural Teaching Strategies
• Parent Training

These conclusions are specifically relevant to the fourth phase of the Stay, Play, and Talk study because the NSP2 review identified the peer training package as being effective for children ages 3 to 14 years-old. NSP2 identified the skills increased as including learning readiness and communication and interpersonal skills. Within this review, peer training programs included Project LEAP, Peer Networks, Circle of Friends, Buddy Skills Package, Integrated Play Groups, Peer Initiation Training, and Peer-Mediated Social Interactions Training.

A similar review was conducted in 2015 by Wong, Odom, Hume, Cox, Fettig, Kucharczyk, Brock, Plavnick, Fleury, and Schultz; this review was intended to be an extension and elaboration of the review reported by Odom et al. (2010). The purpose of this second review was similar to the first, wherein the authors set out to, “identify evidence-based, focused intervention practices for children and youth with Autism Spectrum Disorder” (Wong et al., 2015, p. 1951). This review expanded the literature and tested the efficacy of focused intervention practices covered from 10 years (1997 to 2007) to 21 years (1990 to 2011) and included a total of 456 studies.

Comprehensive Treatment Models (CTMs) and Focused Intervention Practices (FIPs) were identified as the two types of practices that appeared in the literature being reviewed (Wong et al., 2015). CTMs are comprised of sets of practices that are organized around a conceptual framework and are designed to achieve broad learning or noteworthy impacts on the core deficits
of the children with ASD (Wong et al., 2015). FIPs, however, are designed to attend to a single
skill or specific goal of a child with ASD (Odom et al., 2010b, as cited in Wong et al., 2015).
The studies included in this review had to incorporate experimental group design, quasi-
experimental design, or single case study design in order to test the efficacy of the intervention
practice (Wong et al., 2015).

Utilizing the same procedures from the first review conducted by Odom et al. (2010b),
the authors defined the categories suitable for each article in the review, stating that, “although
studies in the literature incorporated a wide range of outcomes, [the] research focused primarily
on outcomes associated with the core symptoms of ASD: social, communication and challenging
behaviours” (Wong et al., 2015, p. 1956). There were 27 practices that were identified as having
met the criteria for evidence-based practices:

- Antecedent-Based Intervention (ABI)
- Cognitive Behavioural Intervention (CBI)
- Differential Reinforcement of Alternative, Incompatible, or Other Behaviour (DRA/I/O)
- Discrete Trial Teaching (DTT)
- Exercise (ECE)
- Extinction (EXT)
- Functional Behaviour Assessment (FBA)
- Functional Communication Training (FCT)
- Modeling (MD)
- Naturalistic Intervention (NI)
- Parent-Implemented Intervention (PII)
- Peer-Mediated Instruction and Intervention (PMII)
- Picture Exchange Communication System
- Pivotal Response Training (PRT)
- Prompting (PP)
- Reinforcement (R+)
- Response Interruption/Redirection (RIR)
- Scripting (SC)
- Self-Management (SM)
- Social Narratives (SN)
- Social Skills Training (SST)
- Structured Play Groups (SPG)
- Task Analysis (TA)
- Technology-Aided Instruction and Intervention (TAII)
- Time Delay (TD)
- Video Modeling (VM)
- Visual Supports (VS)
In sum, the review identified focused intervention practices for children and youth with ASD supported by efficacy research, while identifying the gaps in scientific studies available.

Within the Matrix of Evidence-Based Practices by Outcome (Figure 3), the study indicates that there are PMII’s that effectively target social skills in children across all age groups (0 to 5 years, 6 to 14 years, and 15 to 22 years); communication skills across the ages of 0 to 5 years and 6 to 14 years; joint attention across the ages of 0 to 5 years and 6 to 14 years; play skills in children 0 to 5 years and 6 to 14 years; school readiness in children 0 to 5 years; and academic skill development in those 6 to 14 years and 15 to 22 years (Wong et al., 2015).

It was noted that while the volume and theoretical range of the literature being published has increased, the number of EBP’s has also expanded (Wong et al., 2015). The published results are promising for the field of education, as well as for children with ASD and their families who will directly benefit from the continuing advances in the interventions available (Wong et al., 2015).

**School-Based Social Skills Training**

The traditional method for promoting social skill development in children with ASD was adult-to-child role play that included discrete social skill steps (Elliott, Roach, & Beddow, 2008, as cited in Radley, McHugh, Taber, Battaglia, & Ford, 2015). Although somewhat beneficial, this type of training falls short when the child tries to utilize the skills obtained outside of the training, and when expected to generalize these skills in other situations (Radley et al., 2015). In order to improve on the minimal effects of the traditional methods of social skills training and enhance the child’s ability to attain and maintain friendships, there is a need for intervention strategies that not only reinforce the skills but help to generalize the skill for children with ASD. Several evidence-based interventions have been proven to support the maintenance and sustained
results of social skills development, including typically-developing peers engaging with their peers identified as having ASD within their environments (Radley et al., 2015).

**Peer-Mediated Intervention (PMI).** An example of an evidence-based intervention that has been developed and established as being effective in supporting the needs of children with ASD while targeting social-skills development is Peer-Mediated Interventions (PMIs), which are recognized as an evidence-based practice grounded in the seminal work of Odon and Strain (1984). They are established as a versatile and effective approach to promote the skill development of individuals with social communication difficulties, such as those experienced by children with ASD (Chan et al., 2009).

Theoretical models, such as the Reciprocal Effects Peer Interaction Model (REPIM), detail how children with ASD and other social communication difficulties can experience an increase in social deficiencies. Without explicitly teaching typically-developing peers about the social communication difficulties experienced by some of their peers, there is a lack of peer awareness and an insufficient understanding that stems from the decreased amount and quality of peer interactions, thus limiting the social networks children with ASD can form with typically-developing peers and increasing their social rejection (Humphry & Symes, 2011). Ezzamel and Bond (1986) believe that the underlying premise of this model, and others similar to it, are rooted in Weiner’s (1972) attribution theory, which promotes teaching peers about others’ specific needs, ultimately helping the typically-developing peers gain a better understanding of the difficulties that others face and thus resulting in increased empathy, responsiveness, understanding, and the fostering of friendships – leading to better class inclusion. Incorporating this type of model in intervention strategies, such as in peer-mediated social skills training programs, can facilitate the necessary responsiveness that is needed for developing new
behavioural approaches for those with ASD and other social communication difficulties (Ingersoll, 2010).

A PMI such as *Stay, Play, and Talk* involves typically-developing peers modelling targeted social skills to peers with social communication difficulties. PMIs have been proven to be successful in inclusive education settings and can be integrated to target the promotion of social interactions between children with social communication difficulties and their typically-developing peers (Chan et al., 2009; Koegel et al., 2012). Peer-mediated models can increase the amount of opportunities for interventions to take place, as it does not demand that the educator be the main source of facilitation (Chan et al., 2009). In addition, PMIs provide more opportunities for students with social communication difficulties to authentically interact and develop social skills with peers, thus reinforcing the acquired skills in the classroom (Carr & Darcy, 1990). Because of the nature of PMIs, they can be seamlessly incorporated into daily activities for all students, which is desirable in the guiding principles of inclusion (Hemmeter, 2000; Trembath, Balandin, Togher, & Stancliff, 2009).

**The Buddy Skills Training Program.** The *Buddy Skills Training Program*, which is arguably one of the most-widely cited approaches to peer-mediated social skills development, created by English et al. (1997) is an example of a PMI. This program was intentionally designed to teach skills that would facilitate positive interactions between peers (with and without disabilities). The four primary components of the program include: i) peer sensitization to teach awareness and promote positive attitudes towards children with disabilities; ii) environmental set-up to apply these strategies across the daily routine in natural settings; iii) instruction of specific skills for the dyads to interact; and iv) minimal use of adult prompting (Maich, 2015). Throughout the program, there is a focus on three specific skill sets: i) staying with your friend(s); ii) playing with your friends; and iii) talking to your friends. The *Buddy Skills Training*
Program was evaluated in 1997, where dyads of participants were involved in sensitivity training, skills training, as well as the concept of Stay, Play and Talk (English et al., 1997). The results of this study demonstrated an increase in the social communication skills and behaviours in not only those participants identified as having a disability, but also with the typically-developing peers. The Buddy Skills Training Program was also evaluated a decade later (Kohler et al., 2007); however, this time, the study utilized triads consisting of one child with ASD and two typically-developing children. This study had similar results that showed an increase in the social communication from the children with ASD to their peers, and the peers to the children with ASD, while also reporting that the peers who were trained also maintained their increased interactions with the children with ASD even after the withdrawal of the prompts and cues from their educators (Kohler et al., 2007). The Stay, Play, and Talk intervention program that is the focus of this research study is based on the Buddy Skills Training Program resource (Maich, 2015).

Stay, Play, and Talk. Similar to the Buddy Skills Training Program, the Stay, Play, and Talk intervention begins with a peer awareness lesson, where the class is taught about diversity. It is taught using a whole class instruction model, where the children are educated about differences and similarities between themselves, their peers, and others in the world. This introduction to the intervention promotes social inclusion by creating a classroom culture that is supported by empathy, understanding, and acceptance.

Peer-Awareness Intervention (PAI). An example of another widely accepted and used Peer-Awareness Intervention (PAI) model includes Circle of Friends, which has similar aims to increase peer-to-peer engagement and understanding while increasing social inclusion in the classroom (Frederickson, Warren, & Turner, 2005; Gus, 2000; Whittaker, Barratt, Joy, Potter, & Thomas, 1998). Ezzamel and Bond (2017) report that there is scientific evidence that
interventions which target peer awareness are effective at promoting social inclusion, but they note that the samples are small and there is little evidence that benefits of the intervention are sustained over a long period of time (Frederickson et al., 2005; James, 2011). Although positive, PAIs may not be enough to make substantial changes in the daily interactions between typically-developing peers and children with ASD and other social communication difficulties (Campbell & Barger, 2014). *Stay, Play, and Talk* incorporates PAI principles alongside PMI to provide the typically-developing peers with more opportunities to engage with children with ASD and other social communication difficulties. There is growing evidence that supports the success of PMIs on the social skill development of children with ASD and other social communication difficulties (Chan et al., 2009; Watkins et al., 2015; Zhang & Wheeler, 2011). These results have greater impacts on social skills development and friendship building than those programs that explicitly teach social skills to the children with ASD (Kasari et al., 2012).

There is a need for more research in the area of interventions targeting social skills development for children with ASD. It is promising to see such positive results coming from the implementation of PMIs interventions on the social skills development of children with ASD and other social communication difficulties in classroom settings. Further research around peer-mediated social skills training will add to the gaps in the literature and provide further evidence of the positive results this type of intervention has on children with ASD and other social communication difficulties.
CHAPTER THREE: METHODOLOGY

Using a single case research method, the *Stay, Play, and Talk: A Peer-Mediated Social Skills Intervention for Children with ASD and Other Social Communication Difficulties* program was examined in order to gain a deeper understanding of the effectiveness of the program. The results obtained identified which ways the program can improve social communication skills for children with ASD and other social communication difficulties with their peer(s).

Gast and Ledford (2014) believe that in a single case research design, the subject(s) is/are of overriding importance, as evidenced by the in-depth and detailed descriptions of each participant and their performance throughout the study. Since the data collected is analyzed separately for each individual, the effect of the intervention for each subject is presented and examined independently (Gast & Ledford, 2014). Sidman (1960) states that *single case study research design* is a quantitative experimental research approach in which all target subjects serve as their own control (as cited in Gast, 2014). Within this design, the researcher can observe the participants in both the baseline and intervention condition. The target behaviours are measured repeatedly within the context of this design, which allows the researcher the ability to evaluate and control threats to internal validity (Gast & Ledford, 2014). An AB research design is used in this study: Baseline A, Intervention B. The AB design, also referred to as the *simple time series design*, is the most basic experimental single case research design (Gast & Ledford, 2014).

All target students begin in the Baseline condition (A) at the same time, and Intervention condition (B) is introduced to each participant once a steady trend is observed in each (Gast & Ledford, 2014). The AB design requires the dependent variable to be measured numerous times in the baseline conditions (A), and after the trend and levels have become stable, the intervention condition (B) can begin (Gast & Ledford, 2014). Throughout the intervention, the target social
behaviours continue to be measured, noting any changes in the dependent variable. Any changes in the target behaviours can be presumed to be a result of the independent variable (intervention); however, only correlation conclusions are possible (Gast & Ledford, 2014). Correlation can be determined because the independent variable is the only change between the baseline and the intervention phase of the study. The limitations of AB research designs are noteworthy. Neither paradigm (baseline phase or intervention phase) allows for a functional analysis of the recorded behaviours (Gast & Ledford, 2014); however, AB research designs will allow the researcher to report on the level and trend of the data over a period of time, and across and within conditions—which makes it a valid research method for reporting intervention results.

**Site and Participant Selection**

Following ethics clearance (File No. 14-295) from both Brock University (Appendix A) and the University of Guelph (Appendix B), the site for the study was approved. Utilizing non-probability convenience sampling to select a research site was the most simplistic way to facilitate data collection, as it allowed for a site to be selected based on convenience that allows for timely research (Creswell, 2015). The research site was selected through a non-probability sampling method based on convenience, and ultimately, the school selected had both a) teachers interested in participating in a PMI for their students with ASD and other social communication difficulties and b) students who fit the criteria of either having ASD or social communication difficulties or were peers of someone who was. The selected site is a self-described inclusive school setting in an urban board in Southern Ontario.

This research project involved three student participants with social communication difficulties from the classrooms who were identifies as target students for the intervention. In consultation with the school board’s designated Speech-Language Pathologist (SLP), the Principal nominated the student participants. For the purpose of this research study, the use of
the social pragmatic skills were measured only for the target child in these triads and in the
classroom when the remainder of the class is participated in everyday classroom activities or the
Stay, Play, and Talk program (Hundert, Rowe, & Harrison, 2014).

Three student participants between the ages of 4 and 6 years-old were identified as target
participants in this study. The criteria for these participants included a) a diagnosis of ASD, or
the presence of social communication deficits similar to those that are defined by a formal
diagnosis of ASD, b) being supported in an inclusive setting, and c) the absence of regularly
displayed challenging and aggressive behaviours (Maich, 2015).

The study included 15 peer group participants who were identified as typically-
developing children. The peer group participants were recruited from the target children’s
regular classroom. The peer group participants they were recruited from the control and
intervention groups as participants for pre- and post-test questionnaire completion by their
current educators as part of everyday assessment.

The first participant, Subject 90001, was a 5-year-old male in the second year of the
Kindergarten program within an inclusive classroom. Although not formally diagnosed with
ASD by a licensed professional, this young boy was identified as experiencing social
communication difficulties in school by his educators and school administration, as well as
through the findings of the Penn Interactive Play Scale (PIPPS) and Social Skills Rating System
(SSRS). He was described as someone who struggled to regulate his emotions on a regular basis.
Frequent outbursts of frustrations were reported by his educators, as a result of his lack of social
communication skills, for instance. This child did not demonstrate difficulty with verbal
language; however, he lacked the social skill development that is typical for this age group. It
was reported that this child was often on the periphery of the class and struggled to join in play
with peers. He was often observed watching peers play and engage with their classmates, though
he did not demonstrate the ability to engage with others himself. This child did not demonstrate the skills needed for basic turn-taking with peers, which led to a deficit in his ability to follow simple classroom routines and expectations that were otherwise common among all other children in the classroom.

The second participant, Subject 90002, was a 5-year-old female in the second year of the Kindergarten program within an inclusive classroom. Similar to Subject 90001, she was not formally diagnosed with ASD by a licensed professional, but was, however, identified as experiencing social communication difficulties in school by her educators and school administration, as well as through the findings of the PIPPS and SSRS. As a result of her deficit in social communication skills, which consequently caused a great deal of anxiety and insecurities, she was only able to attend a half-day-program throughout the first year of Kindergarten. She was described as highly anxious and would become very attached to her teachers, avoiding communication and contact with her peers. She struggled with day-to-day activities within the classroom as a result of her lack of peer engagement. Verbal communication for this subject was limited to very specific topics of interests and was mostly communicated with adults in the classroom rather than with her peers. Although this participant sometimes demonstrated a desire to attend to activities that her peers were involved with, by watching closely, she was never successful with attempts made to join in play.

The third participant in the study, Subject 90003, was a 5-year-old male in the second year of the Kindergarten program within an inclusive classroom. Similar to the other participants, he was not formally diagnosed with ASD by a licensed professional but was identified as experiencing social communication difficulties in school by his educators and school administration, as well as through the findings of the PIPPS and SSRS. This child demonstrated difficulties with attention, impulsivity, and emotional regulation. Frequent
outbursts and an inability to control his impulse to speak loudly or restrain himself from impulses to storm off in frustrating situations contributed to his peers avoiding engagement with him. His educators described him as having trouble following routines and daily classroom expectations. He struggled with perspective-taking and expected that everything he wanted to be unopposed. Because of these traits, the interactions that he did have with peers were almost always negative and resulted in frustration and acting out.

Once participants for this study were mutually agreed upon, the researchers sent out an Educator Letter of Invitation (Appendix C), an Educator Consent Letter (Appendix D), Parent(s) of Target Children and Peer Group Children Consent Letters (Appendix E), Parent(s) of Target Children Consent Letter (Appendix F), Parent(s) of Peer Group Children Consent Letter (Appendix G), Parent(s) of Peer Group Children in Control Classroom Consent Letter (Appendix H), and a Child Assent Form (Appendix I). Once forms were returned to the school, the researchers were able to set mutually agreed-upon dates with educators in order to begin training sessions for Stay, Play, and Talk, as well as set up the triad training for the participants.

**Research Methodology and Design**

Using a single case research design (SCRD), this study examined participants in both a control condition (pre-test) and an intervention (post-test). The target behaviours were measured repeatedly within the study in order to quantify the change. This study is both a) an experimental, pre-test/post-test design with a non-equivalent control group; and b) an observational, single-subject multiple baseline across behaviours design.

**Condition A: Experimental Component**

The research study involved two Kindergarten classrooms within the same school. The intervention classroom implemented the *Stay, Play, and Talk* intervention program within their current inclusive programming. Educators from the control (non-intervention) classroom did not
implement the program immediately but will complete delayed programming following completion of this research project (no data were taken in the latter case). This study was classified as an experimental design because the research established the possible cause and effect between the independent and dependent variables (Creswell, 2015). Due to the time constraints and role responsibilities within the school system, not all students’ social skills were measured.

**Condition B: Single-Subject Component**

This study involved three student participants with social communication difficulties from the classrooms as noted above. In consultation with the school board’s designated SLP, the Principal nominated the student participants. These individuals received 10-minute teaching/practice ‘triad’ sessions in addition to the Stay, Play, and Talk intervention program. This was done in a triad with both the target child, who was identified with social communication difficulties; and two peers who are typically-developing within the classroom environment. The intervention was led by one of three program facilitators comprised of a Child and Youth Worker (CYW), a Speech-Language Pathologist (SLP), and a Communication Disorders Assistant (CDA). This opportunity allowed for more intensive teaching of the social pragmatic communication skills for the children with social communication issues within an authentic classroom experience, a common technique used in the literature and often needed for individuals with social communication issues in order to generalize such skills (Hundert et al., 2014; Thiemann & Goldstein, 2004). In this method, social scripts with pictures were incorporated as strategies to assist the target child participants to develop social-communicative skills such as initiating, responding, and using social niceties in the activities, including board games and free-play activities. For the purpose of this research study, the social pragmatic skills were measured only for the target child in these triads and in the classroom when the remainder
of the class was participating in everyday classroom activities or the Stay, Play, and Talk program (Hundert et al., 2014). The single subject component was the focus of this study.

**Stay, Play, and Talk**

This pilot project was strongly based on the social exchange theory encapsulated by the Buddy Skills Training Program. Stay, Play, and Talk is a manualized intervention that promotes peer-mediated social skills development for children with social communication difficulties. The instructional manual introduced the program, provided a description of the peer-mediated approach, as well as provided a brief research review (All Kids Belong, Fanshawe College, & Thames Valley Children’s Centre, 2011).

Before the program was implemented, the manual provides an in-depth explanation of the preparation of the training environment and the children for the intervention. During this initial stage, it was necessary for the educators to determine whether prerequisite skills needed to be acquired or if there were any environmental considerations need to be made. The manual provided information on assessing the environment, including the child(ren) with social communication difficulties, and how to choose peers (All Kids Belong, Fanshawe College, & Thames Valley Children’s Centre, 2011).

The first step of the Stay, Play, and Talk program focused on the module of Diversity Awareness. This part of the intervention emphasizes, “accepting similarities and differences with other children” (p. 14). The manual provided a rationale, laid out activities that promote diversity awareness, and provided a lesson on similarities and differences. Step Two of the Stay, Play and Talk program centered around, “staying,” “playing,” and, “talking”. The core of this section taught peers how to interact with children with ASD and other social communication difficulties. This section was divided into three lessons: i) Stay with your friend; ii) Play with your friend; and iii) Talk with your friend. For each of these three lessons, the manual provided facilitator notes.
and suggested materials for successful implementation. Each of the three lessons began with an introduction to the skill – for instance, staying, playing, or talking – and explicit questions to ask the children in order to introduce target skill for that lesson. Next, each lesson provided a story to read and provided follow-up discussion points that encouraged discussion and questions about how the book related to the target skill of each lesson. Thirdly, each lesson focused on how to assess knowledge by giving specific questions to ask and suggestions for role-playing activities. The fourth part of each lesson required the intervention facilitator to lead a song called, “The More We Get Together.” This song is repeated throughout the intervention lessons and required that a new verse be added to the song as each lesson is completed. Fifth, the program focused on the practice and encouragement of the target skill for each lesson. The manual provided examples of class-wide reinforcement and rewards that were used throughout the program. Sixth, each lesson was focused on problem-solving; for instance, the manual provided specific examples that assist with challenges that are faced when teaching children with ASD and other social communication difficulties the target skill of the lesson. Lastly, each lesson provided next steps that were utilized once the lesson was completed. The manual emphasized that learning is more successful when the key concepts are repeated and practiced regularly. It was noted that with the repetition described throughout the manual, skills will be naturally integrated into the classroom’s daily schedule (All Kids Belong, Fanshawe College, & Thames Valley Children’s Centre, 2011).

**Instrumentation**

The data collection tools utilized throughout this study includes two published scales.

**Penn Interactive Peer Play Scale**

The first was the Penn Interactive Peer Play Scale (PIPPS) (McWayne, Sekino, Hampton, & Fantuzzo, 2007) (Appendix J). The PIPPS is a behavioural rating instrument that was utilized for understanding peer play behaviours as well as meeting the need for congruent play
assessment measures for parents and teachers across settings during early childhood (Fantuzzo & McWayne, 2002). The PIPPS is a 32-item rating scale used to evaluate interactive peer play (McWayne et al., 2007).

**Social Skills Improvement System: Rating Scales**

The second was the Social Skills Improvement System: Rating Scales (SSIS:RS) (Gresham & Elliott, 2008) (Appendix K). The SSIS:RS enabled the evaluation of social skills, problem behaviours, and academic competence of children.

These questionnaires were completed with respect to both the typically-developing peers selected randomly, as well as the three target children with social communication issues. For the purpose of this thesis project, the pre- and post-test questionnaires were not included in the findings; they are being described for contextual information only.

**Observations**

Observations were analyzed through iPad video recordings of the triad sessions. The observations were quantified using operational definitions (Table 1) and are presented in the findings. Utilizing the video recording option available through the camera app on the iPads, sessions were recorded on one of two password-protected iPads. A microphone was used to better capture the communication that occurred throughout each session. The iPad compatible microphones were plugged into the auxiliary port in the iPads and sat on the table with a microphone stand. The iPad was set up on the table in the landscape layout and stood with help of an Apple iPad folding smart cover case. The observers utilized the Tracking Social Interactions – Triad Tracking Sheets (Appendix L) in order to code each of the triad sessions. The Tracking Social Interactions – Triad Tracking Sheets were based on those used in the Buddy Skills Research Design and used in all three previous phases of this study.
<table>
<thead>
<tr>
<th><strong>Table 1</strong> Operational Definitions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiation</strong></td>
<td>Any positive/appropriate social communicative behaviour that begins an interaction by either an adult, the subject, a typically-developing peer, or another child with a disability. Can include both verbal and non-verbal initiations (i.e., a tap, a point, a hand lead, a smile, a hand flap, or a verbal greeting, passing a PEC, using a sign). An interaction ends when 10 seconds have passed since the last interaction or an adult re-starts the initiation with a new prompt. Initiations can be initiated by the peer or can occur unprompted.</td>
</tr>
<tr>
<td><strong>Response</strong></td>
<td>A positive/appropriate reaction to the initiation made by another person. Can be either verbal or non-verbal (i.e., eye gaze, turning head, responding verbally, orienting body). An interaction ends after 10 seconds have passed since the last response or an adult re-starts the initiation with a new prompt. Responses can be initiated by a peer or can occur unprompted.</td>
</tr>
<tr>
<td><strong>Utterance</strong></td>
<td>A verbal communicative behaviour that is an initiation or response to a peer or adult.</td>
</tr>
<tr>
<td><strong>Relative Utterances with Typically-Developing Peers</strong></td>
<td>The total number of utterances initiated by the subject, divided by the total number of utterances recorded in the ten-minute session.</td>
</tr>
<tr>
<td><strong>Total Utterances Between Subject and Typically-Developing Peers</strong></td>
<td>The total number of utterances recorded between the subject and a typically-developing peer(s) in a ten-minute session.</td>
</tr>
<tr>
<td><strong>Interactions Initiated by Subject</strong></td>
<td>The total number of utterances initiated by the subject directed at a typically-developing peer(s) in a ten-minute session.</td>
</tr>
</tbody>
</table>
Data Collection and Recording

The research project took place over a 12-week period. Data were collected throughout each 10-minute triad for each subject, three times per week. The triads were facilitated by one of three educators, and always included one target child and two typically-developing peers. Once a week, the researcher would visit the site and meet with the lead educator and transfer the video files on to a password protected encrypted laptop through a USB cord attached from the iPad to the laptop. At no time was an external memory stick used in the transfer of the data, in accordance to Brock University’s research and ethics application. Once the files were transferred, the researcher deleted the videos from the iPads and returned them to the educator. After each visit to the research site, the researcher transported the laptop to a secure location and met with two other observers. Utilizing the Tracking Social Interactions – Triad Tracking Sheets (Appendix L), Observer 1 and Observer 2 would code the communication that was observed on the videos. The third observer watched the videos and checked for fidelity (Appendix M). Observer 3 was also responsible for comparing Observer 1 and Observer 2’s Triad Tracking Sheets. This was done after each video and used an Inter-Observer Agreement Sheet (Appendix N). Approximately nine 10-minute videos were coded per session, depending on the attendance of the participants at school during each week.

During each triad, two typically-developing children, one target child, and one educator gathered at a table in the classroom to play a cooperative game that has been chosen by the educator. The cooperative games varied based on the interests of the children. The triad session began with the educator reminding the students of the principles of staying with their friends, playing with their friends, and talking to their friends. As a group, the children decided who would go first in the game. As the game was played, the educator sat back in their chair, slightly back from the table, so not to take over the cooperative game. The educator listened to the
communication between the typically-developing children and the target child and prompted the typically-developing children to support the target child, when appropriate.

**Coding**

After each weekly coding session, the data coded by the researcher was analyzed through the use of colour-coding the different types of interactions (Appendix O). Once colour-coded, the information was transferred to a spreadsheet, and the quantified data were transferred into the graphic display of a line graph. The line graphs were used to compare the data between conditions, from baseline to intervention. Line graphs are the most commonly used graphic displays for presenting daily data (Gast & Ledford, 2014). The decision to use line graphs for the display of the data in this study relied on Gast and Ledford’s (2017) suggestion that they are most recognizable to a large population of readers, therefore making them more understandable. It was also suggested that using a single line graph would be efficient to construct and would enable the researcher to continuously evaluate the effects of an intervention, allowing for formative evaluation in which to base the decision to either maintain or modify the condition each participant is in (Gast & Ledford, 2014). As a result of utilizing a line graph, the researchers had access to immediate information to guide the decision-making process of moving each subject into the next condition phase of the study (from Condition A: Baseline to Condition B: Intervention). This was done immediately after each coding session to ensure that the research team could report back any issues with program fidelity to educators in a timely matter.

**Data Analysis**

A data analysis was prepared based on the following information for each subject in each of the conditions (Condition A: Baseline and Condition B: Intervention): relative utterances with typically-developing peers; total number of utterances; and interactions initiated by the subjects, directed at a typically-developing peer.
The analysis within conditions were calculated using Gast and Ledford’s (2014) Visual Analysis of Graphic Data model. First, it was necessary to identify the condition sequence. For this study, the condition sequence – Condition A: Baseline and Condition B: Intervention – were recorded as A and B (Gast & Ledford, 2014). Next, the condition length for each subject was determined. These numbers were determined by counting the number of data points that were plotted in Condition A: Baseline and Condition B: Intervention (Gast & Ledford, 2014). In order to determine the level stability and range, the median level of Condition A and B was calculated by arranging the data points on each graph from lowest to highest and determining the middle data point (Gast & Ledford, 2014). To determine the level change with both Condition A and B, it was necessary to identify the relative level change within each condition. This was done by calculating the median value of the first half of the data path for each subject in each condition, and the median value of the second half of the data path for each subject in both conditions (Gast & Ledford, 2014). To identify the absolute level change within each condition, the data point values of the first day of each condition and the data point value of the last day of the condition were recorded, and the smaller number was subtracted from the larger number. The trend direction, either accelerating or decelerating, was determined by visual analysis to note whether the target behaviour is either increasing or decreasing. In order to determine the trend stability, the stability envelope was superimposed over the data points in both Condition A and Condition B. The stability envelope was moved up and down in order to capture as many data points as possible, while remaining parallel to the trend line. Lastly, to determine the data paths within trends using visual analysis, it was determined whether the distinct data paths within each condition is accelerating, decelerating, or zero-celerating by visual analysis to note whether the target behaviour was either increasing (accelerating) or decreasing (decelerating) or zero-celerating (staying the same). The objective of the analysis between adjacent conditions was to
determine whether the intervention was effective in increasing the socially acceptable behaviours in the subjects.

The percentage of non-overlapping data (PND), percentage of overlapping data (POD), effect size, percentage exceeding the median (PEM), and level trend variability were analysed throughout the study. PND was conceptualized as the percentage of treatment phase (Condition A: Baseline or Condition B: Intervention) that exceeds the noteworthy point – in this case, 0 – of the baseline phase (Lenz, 2013). The PND was calculated by a) determining the range of the data point values within the baseline condition; b) counting the number of data points that were plotted in the intervention condition; c) counting the number of data points in the intervention condition that fall outside of the range of data points in the baseline condition; and d) dividing the number of data points that fall outside of that range and dividing it by 100 (Gast & Ledford, 2014). PEM used a ratio that is based on the non-overlap of data between the two phases (Condition A: Baseline and Condition B: Intervention) (Lenz, 2013), while utilizing data from both phases to determine the efficacy of the intervention (Parker, Hagan-Burke, & Vanest, 2007). PEM was calculated by drawing a median line through the baseline condition data and calculating the percentage of data points within the intervention condition that fall above the median line (Ma, 2006). The POD was calculated by a) determining the range of the data point values within the baseline condition; b) counting the number of data points that were plotted in the intervention condition; c) counting the number of data points in the intervention condition that fall inside of the range of data points in the baseline condition; and d) dividing the number of data points that fall inside of that range and dividing it by 100 (Gast & Ledford, 2014).

The level trend variability was established by examining the position of the data set that was taken from the y-axis of each graph; the trends were established by assessing the direction of the target behaviours were taking within each condition across each graph. Effect size was
calculated for both PND and PEM; each method used to calculate effect size yields a proportion of the data collected between the baseline and the treatment (Condition B: Intervention) of the study (Lenz, 2013). Scruggs and Mastropieri (1998) suggest that effect sizes with a score =/< .90 are considered effective treatments, that scores between .70 to .89 are considered moderately effective, that scores between .50-.69 are considered debatably effective, and that scores >.50 are considered as not effective (as cited in Lenz, 2013).

Limitations

Reliable conclusions about the effectiveness of the intervention were achieved using a multiple-baseline design, in which there was a single transition from the baseline phase to the intervention phase that are instituted at different times across the target children’s behaviours (Byiers, Reichle, & Symons, 2012). The logic that all single-subject designs rely on the child’s ability to replicate the effects of the independent variable – in this case, the intervention – is prevalent throughout this study (Byiers et al., 2012). Once the skill is learned – staying, playing, and talking – it does not diminish from the child’s skill set. Skill development, such as social communication skills, are an example of a behaviour that are irreversible because the participant acquires the ability to perform a task during the intervention, and it cannot be unlearned simply by removing the intervention. The challenge of this irreversibility is in the verification of single-case research because the initial prediction associated with the participants’ baseline performance is not easily verified simply by removing the intervention (Jimerson, Burns, & VanDerHey, 2016). However, if we assume that once a skill is learned, it cannot be unlearned, we can reasonably assume that once the intervention is removed, the children will still possess the learned skill. The goal of the intervention was to expose the target children to a behaviour intervention in order to produce positive a change in their social communication skill development, using a multiple baseline across participants design.
**Inter-Observer Agreement**

*Inter-observer agreement* (IOA) is the most commonly used indicator of measurement quality in the field of ABA (Cooper, Heron, & Heward, 2007); IOA calculations are the degree to which the two observers report the same observed values of the data being analyzed after measuring the same event (Cooper et al., 2007) – in this instance, after each 10-minute triad session. The IOA measures for this study a) determined the competence of the two observers; b) judge whether the operational definitions of the target behaviours were clear; and c) validated the coded data (Cooper et al., 2007).

Similar to most single case experimental designs that are the focus of education research, human observers were used throughout this study to record results (Ledford, Wolery, Meeker, & Wehby, 2012). For this study, the two observers also served as the data-coders. The observers were Research Assistants (RAs) with some prior experience with children with social communication difficulties and/or experience working with young Kindergarten children. Throughout this study, two observers simultaneously, but independently, watched the same videos of the participants in the triads, made observations, and coded the data they collected. The records of both observers were immediately compared after each video to determine the extent to which each of the two observers applied the operational definitions used for each target behaviour while recording (Ledford et al., 2012). Throughout the entire study, these comparisons were made, and have been reported as Inter-Observer Agreement (IOA). Dividing the number of agreements for each utterance throughout the 10-minute triad by the number of disagreements and multiplying this by 100 calculated the IOA. The criterion set for this study as acceptable were the following: IOA <80% IOA is unacceptable, 80%-85% is the minimum acceptable IOA, and >90% is best practice (Billingsley, & Jenson, 2011)
If the IOA was below the set IOA, the observers were re-trained and were responsible for re-coding that session. The retraining of the observers consisted of reviewing the operational definitions, how to calculate interactions, and procedural integrity. IOA was collected on 100% of the sessions. In total, 30% of the IOA data were randomly selected using selected using https://www.randomizer.org/ and reported in this study (see Chapter Four: Results). Treatment Fidelity was also monitored throughout the study using a predetermined set of criteria.

**Ethics Clearance**

Prior to the start of this study, the researcher completed the *Ethical Conduct for Research Involving Humans, 2nd Edition* (TCPS2) in accordance to the Tri-Council Policy Statement (Appendix P) (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada & Social Sciences and Humanities Research Council of Canada, 2014). In addition, an *Application to Involve Human Participants in Research* (REBAApp) was submitted and approved to the both University of Guelph Research Ethics Board (REB) on May 21, 2015, and Brock University on June 10, 2015. An application for External Research Request was submitted and was approved by the Halton Catholic District School Board on June 8, 2015.

**Risk**

There were psychological and social risks associated with participation in the study; however, these risks were not greater than those the participant would have encountered in their everyday life. There was a slight risk for the child participants in the intensive teaching sessions to experience some psychological and social risks by participating in the sessions; however, sessions were facilitated as directed play sessions in which the children, both the child participant with social communication difficulties and the other two typically-developing children, received the same intervention. There was no identification of the participating children as being any different than the other children by the adult facilitators. In addition, the focus of
the program was on diversity training and acceptance, and facilitators’ main focus was on children treating each other with respect. The anticipated focus did not single out participating children therefore minimizing the risks.

It was assessed that the parents of the participants may feel uncomfortable with their child’s involvement in the in-class intensive teaching sessions; however, during intensive teaching sessions, the participants continued to be fully included in the classroom environment with their typically-developing peers in a triad, making them less identifiable. Another risk that was assessed prior to the start of the study was in regard to the participating educators and their feelings about completing measures for children in their classroom. These risks were minimal as similar assessments are conducted on an ongoing basis in the course of their work. In classroom environments, educators regularly undertake new programming and are frequently asked for their feedback, so this risk is not beyond the scope of their everyday job requirements.

**Restatement of the Area of Study**

Utilizing the series of observations, the social communication behaviours observed in participants were coded and analyzed in order to evaluate the social communication outcomes of the children receiving the *Stay, Play, and Talk* intervention in a single-case research design framework. Results will be presented in order to assess the effectiveness of the intervention for each of the subjects.
CHAPTER FOUR: RESULTS

The purpose of the research study was to identify and assess the effectiveness of Stay, Play, and Talk: A Peer-Mediated Social Skills Program for Children with ASD and Other Social Communication Difficulties. Overall, three target students were the focus of the intervention, as outlined in the methodology section of this paper. As the purpose of this project was to assess the effectiveness of the intervention, the three most noteworthy changes – relative utterances with typically-developing peers, total utterances between the subject and their typically-developing peers, and interactions initiated by the subject – have been presented throughout this chapter.

The condition length for each subject varied based on the researchers’ decision of when each was moved into the intervention phase of the study:

- Subject 90001: 20 sessions in the baseline phase, and 8 sessions in the intervention phase
- Subject 90002: 14 sessions in the baseline phase and 16 sessions in the intervention phase
- Subject 90003: 6 sessions in the baseline phase, and 27 sessions in the intervention phase

Utilizing multiple baselines across participants design allowed the researchers to expose the target children to the intervention at different times in order to validate whether the observed changes in their social communication behaviours were a result of the intervention taking place. Each subject was observed participating in a cooperative game within a triad, and their social communication was recorded. The data collected during the baseline phase was coded and analysed after each session. The researcher looked for a stable baseline for each participant before moving them into the intervention phase. Because of this multiple baseline approach, it can be concluded that the intervention is responsible for the outcomes of each of the participants.

Overall, there is an average of a 94% – range of 92% to 96% – IOA for this study. The IOA is also broken down by subject as follows: Subject 90001 has a 96% IOA, Subject 90002
has a 94% IOA, and Subject 90003 has a 92% IOA (Table 2). It is concluded, then, that the IOA would be considered almost perfect with such high percentages.
Table 2

*Inter-Observer Agreement Calculations*

<table>
<thead>
<tr>
<th>Session</th>
<th>Observer 1 Total Utterances</th>
<th>Observer 1 TDP-S</th>
<th>TDP-S S-TDP</th>
<th>Observer 2 Total Utterances</th>
<th>TDP-S</th>
<th>TDP-S S-TDP</th>
<th>IOA</th>
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<tr>
<td>2</td>
<td>55</td>
<td>9</td>
<td>54</td>
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<td></td>
</tr>
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<td>4</td>
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*TDP-S = Typically-Developing Peer(s) to Subject*  
*S-TDP = Subject to Typically-Developing Peer(s)*
Relative Utterances with Typically-Developing Peers

The data collected was coded and analysed to examine the first trend: relative utterances with typically-developing peers. Each week, the sessions were observed and analysed by a group of three RAs. The decision to move each subject from the baseline phase to the intervention phase is a result of visually analysing the data collected in Figure 1, which uses the data represented in Table 3.

---

Table 3

3 As discussed in detail in the methodology section, the calculation(s) used to determine the relative utterances with typically-developing peers is: total number of utterances ÷ (total number of utterances initiated by the subject to their typically-developing peer(s) + total number of utterances initiated by the typically-developing peers directed to the subject).
### Relative Utterances Between Subject and Typically-Developing Peer(s)

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<th>Subject 90002</th>
<th>Subject 90003</th>
</tr>
</thead>
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</tbody>
</table>

**S-TDP** = Subject to Typically-Developing Peer(s)  **TDP-S** = Typically-Developing Peer(s) to Subject
Figure 1. Relative Utterances with Typically-Developing Peers.

*This data was used to inform decisions of a change in condition for each of the subjects*
Subject 90003

Subject 90003 was the first subject to move into the intervention phase of the research study. As illustrated in Figure 1, the median level change within condition analysis shows 0.03 in the baseline condition, compared to 0.42 in the intervention condition (Gast & Ledford, 2014). The mean level is 0.09 in the baseline condition, compared to 0.44 in the intervention condition (Gast & Ledford, 2014).

The range level for the baseline condition was calculated at 0.00-0.30 in the baseline phase, and 0.17-0.90 in the intervention phase (Gast & Ledford, 2014). The stability envelope for Subject 90003 in the baseline condition was 0.02 in the baseline condition, compared to 0.64 in the intervention condition (Gast & Ledford, 2014).

The relative level change in the baseline condition was 0.24, and 0.17 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 0.30 during the baseline condition, compared to 0.73 in the intervention condition (Gast & Ledford, 2014). These level changes are considered as a *therapeutic effect*, which refers to when the responses(s) after a treatment of any kind are judged to be desirable and beneficial. The therapeutic level changes that occurred from the baseline to the intervention are a result of the increased social communication skills that were observed throughout the triad sessions.

The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention. The results of the accelerating trend validate that the subject demonstrated an increase in relative utterances with typically-developing peers as a result of the intervention taking place. The stability across both conditions is variable, and there are multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive, which indicates that there was an increase in relative utterances with typically-
developing peers. Thus, both the effect and stability change within the trend are variable (Gast & Ledford, 2014).

The level of relative change in the condition comparison was +0.30 (improving), while the level of absolute change in the condition comparison was +0.28 (improving). Moreover, the level median change is 0.39 (improving), while the level of mean change was -0.46 (deteriorating) (Gast & Ledford, 2014).

The PND was calculated at 85.70%, resulting in the POD being calculated at 14.20% (Gast & Ledford, 2014).

**Subject 90002**

Figure 1 also illustrates the median level change within condition analysis for Subject 90002 at 0.08 in the baseline condition, compared to 0.41 in the intervention condition (Gast & Ledford, 2014). The mean level was 0.07 in the baseline condition, compared to 0.42 in the intervention condition (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 0.00-0.27 in the baseline phase, and 0.17-0.78 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90002 in the baseline condition was 0.04, compared to 0.06 in the intervention condition (Gast & Ledford, 2014). The relative level change in the baseline condition is 0.14, and 0.11 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject is 0.27 during the baseline condition, compared to 0.61 in the intervention condition (Gast & Ledford, 2014). Similar to Subject 90003, these level changes were considered therapeutic. The therapeutic level changes that occurred from the baseline to the intervention were the result of the increased social communication skills that were observed throughout the triad sessions. The trend direction throughout the baseline condition was decelerating, compared to accelerating in the intervention
condition. The results of the accelerating level trends validate that the subject demonstrated an increase in relative utterances with typically-developing peers as a result of the intervention taking place.

The stability across both conditions were variable, and there were multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). Within condition comparisons, the change in direction in the trend was positive, which indicates that there was an increase in relative utterances with typically-developing peers.

The level of relative change in the condition comparison was +0.18 (improving), while the level of absolute change in the condition comparison was +0.17 (improving). Furthermore, the level median change was +0.33 (improving), and the level of mean change was +0.35 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends further validate that as a result of the intervention taking place, the subject demonstrated an increase in relative utterances with typically-developing peers.

The PND was calculated at 93.75%, resulting in the POD being calculated at 6.25% (Gast & Ledford, 2014).

**Subject 90001**

Lastly, Figure 1 illustrates the median level change within condition analysis for Subject 90001 at 0.10 in the baseline condition, compared to 0.48 in the intervention condition (Gast & Ledford, 2014). The mean level was 0.08 in the baseline condition, compared to 0.53 in the intervention phase (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 0.00-0.43 in the baseline phase, and 0.37-0.66 in the intervention phase (Gast & Ledford, 2014).
The stability envelope for Subject 90001 in the baseline condition was 2.00, compared to 0.39 within the intervention phase (Gast & Ledford, 2014). The relative level change in the baseline condition was 0.13, and 0.22 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 0.43 during the baseline data collection, compared to 0.29 in the intervention phase (Gast & Ledford, 2014). These level changes are considered *counter-therapeutic*, which refers to when the responses(s) after a treatment of any kind are judged to be non-desirable and unbefitting. The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention.

The level changes that occur from the baseline condition to the intervention condition were the result of the variable increases in the relative utterances with typically-developing peers.

The stability across both conditions were variable. There were multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). The level of relative change in the condition comparison was +0.25 (improving), while the level of absolute change in the condition comparison was +0.66 (improving). Moreover, the level median change was 0.38 (improving), while the level of mean change was -0.09 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends continued to validate that the subject demonstrated an increase in the relative utterances with typically-developing peers as a result of the intervention taking place.

The PND was calculated at 33.00%, resulting in POD being calculated at 67.00% (Gast & Ledford, 2014).

Compelling evidence shown in Figure 1 thus illustrates that there was a functional relationship between each of the subjects entering the intervention condition and the systematic increase in the measured relative utterances with typically-developing peers.
Total Number of Utterances

Within this study, an *utterance* was defined as an uninterrupted chain of spoken language among the subject and their typically-developing peers (Maich & Hall, 2015). As discussed in detail within the methodology section, the total number of utterances was determined by coding the communication that occurred throughout each triad session between the subject and three of his/her typically-developing peers. Once the data were coded, each of the utterances were counted, and the IOA was examined.
### Table 4

**Total Number of Utterances**

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Figure 2. Total Number of Utterances.

* This data was not used to inform decisions of a change in condition for each of the subjects, rather it is a collection of extracted data throughout the research project.
Subject 90003

As previously noted, Subject 90003 was the first subject to move into the intervention phase of the research study. As illustrated in Figure 2, the median level change within condition analysis showed 35.00 in the baseline condition, compared to 78.00 in the intervention condition (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 20.00-82.00 in the baseline phase, and 29.00-119.00 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90003 in the baseline condition was 7.00 compared to 23.00 in the intervention phase (Gast & Ledford, 2014). The relative level change in the baseline condition is 42.00, and 34.00 within the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 24.00-45.00 during the baseline data collection, compared to 68.00-80.00 in the intervention phase. The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention. The stability across both conditions were variable, and there were multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive, which indicates that there was an increase in the total number of utterances for this subject as the result of moving from the baseline condition to the intervention condition.

Within condition comparisons, the change in direction in the trend was positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). The level of relative change in the condition comparison was -1, and the level of absolute change in the condition comparison was +56.00 (improving). Moreover, the level median change is +44.00 (improving), while the level of mean change was +35.00 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends validate that as a result of the intervention taking place, the subjects demonstrated an increase in the total number of utterances.
The PND was calculated at 41.00%, while the POD was calculated at 59.00% (Gast & Ledford, 2014).

**Subject 90002**

Subject 90002 is the second subject to move into the intervention phase of the research study. As illustrated in Figure 2, the median level change within condition analysis shows 53.00 in the baseline condition, compared to 94.00 in the intervention condition (Gast & Ledford, 2014). The mean level was 54.00 in the baseline condition, compared to 95.00 in the intervention condition (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 20.00-83.00 in the baseline condition, and 46.00-134.00 in the intervention condition (Gast & Ledford, 2014).

The stability envelope for Subject 90002 in the baseline condition was 11.00 compared to 43.00 in the intervention phase (Gast & Ledford, 2014). The relative level change in the baseline condition was 23.00, and 33.00 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 55.00-80.00 during the baseline data condition, compared to 69.00-132.00 in the intervention condition (Gast & Ledford, 2014). These level changes were considered therapeutic; the therapeutic level changes that occurred from the baseline to the intervention are a result of the increased total number of utterances.

The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention. The stability across both conditions were variable and there were multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive, which indicates that there was an increase the total number of utterances from the baseline condition to the intervention.

Within condition comparisons, the change in direction in the trend was positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). The level of
relative change in the condition comparison was -7.00 (deteriorating), and the level of absolute change in the condition comparison was +14.00 (improving). Moreover, the level median change was +41.00 (improving), and the level of mean change +41.00 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends validate that as a result of the intervention taking place, the subject demonstrated an increase in the total number of utterances.

The PND was calculated at 69.00%, while the POD was calculated at 31.00% (Gast & Ledford, 2014).

**Subject 90001**

Subject 90001 is the last subject to move into the intervention phase of the research study. As illustrated in Figure 2, the median level change within condition analysis shows 47.00 in the baseline condition, compared to 78.00 in the intervention condition (Gast & Ledford, 2014). The mean level was 47.00 in the baseline condition, compared to 78.00 in the intervention phase (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 23.00-71.00, in the baseline phase, and 63.00-104.00 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90001 in the baseline condition was 11.00, compared to 49.00 within the intervention phase (Gast & Ledford, 2014). The relative level change in the baseline condition was 16.00, and 20.00 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 37.00-57.00 during the baseline data collection, compared to 71.00-71.00 in the intervention phase (Gast & Ledford, 2014). The trend direction throughout the baseline phase was decelerating compared to levels in the intervention. The stability across both conditions were variable and there were multiple paths within the trend. Both the effect and stability change within the trend were variable (Gast &
Ledford, 2014). Within condition comparisons, the change in direction in the trend was positive which indicates that there was an increase in the total number of utterances.

The level of relative change in the condition comparison was +11.00 (improving), and the level of absolute change in the condition comparison was +14.00 (improving). Furthermore, the level median change was +31.50 (improving), and the level of mean change was +32.00 (improving) (Gast & Ledford, 2014). The therapeutic level changes that occurred from the baseline condition to the intervention condition were the result of the increased total number of utterances.

The PND was calculated at 50.00%, which led to the POD also being calculated at 50.00% (Gast & Ledford, 2014).
Interactions Initiated by Subject Directed at a Typically-Developing Peer

The final data analysis that was calculated for this study involved determining if there was a change in the number of interactions initiated by the subject that were directed at their typically-developing peers, rather than to the adult (Table 5).
Table 5

*Interactions Initiated by Subject to Typically-Developing Peer(s)*

<table>
<thead>
<tr>
<th>Session Number</th>
<th>Subject 90001</th>
<th>Subject 90002</th>
<th>Subject 90003</th>
</tr>
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*S/TDP = Subject to Typically-Developing Peer(s)*
Figure 3. Interactions Initiated by Subject Directed at a Typically-Developing Peer.

* This data was not used to inform decisions of a change in condition for each of the subjects, rather it is a collection of extracted data throughout the research project.
Subject 90003

As illustrated in Figure 3, the median level change within condition analysis for Subject 90003 shows 0.50 in the baseline condition, compared to 10 in the intervention condition (Gast & Ledford, 2014). The mean level was 0.50 in the baseline condition, compared to 17.50 in the intervention phase (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 0.0-1.0 in the baseline phase, and 0.00-27.00 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90003 in the baseline condition and intervention phase remained steady at is 0.30 (Gast & Ledford, 2014). The relative level change in the baseline condition was 0.50, and 17.50 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 1.00 during the baseline data collection, compared to 27.00 in the intervention phase (Gast & Ledford, 2014). These level changes were considered therapeutic. The therapeutic level changes that occurred from the baseline to the intervention were the result of the increased interactions initiated by the subject directed at a typically-developing peer.

The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention. The stability across both conditions were variable and there were multiple paths within the trends. Within condition comparisons, the change in direction in the trend was positive, which indicates that there was an increase in the interactions initiated by the subject directed at the typically-developing peers.

Within condition comparisons, the change in direction in the trend was positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). The level of relative change in the condition comparison was +2.25 (improving), while the level of absolute change in the condition comparison was +1.00 (improving). In addition, the level median change
was +9.50 (improving), while the level of mean change was +7.10 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends validate that as a result of the intervention taking place, the subjects demonstrated an increase in interactions initiated by the subject directed at a typically-developing peer.

The PND was calculated at 88.90%, resulting in the POD being calculated at 11.10% (Gast & Ledford, 2014).

**Subject 90002**

Figure 3 illustrates that the median level change for within condition analysis for Subject 90002 was 3.00 in the baseline condition, compared to 8.00 in the intervention condition (Gast & Ledford, 2014). The mean level was 2.14 in the baseline condition, compared to 11.69 in the intervention phase (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 0.00-8.00 in the baseline phase, and 0.00-36.00 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90002 in the baseline condition was 0.42 in the baseline phase, compared to 1.28 in the intervention phase (Gast & Ledford, 2014). The relative level change in the baseline condition was 6.00, and 14.50 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 8.00 during the baseline data collection, compared to 36.00 in the intervention phase (Gast & Ledford, 2014). These level changes were considered therapeutic. The therapeutic level changes that occurred from the baseline to the intervention were the result of the increased interactions initiated by the subject directed at a typically-developing peer.

The trend direction throughout the baseline phase was decelerating, compared to accelerating in the intervention. The stability across both conditions were variable, and there were multiple paths within the trends. Within condition comparisons, the change in direction in
the trend was positive, which indicates that there was an increase in the interactions initiated by the subject directed at a typically-developing peer. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014).

The level of relative change in the condition comparison was +2.50 (improving), and the level of absolute change in the condition comparison was -1.00 (deteriorating). Additionally, the level median change was +5.00 (improving), and the level of mean +9.54 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends validate that as a result of the intervention taking place, the subjects demonstrated an increase in their social communication skills.

The PND was calculated at 93.75%, resulting in the POD being calculated at 6.25% (Gast & Ledford, 2014).

**Subject 90001**

Lastly, Figure 3 illustrates the median level change within condition analysis for Subject 90001 as being 3.50 in the baseline condition, compared to 15.75 in the intervention condition (Gast & Ledford, 2014). The mean level was 1.70 in the baseline condition, compared to 15.75 in the intervention phase (Gast & Ledford, 2014). The range level for the baseline condition was calculated at 0.00-8.00 in the baseline phase, and 5.00-28.00 in the intervention phase (Gast & Ledford, 2014).

The stability envelope for Subject 90001 in the baseline condition was 0.70, compared to 12.60 within the intervention condition (Gast & Ledford, 2014). The relative level change in the baseline condition was 4.00, and 16.00 in the intervention condition (Gast & Ledford, 2014). The absolute change in the baseline condition for this subject was 8.00 during the baseline data collection, compared to 23.00 in the intervention condition (Gast & Ledford, 2014). The trend
direction throughout the baseline condition was decelerating, compared to accelerating in the intervention.

The stability across both conditions were variable and there were multiple paths within the trends. Within condition comparisons, the change in direction in the trend were positive. Both the effect and stability change within the trend were variable (Gast & Ledford, 2014). The level of relative change in the condition comparison was +6.50 (improving), while the level of absolute change in the condition comparison was +10.00 (improving). Furthermore, the level median change was +12.25 (improving), while the level of mean change was +14.05 (improving) (Gast & Ledford, 2014). The results of the accelerating level trends validated that as a result of the intervention taking place, the subjects demonstrated an increase in the interactions initiated by the subject directed at a typically-developing peer.

The PND was calculated at 100%, which led to the POD being calculated at 0% (Gast & Ledford, 2014).

**Summary of Findings**

The purpose of the research study was to identify and assess the effectiveness of *Stay, Play, and Talk: A Peer-Mediated Social Skills Program for Children with ASD and Other Social Communication Difficulties*. Within the last ten years, there has been an increase in the number of strategies used for the systemic evaluation of quantitative data found in single case study research designs, as, “prior to these developments, researchers relied heavily on the visual inspection of the data trends illustrated on graphical representations to determine whether meaningful change had been noted between the baseline and treatment phases” (Lenz, 2013, p. 65).

The findings of this research study examined the percentage of non-overlapping data (PND), effect size, percentage exceeding the median (PEM), and level trend variability. The
multiple baseline across participants (Gast, 2010) approach was used to evaluate the effectiveness of the intervention on the social communication interactions of the three Kindergarten participants (Reynolds, Gast, & Luscre, 2015).

Chapter Five will present the results from this study, while demonstrating the beneficial effects of the Stay, Play, and Talk intervention for children with ASD and other social communication difficulties within a Kindergarten classroom.
CHAPTER FIVE: DISCUSSION

Results from this study demonstrated the beneficial effects of the Stay, Play, and Talk intervention for children with social communication difficulties within a Kindergarten classroom. By recognizing and understanding that simply integrating children with social communication difficulties into inclusive classrooms does not guarantee any specific progress in skill development, there is a growing need for effective EPIs as being essential components that can support the diverse student needs present within the modern classroom. Referring back to the conceptual framework of the study, there are six developmental domains – physical, motor, perceptual, cognitive, speech and language, and social-emotional development – that were established to accurately assess a child’s developmental progress. Recognizing that each of these domains are separate, but integrally related to and interdependent with each other, in the overall developmental process has established the importance of targeting specific domains, such as social communication, that are affected by those with ASD and other social communication difficulties in order to facilitate the overall development of these children.

Throughout this chapter, the conceptual framework will be reviewed, while discussing the overall changes in each subject’s social communication skills both pre- and post-intervention based on the findings. The implications of this research and future direction of this study will also be discussed.

Conceptual Framework

Knowing that children with ASD and other social communication difficulties have impairments related to social interactions and have difficulty effectively communicating with others (American Psychiatric Association, 2013) means that there is a need to focus interventions on these deficits in order to lessen or eliminate the difficulties related to both social interactions and communication with others, which can each lead to negative experiences while at school.
PMIs are identified as one of the most effective EBIs to target social skills development (Chan et al., 2009).

Theoretical models, such as the Reciprocal Effects Peer Interaction Model (REPM), detail how children with ASD and other social communication difficulties can experience an increase in social deficiencies. Specifically, Weiner’s *attribution theory* (1986) promotes teaching typically-developing peers about their classmates’ specific needs. The results include a better understanding of the difficulties that others face, an increase in empathy, and a step closer to full inclusion. By incorporating this type of model in the *Stay, Play and Talk* intervention, researchers are able to facilitate the necessary responsiveness that is needed for developing new behavioural approaches for the three target students within the study.

**Intervention Outcomes**

Social communication deficits are the core characteristics of children with ASD, and directly influence a child’s ability to develop, function, and participate in school environments (Kamps et al., 2015). There are many recent reviews that support this peer-mediated intervention as a means of significantly improving social communication skills (Cappadocia & Weiss, 2011; Reichow & Volkmar, 2010; Strain & Schwartz, 2001; Walton & Ingersoll, 2013; Wang et al., 2012; Webb, Miller, Pierce, Strawser & Jones, 2004). Peer-reviewed research studies that link components of evidence-based practices, such as peer-mediation, have shown positive results for improving social communication skills (Ganz, Kaylor, Bourgeois, & Hadden, 2008; Kamps et al., 2014; Parker & Kamps, 2011; Thiemann & Goldstein, 2004). The outcomes of the fourth phase of this study support this literature, as the results showed that the three subjects were responsive to the intervention and showed increases in their relative utterances with their typically-developing peers as a result of moving from one condition to the other.
Evaluating the effectiveness of the Stay, Play, and Talk intervention on increasing the social communication skills of children with social communication difficulties was addressed throughout the study. The following is a breakdown of the change in social communication skills for each of the subjects in the study.

**Outcomes of the Intervention for Subject 90001**

As discussed in detail in Chapter Three, Subject 90001 was a 5-year-old male who struggled to regulate his emotions, had frequent outbursts of frustration, and was demonstrating a deficit in social skills development in comparison to his peers. Although not often described as a formal criterion of ASD, impaired emotion regulation is observed in almost all the core social and behavioural characteristics, from social anxiety and withdrawal to intense emotional outbursts in the face of deviation from routine and preferred activities (American Psychiatric Association, 2013).

The positive changes in the levels of *relative utterances with typically developing peers* (see figure 1) from the baseline condition to the intervention condition can be determined as being the result of the intervention taking place because there was a systematic increase in the measured relative utterances for subject 90001 with typically-developing peers from one condition to the other. The PND calculation of 33% was reflective of an unreliable treatment (Wendt, 2007) for increasing relative utterances between subject 90001 with their typically-developing peers; however, the effect size was calculated at 1.0 (PEM 100%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing relative utterances between subject 90001 with their typically developing peers.

The positive changes in the levels in the *total number of utterances* (Figure 2) from the baseline condition to the intervention condition were determined as being the result of the intervention taking place because there was a systematic increase in the measured total number
of utterances for subject 90001. The PND calculation of 50% reflects a questionable effectiveness (Wendt, 2007) of the intervention at increasing the total number of utterances for subject 9001. The effect size was calculated at 1.0 (PEM 100%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing the total number of utterances for subject 90001.

The positive changes in the levels in interactions initiated by the subject directed at a typically developing peer (see figure 3) from the baseline phase to the intervention phase were determined as being the result of the intervention taking place, because there was a systematic increase in the measured interactions initiated by subject 90001 directed at a typically-developing peer. The PND calculation of 100% is reflective of a highly effective treatment (Wendt, 2007) to increase the interactions initiated by subject 90001, directed at a typically-developing peer. The effect size was calculated at 1.0 (PEM 100%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing the interactions initiated by subject 90001 directed at a typically developing peer.

Although not part of the original research design, educators provided the researchers with anecdotal observations that summarize the improvements documented and can be presumed related to the intervention and will be used to support the outcome findings. The educators reported that Subject 90001 responded positively to the Stay, Play, and Talk intervention. It was noted that the child was better able to understand social cues and, as a result, demonstrated a better understanding of following classroom schedules and routines on a daily basis. The educators also reported that the typically-developing peers in the classroom began to include Subject 90001 in their play by initiating an invitation and encouraging participation throughout the play and would also assist the child with following routines – for instance, by calling them to line up at the door with the other children during transition times. The educators reported that
Subject 90001 began to demonstrate an increase in perspective-taking and empathy, which was not seen prior to the intervention.

Outcomes of the Intervention for Subject 90002

As discussed in detail in Chapter Three, Subject 90002 was a 5-year-old female who demonstrated signs of social anxiety, a lack of verbal communication skills with peers, and was unable to attend to her peers. Apart from the core difficulties in social reciprocity and communication skills among children with ASD and other social communication skills, it is reported that it is also common for them to exhibit signs of being socially anxious. These same children are often described as behaviourally inhibited, over-regulated, and risk-averse due to experiencing social anxiety (Beidel & Turner, 2007; Crozier & Alden, 2001; Pugliese, White, White, & Ollendick, 2013).

The positive changes observed in the levels of relative utterances with typically developing peers (see figure 1) from the baseline condition to the intervention condition can be determined as being the result of the intervention taking place because there was a systematic increase in the measured relative utterances for subject 90002 with their typically-developing peers. The PND of 93.7% was reflective of a highly effective treatment (Wendt, 2007) for at increasing relative utterances with typically-developing peers. The effect size was calculated at 1.0 (PEM 100%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing relative utterances between subject 90002 and their typically-developing peers.

The positive changes in the levels in the total number of utterances (Figure 2) from the baseline condition to the intervention condition can be determined as being the result of the intervention taking place because there was a systematic increase in the measured total number of utterances for subject 90002. The PND calculation of 69% reflect questionable effectiveness
(Wendt, 2007) of the intervention at increasing the total number of utterances for subject 90002. The effect size was calculated at 0.94 (PEM 94%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing the total number of utterances for subject 90002.

The positive changes in the levels in the interactions initiated by the subject directed at a typically developing peer (see figure 3) from the baseline phase to the intervention phase were determined as being the result of the intervention taking place because there was a systematic increase in the measured interactions initiated by subject 90002 directed at a typically-developing peer. The PND calculated at over 93% reflect a highly effective treatment (Wendt, 2007) for increasing the interactions initiated by subject 90002 directed at a typically-developing peer. The effect size was calculated at 0.81 (PEM 81%), which is indicative of a moderately effective treatment (Scruggs & Mastropieri, 1998) for increasing the interaction initiated by subject 90003 directed at a typically developing peer.

Although not part of the original research design, educators provided the researchers with anecdotal observations that summarize the improvements documented and can be presumed related to the intervention and will be used to support the outcome findings. Post-intervention, educators reported there were noteworthy improvements in the social communication development of Subject 90002. The parents of the child also reported that since the intervention took place, the child has begun making friends in the classroom and the school, and seems to have decreased levels of social anxiety, better emotional regulations, and is showing signs of being interested in socializing with peers more than with adults. It was reported that Subject 90002 now expresses a love for attending school and is also able to go to the park and socialize with unfamiliar typically-developing children. Subject 90002 has been able to attend peers’ birthday parties, and no longer requires the support of parents to remain in the same location.
The educators report that the child’s vocabulary and sentence length has also improved with the increase in social interactions after participating in the *Stay, Play, and Talk* intervention. The parents are happy to report that their child now talks about how much they love going to school while sharing stories about their friends, which was noticeably absent prior to the intervention.

**Outcomes of the Intervention for Subject 90003**

As discussed in detail in Chapter Three, Subject 90003 was a 5-year-old who demonstrated difficulties with attention, impulsivity, and emotional regulation. Although inattention and impulsivity are the primary symptoms and diagnostic criteria for an Attention-Deficit/Hyperactivity Disorder (ADHD), they are also often reported in children with ASD and other social communication difficulties (American Psychiatric Association, 2013).

The positive changes observed in the levels of *relative utterances with typically developing peers* (see figure 1) from the baseline condition to the intervention condition, can be determined as being the result of the intervention taking place because there is a systematic increase in the measured relative utterances with typically-developing peers in this condition. The PND score is reflective of a fairly-effective treatment (Wendt, 2007) for subject 9003 for increasing relative utterances with their typically-developing peers. The effect size was calculated at 1.0 (PEM 100%), which is indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing relative utterances between subject 90003 with typically-developing peers.

The positive changes in the levels of *total number of utterances* (see figure 2) from the baseline phase to the intervention phase can be determined as being the result of the intervention taking place because there was a systematic increase in the measured total number of utterances by subject 90003 from the baseline condition to the intervention condition. The 41% PND reflected that the treatment was unreliable (Wendt, 2007) at increasing the total number of
utterances for subject 90003. The effect size was calculated at 1.0 (PEM 100%), which was indicative of a very effective treatment (Scruggs & Mastropieri, 1998) for increasing total number of utterances for subject 90003.

The positive changes in the levels in the interactions initiated by the subject directed at a typically developing peer (see figure 3) from the baseline condition to the intervention condition were determined as being the result of the intervention taking place because there was a systematic increase in the measured interactions initiated by subject 90003 directed at a typically-developing peer. The PND calculation of over 88% reflects a fairly-effective treatment (Wendt, 2007) for increasing interactions initiated by subject 90003 directed at a typically-developing peer. The effect size was calculated at 0.83 (PEM 83%), which is indicative of a moderately effective treatment (Scruggs & Mastropieri, 1998) for increasing the interactions initiated by subject 90003 directed at a typically developing peer.

Although not part of the original research design, educators provided the researchers with anecdotal observations that summarize the improvements documented and can be presumed related to the intervention and will be used to support the outcome findings. Post intervention, educators reported a decrease in inappropriate social behaviours when engaging with peers for Subject 90003. The typically-developing children in the classroom had a better understanding of the needs of this child and, as a result, would engage in play together more frequently. It was also reported that during play, if Subject 90003 did leave as a result of frustration, the typically-developing peers were more likely to invite the child back into the play rather than becoming frustrated and losing interest in including them in their game. As a result, more positive interactions became more frequent, and the child was better able to self-regulate and calm outbursts with the support of their typically-developing peers. It is interesting to note that educators referred to the typically-developing peers as, “co-regulators” in these scenarios, as they
were the ones that would encourage positive emotional regulation and would be the source of comfort for this child.

**Limitations of the Study**

Some limitations of the fourth phase of the *Stay, Play, and Talk* study include the variability in the cooperative game that was chosen to be played during the observation time, the diversity in the peers that were paired with the target children during the observations, the educator that was facilitating the intervention, as well as the time of day the intervention was being observed.

Conducting research in the participants’ classroom is an example of *naturalistic observation*, which is commonly used by social scientists when working with young children because removing them from the classroom and observing them in a laboratory setting would unduly affect their behaviours (Wallace, 2011). One of the greatest advantages of this type of research is that it allows for the researchers to gain a first-hand look at the social behaviours of their subjects. Another advantage of this type of research is that it can support the external validity of the study. For instance, a classroom setting allows the observers to see that the skills learned are being generalized, compared to in a lab setting where one can only presume that the skills can be generalized (Wallace, 2011). Although there were some variations in the cooperative games that were played, this variable is actually true to the subject’s natural environment. The variations of peers that were paired with each subject also played a role in the variations of data collected; however, these subjects will be exposed to more peers in their daily school schedule and is thus more realistic to their actual learning environment.

Some of variations within the data collection were the result of the immediate feedback from the data coders to educators that were facilitating the intervention based on the fidelity checklists; this could explain the variability in the results and the sustained maintenance in the
subjects’ social interactions due to treatment fidelity. Nonetheless, the anecdotal notes provided by educators and the intervention facilitators notes in the discussion are valid observations and support the scientific findings of this research study.

Lastly, consideration must be given to the decision for the research to take place in a classroom rather than in a laboratory. Although classroom research provides all participants with a level of comfort and non-disruptive learning experiences, within an authentic learning environment, there is a trend in variable results when compared to research conducted in a laboratory. In a classroom, for example, there are a number of variables that are out of the control of the researcher: the peers that are chosen to participate in the intervention during each session based on school attendance; the changing visual stimuli around the classroom; the rigor of the daily schedule being followed; the events that occur prior to the intervention; and the quality and fidelity of the execution of the intervention. Conducting research in a laboratory would offer a controlled environment free from distraction and would have a greater level of control over how the program was implemented during each session (McCambridge, de Bruin, & Witton, 2012). These conditions would be favourable for a researcher; however, they may produce less authentic results, as the child would be removed from their typical learning environment. In addition, understanding and recognizing that the results under laboratory conditions would not necessarily manifest themselves in everyday peer interactions while in a classroom setting, children with ASD and other social communication difficulties may fail to consider others’ perspectives and may not show a lack of reciprocity when they are returned to their regular learning environment (Ozonoff & Miller, 1995; Sigman et al., 1999). Importantly, studies indicate that learning within a child’s regular classroom offers children an appropriate environment for the acquisition, development, maintenance, and sustained results of social interaction skills (Bauminger et al., 2003).
Implications of the Study

The implications of this study can be used in a variety of ways by schools, educators, and students. Understanding that students that were trained in peer-mediated interventions can positively affect how others can learn and experience school and the social interactions within them is a powerful tool to utilize within inclusive classrooms.

The Ontario Ministry of Education (2009) focuses on the premise of equal opportunities for all students and emphasizes the importance of removing barriers to inclusion within the *Realizing the Promise of Diversity: Ontario’s Equity and Inclusive Education Strategy Guide*. Schools in Ontario are striving to create learning communities in which all of their students thrive and feel a sense of belonging. In order to promote a sense of belonging, it is important to equip students with the tools they need to communicate effectively with peers and provide a foundation of friendship-building and healthy peer-to-peer interactions. This research demonstrates that by incorporating the *Stay, Play, and Talk* intervention strategy within the classroom with students with ASD and other social communication difficulties, it can contribute to an increased level of social communication development – and can thus promote inclusion.

Because the *Stay, Play, and Talk* program has been organized into a manual that is incorporates step-by-step instructions for implementation, it can be seamlessly integrated into any classroom. The manual was designed to provide educators everything they would need to incorporate the intervention their classroom. However, some training in peer-mediated social skills training would be beneficial for an educator wishing to incorporate some or all of this training into their classroom as a means to support the manualized program that provides the program-specific information and lesson planning assistance, including talking prompts. The manual explicitly outlines how to prepare the learning environment, how to create diversity
awareness, how to implement the *Stay, Play, and Talk* lessons, and how to use strategies to foster peer interactions (Maich, 2015).

**Implications for Policy**

Policies regarding autism in Canada has been characterized by, “intense acrimony” (Shepherd & Waddell, 2015, p. 3562), which can hinder the progress of service improvement in schools for children with ASD. Moreover, there is a need for ongoing support to develop and evaluate the effectiveness of interventions for children with ASD in real-world settings, such as classrooms (Shepherd & Waddell, 2015). Ideally, if school boards were equipped to offer more evidence-based interventions, they would be better prepared to accommodate the increasingly unique needs of developing children with ASD and other social communication difficulties (Fountain, Winter, & Bearman, 2012; et al. 2012; Georgiades et al., 2013). Developing and evaluating interventions such as *Stay, Play, and Talk* contributes to the growing number of rigorous evidence-based practices to draw upon effectively which will drive similar evidence-driven progress in policy changes in the field of education within Canada.

Specifically, within Ontario, the Policy/Program Memorandum No. 140, “Incorporating Methods of Applied Behaviour Analysis (ABA) Into Programs for Students with Autism Spectrum Disorders (ASD)” (2007), requires Principals to ensure that ABA methods are incorporated into the IEPs of students with ASD, where appropriate. *Stay, Play, and Talk* can be integrated into any Kindergarten program and can fulfil this requirement by positively affecting the social communication development of children with ASD and other social communication difficulties.

**Implications for Practice**

Learning in early childhood has a foundation built on the ability to interact with others (Vygotsky, 1978). Without the ability to interact on a social level, children in Kindergarten may
lack cognitive development and abilities. Vygotsky (1978) recognized that the social interactions that take place between young children play an important role in education – and without it, a child may experience a deficit in their learning as a consequence.

Kindergarten programs in Ontario are fundamentally different than traditional Kindergarten programs of the past. Today, the program relies on play-based, inquiry learning as a means of meeting curriculum expectations. When children have more freedom to discover and experience learning opportunities based on their own interests, learning relies heavily on social interactions among the children in the class.

Although structured in nature in comparison to the emergent curriculum, the Stay, Play, and Talk program can be seamlessly integrated into a play-based setting. This program demonstrates that although Kindergarten programs are moving towards student-led and free exploration and inquiry, there is a need for structured play in order to facilitate interventions such as Stay, Play, and Talk. These structured learning times can provide children with the opportunity to not only learn a new skill, but practice the skill, thus contributing to mastering and supporting maintenance and sustained results.

**Implications for Educators**

“Problem behaviours” are listed as the primary concern among Early Childhood Educators (ECEs) (Conroy, Davis, Fox, & Brown, 2002). Problem behaviours can include emotional and behavioural outbursts, the inability to follow rules or instructions, and problems with emotional regulation. Emotional and behavioural difficulties occur frequently during early childhood, as young children are still developing their language skills and the capacity to regulate their thoughts, emotions, and behaviours (Egger & Angold, 2006). Although common traits of a young child, these so-called, “problem behaviours” may be the result of a child having ASD or other social communication difficulties. When educators lack the understanding of how
ASD and other social communication difficulties affects their students, they are not able to address these difficulties and are unable to target these undesirable behaviours.

Specifically, within inclusive classrooms, there is a need for more EBI for the growing number of children with ASD and other social communication difficulties. Having a school-based instruction manual – such as with Stay, Play, and Talk, which is inclusive of all classroom resources that are needed to be successful in its implementation – benefits educators who report that they feel undertrained and underprepared to meet the needs of their diverse population of students. PMIs such as Stay, Play, and Talk take advantage of the students’ willingness to help and the effectiveness to influence and promote social skills development. PMIs also increase the amount of opportunities for interventions to take place, while not adding to the demand of the educators, as they are not the main source of the intervention facilitation (Chan et al., 2009). Taking advantage of the natural inclination of children to interact with one another eliminates the need for the educator to receive extensive training on how to encourage these types of genuine interactions among children. Children will instinctively use language that is meaningful to them, and therefore, will contribute to the natural connection between peers. Educators can also support peer-mediated learning by teaching about diversity and emphasizing a community of acceptance and inclusion within their classrooms.

**Implications for Children**

The implications of this research on the students specifically revolves around the idea that social communication and prosocial behaviours can directly impact a child’s day-to-day experiences at school by offering them little enjoyment while interacting with their peers (Bieberich & Morgan, 2004; Scambler et al., 2007; Snow, Hertzig, & Shapiro, 1987). Because the Kindergarten program in Ontario heavily relies on the concept of play as being an integral part of a child’s learning, more emphasis needs to be placed on the development of social
communication skills, especially for those students with ASD. When learning relies on play and interacting with others, and a child lacks these abilities, it will result in a deficit in the child’s intellectual, physical, emotional, and social development (Lifter et al., 2011; Piaget, 1962). Simply put, when students feel included, they are more likely to participate. In children with ASD and other social communication difficulties, inclusion can help them experience positive peer-to-peer interactions, an increase in the number of interactions, and more long-term and meaningful friendships. Throughout the study, the children with ASD and other social communication difficulties who participated in the Stay, Play, and Talk program increased their social interactions with peers and made progress in all areas that were deemed necessary for positive peer-to-peer interactions, as well as the development of friendships.

**Future Directions**

Inclusion for all students in classrooms across Ontario is an ongoing process. Although, it is important to note that simply calling a classroom “inclusive” does not necessarily translate into inclusive practices, and often entails simply the physical integration of students. From this research, students as young as Kindergarten-aged children show that they are able to understand diversity and that they are eager to support the needs of their peers. Through the results of this study, it can be concluded that children as young as 4 years-old are capable of empathy, understanding others around them, and wanting to positively contribute to their peers’ classroom experiences. When this PMI is implemented within a classroom, the students with ASD and other social communication difficulties may experience positive interactions with peers and are more likely to Stay, Play, and Talk with their friends.

Data were collected throughout this study that could evaluate the benefits of this intervention on the typically-developing peers, although that was not presented in this report. Future research may strive to observe the typically-developing students taking part in the PMIs.
This would allow researchers the opportunity to observe and analyse whether there are any benefits of PMIs on typically-developing peers, in addition to supporting the needs of students with ASD and other social communication difficulties.

Furthermore, future research should seek to monitor the maintenance and sustained results, as the subjects progress through each grade. A research project aimed at gathering longitudinal data would be a valuable contribution to the area of social skills development among those with ASD and other social communication difficulties. This type of research would benefit educators and students alike, as they would further provide evidence of the effectiveness of this program and others like it.

**Conclusion**

Overall, the fourth phase of the *Stay, Play, and Talk* study provides further evidence that the program, based on the *Buddy Skills Training Program* (English et al., 1997), is an effective intervention for increasing the social interactions in children with social communication difficulties within a Kindergarten classroom. Compelling evidence illustrated in Figure 1 shows that the positive level changes in the social communication skills of each of the subjects represents a systematic increase in the measured relative utterances with typically-developing peers from one condition to the other – thus proving the effectiveness of the intervention.

By providing diversity training to all students and promoting prosocial communication and play skills, the researchers were able to provide opportunities for students’ social communication difficulties to participate in cooperative games while increasing their social interactions with their typically-developing peers. Previous phases of this study yielded similar results. Research in this area has provided hope for many families and educators of children with social communication difficulties and has provided scientific evidence that children who take part in early intervention are capable of learning and developing the social skills needed to be
successful in the classroom and in life.
References


engagement intervention for children with autism in urban public school settings.

*Behaviour Therapy, 46, 54-67*


Maich, K. (2015). *Stay, play, and talk: A peer-mediated social skills program for preschool-aged students with autism spectrum disorders and their peers*. Unpublished manuscript, Brock University, St. Catharines, ON.


van Rhijn, T., Maich, K., Hall, C., & Van Reenen, T. (2015). *University of Guelph research ethics board (REB) application to involve human participants in research (REBAp). Unpublished manuscript, University of Guelph, Guelph, ON.*


Appendix A: Brock Research Ethics Board Approval

[Image of certificate of ethics clearance]

The Brock University Social Science Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University’s ethical standards and the Tri-Council Policy Statement. Clearance granted from 6/10/2015 to 6/30/2016.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics webpage at http://www.brocku.ca/research/policies-and-forms/research-forms.

In addition, throughout your research, you must report promptly to the REB:

a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;

b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;

c) New information that may adversely affect the safety of the participants or the conduct of the study;

d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Jan Frijters, Chair
Social Science Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable. If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.
Appendix B: University of Guelph Ethics Board Approval

RESEARCH ETHICS BOARDS
Certification of Ethical Acceptability of Research Involving Human Participants

APPROVAL PERIOD: May 21, 2015
EXPIRY DATE: May 21, 2016
REB: G
REB NUMBER: 15AP012
TYPE OF REVIEW: Delegated Type 1
PRINCIPAL INVESTIGATOR: van Rhijn, Tricia (tvanrhijn@uoguelph.ca)
DEPARTMENT: Family Relations & Applied Nutrition
SPONSOR(S): N/A
TITLE OF PROJECT: Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV)

The members of the University of Guelph Research Ethics Board have examined the protocol which describes the participation of the human participants in the above-named research project and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement, 2nd Edition.

The REB requires that researchers:
- Adhere to the protocol as last reviewed and approved by the REB.
- Receive approval from the REB for any modifications before they can be implemented.
- Report any change in the source of funding.
- Report unexpected events or incidental findings to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants, and the continuation of the protocol.
- Are responsible for ascertaining and complying with all applicable legal and regulatory requirements with respect to consent and the protection of privacy of participants in the jurisdiction of the research project.

The Principal Investigator must:
- Ensure that the ethical guidelines and approvals of facilities or institutions involved in the research are obtained and filed with the REB prior to the initiation of any research protocols.
- Submit a Status Report to the REB upon completion of the project. If the research is a multi-year project, a status report must be submitted annually prior to the expiry date. Failure to submit an annual status report will lead to your study being suspended and potentially terminated.

The approval for this protocol terminates on the EXPIRY DATE, or the term of your appointment or employment at the University of Guelph whichever comes first.

Signature: [Signature]
Date: May 21, 2015

L. Kuczenski
Chair, Research Ethics Board-General
Appendix C: Educator Letter of Invitation

Dear Educator:

We are pleased to provide you with this information letter to inform you of an upcoming research project entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).” The attached consent form will explain the project in detail.

Please refer to the attached consent letter for full details of the project. If you have any questions about this project, please contact the primary investigator (see below for contact information).

Sincerely,

Tricia van Rhijn, PhD, RECE
Assistant Professor, Family Relations & Applied Nutrition
519-824-4120, ext. 52412
tvanrhij@uoguelph.ca
Appendix D: Educator Consent Letter

Title of Study: Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV)

Principal Investigator: Dr. Tricia van Rhijn, Assistant Professor, Department of Family Relations and Applied Nutrition, University of Guelph

Co-Investigators: Dr. Kimberly Maich, Assistant Professor, Faculty of Education, Brock University; Carmen Hall, Coordinator & Professor, Autism & Behavioural Science Graduate Certificate, Fanshawe College; Tammy van Reenen, Speech-Language Pathologist, Halton Catholic District School Board

We are pleased to invite you to participate in this research project entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).” The purpose of this program is to increase peer play skills of preschool-aged children in inclusive early years classroom environments.

PURPOSE OF THE STUDY
The purpose of our study is to evaluate the effectiveness of this program. The program is being implemented as part of the daily programming in your classroom. Our evaluation exercises will occur either during the program (test condition) or following completion of the program (control condition).

PROCEDURES
As an educator implementing this program, your involvement will include:
- Completing two questionnaires regarding your perceptions of the peer play and social skills of 8-15 children in your classroom (before and after implementation of the programming)
- Completing five fidelity checklists regarding the implementation of the programming (test condition only)

We expect that the child questionnaires will take no more than three hours to complete and the fidelity checklist will take approximately 30 minutes per week. Only one pre-implementation and one post-implementation are required for each child and only one fidelity checklist is required per classroom per week. Should you choose to participate, you will return the completed documents to the Principal investigator in the sealed envelopes provided. Research findings are expected to be available in spring 2016 and a summary of the findings will be presented at a staff meeting.
POTENTIAL RISKS AND BENEFITS
There are no identified risks as a result of participation in this study; however, please note that the behaviours described in the questionnaires are not characteristic of every child. As the questionnaire is general, it may encompass questions that are not applicable to all of the children in your classroom. The questionnaires will help us to understand how the Stay, Play, & Talk program may impact the development of social skills in children. A benefit of your participation may include impacting the future use of the Stay, Play & Talk program by understanding how the program influenced children’s social skills.

CONFIDENTIALITY
No identifying information will be collected about you; however, since only two Kindergarten classrooms are taking part, you may be identifiable to the school community. The report will not name the school in which the research project took place. While we will take all measures to protect your confidentiality, it is possible that co-workers will know that you took part in this project and may be able to identify you and/or your classroom in the results.

Data collected during this study will be stored in a locked cabinet in a private office and/or a password-protected computer with full disk encryption, only available to the research team. It will be kept for a period of five years after which it will be deleted/destroyed. Results of this study, which are presented or published, will use only aggregated data. Researchers have a duty to report any suspicion of child abuse or neglect if observed during the course of this project.

PARTICIPATION AND WITHDRAWAL
You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. If you wish to withdraw your data, please contact the Principal investigator.

RIGHTS OF RESEARCH PARTICIPANTS
You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have any questions about your rights as a research participant, please contact: Director, Research Ethics, and University of Guelph; 519-824-4120, ext. 56606; sauld@uoguelph.ca
Please sign below if you agree to participate in this study. You will be given a copy of this information to keep for your records.

SIGNATURE OF EDUCATOR

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<th>Name of Educator</th>
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Dear Parent/Guardian:

We are pleased to provide you with this letter of invitation to give you details regarding the research project, entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).”

Further details on the project are attached in the Parent Consent Letter. As a parent, you will not require any involvement for the project; however, if you want to accept our invitation for your child to participate, you are required to read, complete, and return the Consent Letter.

If you have any questions about this project or about your child’s participation, please contact the primary investigator (see below for contact information).

Sincerely,

[Name of teacher]

Principal Investigator:
Tricia van Rhijn, PhD, RECE
Assistant Professor, Family Relations & Applied Nutrition
519-824-4120, ext. 52412
tvanrhij@uoguelph.ca
Appendix F: Parent(s) of Target Children Consent Letter

PARENT PERMISSION FOR MINOR TO PARTICIPATE IN RESEARCH

We are pleased to provide you with this invitation for your child to take part in the research project, entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).”

Principal Investigator:
Dr. Tricia van Rhijn, Assistant Professor, Family Relations and Applied Nutrition (FRAN), University of Guelph, 519-824-4120 ext. 52412 or tvanrhij@uoguelph.ca

Co-Investigators:
Dr. Kimberly Maich, Assistant Professor, Faculty of Education, Brock University, 905-688-5550 ext. 4716 or kmaich@brocku.ca
Carmen Hall, Professor, Faculty of Human Sciences, Fanshawe College, 519-452-4430 ext. 3966 or clhall@fanshawec.ca
Tammy Van Reenen, Speech-Language Pathologist, Halton Catholic District School Board, 905-632-6300 ext. 321, VanReenenT@hcdsb.org

PURPOSE OF THE STUDY
This year your child’s classroom is embracing an exciting opportunity to collaborate with University of Guelph, Brock University, and Fanshawe College in order to implement the Stay, Play, and Talk Program and evaluate its effectiveness in our classroom. The Stay Play and Talk Program uses a peer-mediated approach to teach social skills in early years. The program’s main goal is to encourage positive social interactions and increase the likelihood for building friendships. Our research will measure the effectiveness of the program.

PROCEDURES
There are two parts to the research project:

Part I: Evaluation of the Stay, Play & Talk Program
The parents from two Kindergarten classrooms in our school are being asked to give permission for their children to be in this study. Those children will be observed by their classroom teachers in order to complete a short survey regarding their social skills before and after the Stay, Play, & Talk program to measure its effectiveness.

Part II: In Class Teaching Triads
We are also investigating the program’s impact on increasing specific social communication skills for children who may have difficulties with social communication with their peers.
In consultation with the Speech-Language Pathologist and the classroom teachers, the school Principal, your child has been selected to participate with his or her peers in this additional research – we are recruiting 3 children from this class to take part in this aspect of the research.

Your son/daughter will be invited to participate in three opportunities each week for 10 minutes. They will interact with a program implementer (a Child-Youth Worker, Speech-Language Pathologist or Communication Disorders Assistant) and two peers in the classroom with the rest of the class but engaged in an activity or game to focus on increasing interactions with peers. With your permission, these interactions will be video recorded.

The video will then be coded, counting the number and type of interactions that they complete with peers throughout the study. Research findings are expected to be available in spring 2016 and a summary of the findings will be sent home in your child’s agenda.

**POTENTIAL RISKS AND BENEFITS**
There are no identified risks as a result of your child’s participation in this study. The video recording process may be noticed by other students and remarked upon. There will be other adults and children also being video recorded, so your child will not be unique.

The study will help us to understand how the Stay, Play, & Talk program. Your child may benefit from participating in the in-class teaching triads; in particular, your child’s social skills may improve. The study may impact the future use of the Stay, Play & Talk program by understanding how the program influenced children’s social skills.

**CONFIDENTIALITY**
Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study. Each child has been assigned a numeric code that is noted on all documentation. The master list of the children’s names and their assigned code will be maintained by the Principal investigator and will be secured in a locked filing cabinet in her private office. The codes will be used to connect all data sheets. The master list will be destroyed following completion of data collection, and only numeric codes will remain. Data collected during this study will be stored in a locked cabinet in a private office and/or a password-protected computer with full disk encryption, only available to the research team. It will be kept for a period of five years after which it will be deleted/destroyed. Results of this study which are presented or published will use only aggregated data to ensure confidentiality.

Video recordings of your child and their peers will be recorded on a project-dedicated, password protected iPad and will only be accessible by the research team. All video recordings will be transferred to a secure, encrypted laptop only available to the research team and stored in a locked office. The videos will be coded and social communication behaviours counted. After the data has been analyzed all videos will be destroyed. At no time will still shots or videos of your child be released beyond the named research team.
PARTICIPATION AND WITHDRAWAL
You can choose whether your child is in this study or not. If you volunteer for your child to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your child’s data from the study up until the point that the master list is destroyed (after which, their data will not be able to be identified within the data set). If you wish to withdraw your child’s data, please contact the Principal investigator.

Your child will also be asked whether they want to participate in this study; if they choose to participate, they may refuse to participate in any of the 10-minute sessions and still remain in the study.

RIGHTS OF RESEARCH PARTICIPANTS
You are not waiving any legal claims, rights or remedies because of your child’s participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have any questions about your child’s rights as a research participant, please contact: Director, Research Ethics, University of Guelph; 519-824-4120, ext. 56606; sauld@uoguelph.ca

Please sign below if you give permission for your child to participate in this study. You will be given a copy of this information to keep for your records.

SIGNATURE OF PARENT OR LEGAL GUARDIAN

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Appendix G: Parent(s) of Peer Group Children Consent Letter

We are pleased to provide you with this invitation for your child to take part in the research project, entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).”

Principal Investigator:
Dr. Tricia van Rhijn, Assistant Professor, Family Relations and Applied Nutrition (FRAN), University of Guelph, 519-824-4120 ext. 52412 or tvanrhij@uoguelph.ca

Co-Investigators:
Dr. Kimberly Maich, Assistant Professor, Faculty of Education, Brock University, 905-688-5550 ext. 4716 or kmaich@brocku.ca
Carmen Hall, Professor, Faculty of Human Sciences, Fanshawe College, 519-452-4430 ext. 3966 or clhall@fanshawec.ca
Tammy Van Reenen, Speech-Language Pathologist, Halton Catholic District School Board, 905-632-6300 ext. 321, VanReenenT@hcdsb.org

PURPOSE OF THE STUDY
This year your child’s classroom is embracing an exciting opportunity to collaborate with University of Guelph, Brock University, and Fanshawe College in order to implement the Stay, Play, and Talk Program and evaluate its effectiveness in our classroom. The Stay, Play and Talk Program uses a peer-mediated approach to teach social skills in early years. The program’s main goal is to encourage positive social interactions and increase the likelihood for building friendships. Our research will measure the effectiveness of the program

PROCEDURES
There are two parts to the research project and we are recruiting between 8 and 15 children from this class to take part:

Part I: Evaluation of the Stay, Play & Talk Program
The parents from two Kindergarten classrooms in our school are being asked to give permission for their children to be in this study. Those children will be observed by their classroom teachers in order to complete a short survey regarding their social skills before and after the Stay, Play, & Talk program to measure its effectiveness.

Part II: In Class Teaching Triads
We are also investigating the program’s impact on increasing specific social communication skills for children who may have difficulties with social communication with their peers.
Your son/daughter may be invited to participate in teaching opportunities occurring in the class throughout the week for 10 minutes at a time. They will interact with a program implementer (a Child-Youth Worker, Speech-Language Pathologist or Communication Disorders Assistant) and two peers in the classroom with the rest of the class but engaged in an activity or game to focus on increasing interactions with peers. With your permission, these interactions will be video recorded.

Should your child be invited to participate in these teaching opportunities, his or her social communication interactions with peers will be video recorded. The video will then be coded counting the number and type of interactions between your child and a peer with social communication issues the coding will not be focusing on your child, but rather will be trying to understand the actions of the child with social communication issues.

Research findings are expected to be available in spring 2016 and a summary of the findings will be sent home in your child’s agenda.

**POTENTIAL RISKS AND BENEFITS**

There are no identified risks as a result of your child’s participation in this study. The video recording process may be noticed by other students and remarked upon. There will be other adults and children also being video recorded, so your child will not be unique.

The study will help us to understand how the *Stay, Play, & Talk* program. Your child may benefit from participating in the in-class teaching triads; in particular, your child’s social skills may improve. The study may impact the future use of the *Stay, Play & Talk* program by understanding how the program influenced children’s social skills.

**CONFIDENTIALITY**

Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study. Each child has been assigned a numeric code that is noted on all documentation. The master list of the children’s names and their assigned code will be maintained by the Principal investigator and will be secured in a locked filing cabinet in her private office. The codes will be used to connect all data sheets. The master list will be destroyed following completion of data collection, and only numeric codes will remain. Data collected during this study will be stored in a locked cabinet in a private office and/or a password-protected computer with full disk encryption, only available to the research team. It will be kept for a period of five years after which it will be deleted/destroyed. Results of this study which are presented or published will use only aggregated data to ensure confidentiality.

Video recordings of your child and their peers will be recorded on a project-dedicated, password protected iPad and will only be accessible by the research team. All video recordings will be transferred to a secure, encrypted laptop only available to the research team and stored in a locked office. The videos will be coded and social communication behaviours counted. After the data has been analyzed all videos will be destroyed. At no time will still shots or videos of your child be released beyond the named research team.
PARTICIPATION AND WITHDRAWAL
You can choose whether your child is in this study or not. If you volunteer for your child to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your child’s data from the study up until the point that the master list is destroyed (after which, their data will not be able to be identified within the data set). If you wish to withdraw your child’s data, please contact the Principal investigator.

Your child will also be asked whether they want to participate in this study; if they choose to participate, they may refuse to participate in any of the 10-minute sessions and still remain in the study.

RIGHTS OF RESEARCH PARTICIPANTS
You are not waiving any legal claims, rights or remedies because of your child’s participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have any questions about your child’s rights as a research participant, please contact: Director, Research Ethics, University of Guelph; 519-824-4120, ext. 56606; sauld@uoguelph.ca

*Please sign below if you give permission for your child to participate in this study. You will be given a copy of this information to keep for your records.*

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Appendix H: Parent(s) of Peer Group Children in Control Classroom Consent Letter

PARENT PERMISSION FOR MINOR TO PARTICIPATE IN RESEARCH

We are pleased to provide you with this invitation for your child to take part in the research project, entitled: “Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).”

Principal Investigator:
Dr. Tricia van Rhijn, Assistant Professor, Family Relations and Applied Nutrition (FRAN), University of Guelph, 519-824-4120 ext. 52412 or tvanrhij@uoguelph.ca

Co-Investigators:
Dr. Kimberly Maich, Assistant Professor, Faculty of Education, Brock University, 905-688-5550 ext. 4716 or kmaich@brocku.ca
Carmen Hall, Professor, Faculty of Human Sciences, Fanshawe College, 519-452-4430 ext. 3966 or clhall@fanshawec.ca
Tammy Van Reenen, Speech-Language Pathologist, Halton Catholic District School Board, 905-632-6300 ext. 321, VanReenenT@hcdsb.org

PURPOSE OF THE STUDY
This year your child’s classroom is embracing an exciting opportunity to collaborate with University of Guelph, Brock University, and Fanshawe College in order to implement the Stay, Play, and Talk Program and evaluate its effectiveness in our classroom. The Stay, Play and Talk Program uses a peer-mediated approach to teach social skills in early years. The program’s main goal is to encourage positive social interactions and increase the likelihood for building friendships. Our research will measure the effectiveness of the program.

PROCEDURES
Parents from two Kindergarten classrooms in our school are being asked to give permission for their children to be in this study – we are recruiting between 8 and 15 children from this class to take part. Those children will be observed by their classroom teachers in order to complete a short survey regarding their social skills before and after the Stay, Play, & Talk program to measure its effectiveness. Research findings are expected to be available in spring 2016 and a summary of the findings will be sent home in your child’s agenda.

POTENTIAL RISKS AND BENEFITS
There are no identified risks as a result of your child’s participation in this study. The study will help us to understand how the Stay, Play, & Talk program. The study may impact the future use of the Stay, Play & Talk program by understanding how the program influenced children’s social skills.
CONFIDENTIALITY
Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study. Each child has been assigned a numeric code that is noted on all documentation. The master list of the children’s names and their assigned code will be maintained by the Principal investigator and will be secured in a locked filing cabinet in her private office. The codes will be used to connect all data sheets. The master list will be destroyed following completion of data collection, and only numeric codes will remain. Data collected during this study will be stored in a locked cabinet in a private office and/or a password-protected computer with full disk encryption, only available to the research team. It will be kept for a period of five years after which it will be deleted/destroyed. Results of this study which are presented or published will use only aggregated data to ensure confidentiality.

PARTICIPATION AND WITHDRAWAL
You can choose whether your child is in this study or not. If you volunteer for your child to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your child’s data from the study up until the point that the master list is destroyed (after which, their data will not be able to be identified within the data set). If you wish to withdraw your child’s data, please contact the Principal investigator.

RIGHTS OF RESEARCH PARTICIPANTS
You are not waiving any legal claims, rights or remedies because of your child’s participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have any questions about your child’s rights as a research participant, please contact: Director, Research Ethics, University of Guelph; 519-824-4120, ext. 56606; sauld@uoguelph.ca
Please sign below if you give permission for your child to participate in this study. You will be given a copy of this information to keep for your records.

**SIGNATURE OF PARENT OR LEGAL GUARDIAN**

<table>
<thead>
<tr>
<th>Name of Child</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name of Parent or Legal Guardian</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Signature of Parent or Legal Guardian</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name of Witness</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Signature of Witness</th>
<th>Date</th>
</tr>
</thead>
</table>
Appendix I: Child Assent Form

ORAL ASSENT TO PARTICIPATE IN RESEARCH

Study title: Stay, Play, & Talk: A Peer-Mediated Social Skills Program for Young Children in Full Day Kindergarten (Phase IV).

Investigators’ names: Tricia van Rhijn, Kimberly Maich, Carmen Hall, Tammy Van Reenen

Assent script:

- Hi, my name is [identify yourself to child by name].
- We are inviting you to take part in a research study. We are trying to learn more about how children play with each other and how teachers can help children learn to play together. We’d like you to help.
- You might learn to play better with other children in your class and we think you might enjoy being part of this project.
- In the study, we’ll ask you to do two things:
  - You will be asked to answer some questions about things you do in school.
  - Three times each week for a couple of weeks you will get to play some games with two other children in your class and an adult leader While you play, an iPad will be used to make a video recording of your group playing together.
- The questions are not a test, and there are no right or wrong answers – we just want to know what you think. Some researchers will look at the video to learn how people play together, but no one else will see the video. And your parents won’t see the video or learn the answers you give.
- You can ask me any questions that you have about the study. If you have a question later that you don’t think of now, you can ask me next time you see me.
- You can also talk to your parents or teachers about this study and ask them questions too. Your parents have already said it’s okay for you to take part in this study. But you still get to choose – yes or no.
- No one will be mad or upset if you don’t want to participate or even if you change your mind later and want to stop. It’s up to you.
- Please tell me yes if you want to be in this study or no if you don’t want to. I am going to write down what you say at the bottom of this form.
RECORD OF CHILD’S RESPONSE:

☐ Yes, I want to be in this study.
☐ No, I do not want to be in this study.

______________________________
Name of Child

______________________________
Name of Person Obtaining Assent

______________________________
Signature of Person Obtaining Assent

______________________________
Date
Appendix J: Penn Interactive Peer Play Scale (PIPPS)

(McWayne, Sekino, Hampton, & Fantuzzo, 2007)

**PIPPS – Teacher Report**

<table>
<thead>
<tr>
<th>PENN INTERACTIVE PEER PLAY SCALE</th>
<th>NEVER</th>
<th>SELDOM</th>
<th>OFTEN</th>
<th>ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the past few months, indicate how much you have observed the following behaviors in this child during free play by filling in the appropriate circle.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Helps other children</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>2. Starts fights &amp; arguments</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>3. Is rejected by others</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>4. Does not take turns</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>5. Hovers outside play group</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>6. Shares toys with other children</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>7. Withdraws</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>8. Demands to be in charge</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>9. Wanders aimlessly</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>10. Rejects the play ideas of others</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>11. Is ignored by others</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>12. Tattles</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>13. Helps settle peer conflicts</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>14. Destroys others’ things</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>15. Disagrees without fighting</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

John Fantuzzo, 1997 © Copyright reserved
<table>
<thead>
<tr>
<th></th>
<th>NEVER</th>
<th>SELDOM</th>
<th>OFTEN</th>
<th>ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Refuses to play when invited</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>17. Needs help to start playing</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>18. Verbally offends others (name calling)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>19. Directs others' action politely</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>20. Cries, whines, shows temper</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>21. Encourages others to join play</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>22. Grabs others' things</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>23. Comforts others who are hurt or sad</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>24. Confused in play</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>25. Verbalizes stories during play</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>26. Needs teachers' direction</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>27. Disrupts play of others</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>28. Seems unhappy</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>29. Shows positive emotions during play (e.g. smiles, laughs)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>30. Is physically aggressive</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>31. Shows creativity in making up play stories and activities</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>32. Disrupts class during transitions from one activity to another</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

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Appendix K: Skills Improvement System: Rating Scales (SSIS:RS)

(Gresham & Elliott, 2008)

**SSIS:RS – Teacher Report**

**Instructions**
This booklet contains statements describing a student's behavior and level of academic performance. It consists of three parts: Social Skills, Problem Behaviors, and Academic Competence.

**Social Skills & Problem Behaviors**
Please read each item and think about this student's behavior during the past two months. Then, decide how often this student displays the behavior.

- If this student *never* exhibits the behavior, fill in the 1.
- If this student *seldom* exhibits the behavior, fill in the 2.
- If this student *often* exhibits the behavior, fill in the 3.
- If this student *almost always* exhibits the behavior, fill in the 4.

For each of the Social Skills items, please also rate how important you think the behavior is for success in your classroom.

- If you think the behavior is *not important* for success in your classroom, fill in the 1.
- If you think the behavior is *important* for success in your classroom, fill in the 2.
- If you think the behavior is *critical* for success in your classroom, fill in the 3.

Please mark every item. In some cases, you may not have observed this student perform a particular behavior. If you are uncertain of your response to an item, give your best estimate. There are no right or wrong answers.

<table>
<thead>
<tr>
<th>Social Skills</th>
<th>How Often?</th>
<th>How Important?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Asks for help from adults.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>2. Follows your directions.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>3. Tries to comfort others.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>4. Says &quot;please,&quot;</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>5. Questions rules that may be unfair.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>6. Is well-behaved when unsupervised.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>7. Completes tasks without bothering others.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>8. Forbids others.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>9. Makes friends easily.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>10. Responds well when others start a conversation or activity.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>11. Stands up for herself/himself when treated unfairly.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>12. Participates appropriately in class.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>13. Feels sad when others are sad.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>14. Speaks in appropriate tone of voice.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>15. Says when there is a problem.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>16. Takes responsibility for her/his own actions.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>17. Pays attention to your instructions.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>18. Shows kindness to others when they are upset.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>19. Interacts well with other children.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>20. Takes turns in conversations.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>21. Stays calm when teased.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>22. Acts responsibly when with others.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>23. Joins activities that have already started.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>24. Says &quot;thank you,&quot;</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>25. Expresses feelings when wronged.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>26. Takes care when using other people's things.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>27. Ignores classmates when they are distracting.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>28. Is nice to others when they are feeling bad.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>29. Invites others to join in activities.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>30. Makes eye contact when talking.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>31. Takes criticism without getting upset.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>32. Respects the property of others.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>33. Participates in games or group activities.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>34. Uses appropriate language when upset.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>35. Stands up for others who are treated unfairly.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>36. Resolves disagreements with you calmly.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td>37. Follows classroom rules.</td>
<td>1 1 2 3</td>
<td>1 1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How Often?</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>------------</td>
</tr>
<tr>
<td>38. Shows concern for others</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>39. Starts conversations with peers</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>40. Uses gestures or body appropriately with others</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>41. Responds appropriately when pushed or hit</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>42. Takes responsibility for part of a group activity</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>43. Introduces herself/himself to others</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>44. Makes a compromise during a conflict</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>45. Says nice things about herself/himself without bragging</td>
<td></td>
<td>0 0 0</td>
</tr>
<tr>
<td>46. Stays calm when disagreeing with others</td>
<td></td>
<td>0 0 0</td>
</tr>
</tbody>
</table>

**Problem Behaviors**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>How Often?</th>
<th>How Important?</th>
</tr>
</thead>
<tbody>
<tr>
<td>47. Acts without thinking</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>48. Is preoccupied with object parts</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>49. Bullies others</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>50. Becomes upset when routines change</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>51. Has difficulty waiting for turn</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>52. Does things to make others feel scared</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>53. Fidgets or moves around too much</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>54. Has stereotyped motor behaviors</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>55. Forces others to act against their will</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>56. Withdraws from others</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>57. Has temper tantrums</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>58. Keeps others out of social circles</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>59. Breaks into or stops group activities</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>60. Repeats the same thing over and over</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>61. Is aggressive toward people or objects</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>62. Gets embarrassed easily</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>63. Cheats in games or activities</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>64. Acts lonely</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>65. Is insensitive</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>66. Has nonfunctional routines or rituals</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>67. Fights with others</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>68. Says bad things about self</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>69. Disobeys rules or requests</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>70. Has low energy or is lethargic</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>71. Gets distracted easily</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>72. Uses odd physical gestures in interactions</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>73. Talks back to adults</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>74. Acts sad or depressed</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>75. Lies or does not tell the truth</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>76. Acts anxious with others</td>
<td></td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
</tbody>
</table>

**Academic Competence**

(For students from kindergarten through Grade 12)

Please assess this student's academic or learning behaviors in your classroom. Compare this student with other students in the same classroom.

Mark all items using a scale of 1 to 5. Mark "1" if this student is in the lowest 10% of the class. Mark "5" if this student is in the highest 10% of the class.

<table>
<thead>
<tr>
<th>Lowest 10%</th>
<th>Next Lowest 20%</th>
<th>Middle 40%</th>
<th>Next Highest 20%</th>
<th>Highest 10%</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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77. Compared with other students in my classroom, the overall academic performance of this student is: 0 0 0 0 0
78. In reading, how does this student compare with other students? 0 0 0 0 0
79. In mathematics, how does this student compare with other students? 0 0 0 0 0
80. In terms of grade-level expectations, this student's skills in reading are: 0 0 0 0 0
81. In terms of grade-level expectations, this student's skills in mathematics are: 0 0 0 0 0
82. This student's overall motivation to succeed academically is: 0 0 0 0 0
83. Compared with other students in my classroom, this student's intellectual functioning is: 0 0 0 0 0
Appendix L: Tracking Social Interactions – Triad Tracking Sheets

Tracking Social Interactions – Target Child

Child’s ID Number: ___________________ Date: ___________________

Condition: □ A (Baseline) □ B (Intervention) □ C (Generalization) □ D (Maintenance)

Game Title: ___________________ □ Reinforcing Activity □ Non-Reinforcing

Directions:
1. Use one sheet for each 10 minute interval recorded. Fill out the top section completely.
2. Each S–A–CD-TDC column represents one utterance. Leave a blank utterance when an utterance ends and a new one begins.
3. Record continuously for 10 min. If there is a time where it is no longer a social interaction (i.e., bathroom break, adult leading/talking, asked to be quiet for walking down hall) stop the timer and restart when returning to social interactions (put in a tightening bolt to indicate the break).
4. Start collecting when the interventionist starts explaining the game or indicates that they are about to begin.
5. Do not count A->TDC and TDC->TDC data.
6. Circle the person who makes an interaction. Draw a line to the receiving person. If the person responds, draw a circle. The lines continue until the interaction ends and a new one begins.
7. Add a ‘Y’ if it is a prompt from the adult. Add a ‘NV’ if it is a non-verbal interaction.

<table>
<thead>
<tr>
<th>S = Subject</th>
<th>A = Adult</th>
<th>CD = Child with Disability</th>
<th>TDC = Typically Developing Child</th>
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General Observation Comments: ___________________ Data Recorder: ___________________

Total # utterances: ___________________ Total # S-TDC = TDC-S: ___________________
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<tr>
<th>S = Subject</th>
<th>A = Adult</th>
<th>CD = Child with Disability</th>
<th>TDC = Typically Developing Child</th>
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Appendix M: Fidelity Checklists

Fidelity Checklists: Triad (Adapted from Fowler, 2009)

1. The program implementer directs the identified child and peers towards one another (physically and in conversation)
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented

2. The program implementer prompt peers to use the Stay, Play, and Talk skills and interact with the identified child in 90% of situations.
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented

3. The program implementer prompts the identified child to respond to the peers if necessary or he or she does not respond within 5 seconds.
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented

4. The program implementer prompts the peers to reinforce the identified child if the peers do not do it automatically.
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented

5. The program implementer reinforces the peers for interacting with the identified child in 90% of situations.
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented

6. The program implementer provides children with reinforcers for completing the identified skills.
   1 - Never implemented 2 - Partially implemented 3 - Fully implemented
Appendix N: Inter-Observer Agreement Sheet

WEEKLY IOA

• Needs to be above 80%
• Ideal to be above 90%

Smaller Total # of Interactions       Observer 1
Larger Total # of Interaction         Observer 2
Appendix O: Coding – Types of Interactions

Coding

Each interaction unit - frame around the unit with parentheses.

If ADULT starts interaction

if SUBJECT starts interaction

If TDC starts interaction

Prompt through peer

Adult prompts subject
Appendix P: TCPS 2 (Core) Certificate of Completion

Certificate of Completion

This document certifies that

sherí mallabar

has completed the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: CORE)

Date of Issue: 5 November, 2012