Western Graduate&PostdoctoralStudies

Western University
Scholarship@Western

Electronic Thesis and Dissertation Repository

August 2016

Is Social Competence Achievable in Individuals with Autism Spectrum Disorder?

Monica Caldeira
The University of Western Ontario

Supervisor
Dr. Elizabeth Nowicki
The University of Western Ontario

Graduate Program in Education

A thesis submitted in partial fulfillment of the requirements for the degree in Doctor of Philosophy

© Monica Caldeira 2016

Follow this and additional works at: https://ir.lib.uwo.ca/etd

 Part of the Educational Psychology Commons

Recommended Citation
Caldeira, Monica, "Is Social Competence Achievable in Individuals with Autism Spectrum Disorder?" (2016). *Electronic Thesis and Dissertation Repository*. 4017.
https://ir.lib.uwo.ca/etd/4017

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca.

Abstract

A review of existing literature pertaining to the social skills of individuals with Autism Spectrum Disorder provides a mixed picture: some researchers argue that social skills are altogether lacking, while others indicate that, in some instances, individuals with Autism Spectrum Disorder possess the same social skills as their typically developed peers. The purpose of this study was to examine the social competence of adolescents with Autism Spectrum Disorders, as well as the factors that contributed to or hindered adolescents' social competence. A sample of 17 adolescents, with varying degrees of autism severity, together with their parents and teachers took part in this study. They were asked to complete a battery of social skill and theory of mind assessments, as well as to participate in a semi-structured interview. Results on the social skill and theory of mind assessments differed, with adolescents scoring themselves as having moderate-to-strong social abilities, while parents and teachers indicating the adolescent possessed few to no social skills. However, the thematic analysis of the semi-structured interview provided opinions that tended to converge in the middle. Specifically, the overall opinion of parents and teachers was that while adolescents in my study did not possess the social competence displayed by their typically developed peers, they did possess: (a) a desire to have close friendships and relationships with others; (b) a basic theory of mind ability; and (c) an ability to identify basic emotions presented visually. Recommendations were made in regards to improving community supports for Autism Spectrum Disorder, encouraging schools to teach about diversity and continuing to implement zero-tolerance policies towards bullying, and urging future researchers to further examine the social

competence of adolescents with Autism Spectrum Disorders.

Keywords

Autism Spectrum Disorder, adolescents, social skills, theory of mind, emotion recognition, empathy, friendships, relationships

Acknowledgments

~ The hardest arithmetic to master is that which enables us to count our blessings ~

(Eric Hoffer)

Indeed, I have been truly blessed with the support of many individuals throughout this academic journey. While it is impossible for me to count the number of ways they have shown their support, I will attempt to thank them for those actions that left the strongest impressions on my mind and my heart:

To the families and teachers who participated in my study – I am humbled by your hospitality and generosity. You were so willing to warmly welcome me into your homes and classrooms, and to share your personal stories with me. Many of you indicated to me that you were aware that the results of my study would likely not benefit you directly, but that your hope was to help other families newly facing the Autism Spectrum Disorder diagnosis. Your resolve was inspirational and it is my hope that I have justly represented your challenges and triumphs within this body of work.

To Dr. Elizabeth Nowicki – What an unusual journey we took together! From the upheaval that took place in our personal lives to the last-minute changes to my presentation, you always made me feel like we were in this together. Your resilience, patience, and encouragement were admirable, and it is my hope that I can emulate these qualities in my future endeavours. I am forever indebted to you for all of your support.

To Dr. Sonia Mastrangelo – I still recall the first day I met you at a conference many years ago and how supportive you were of my work. This encouragement has since been unending and has extended beyond my dissertation. Thank you for always thinking of me when you came across an award application, a job posting, or a conference call for

submissions. You went above and beyond the role of a committee member and I am fortunate to have had your help along the way.

To Dr. Alan Edmunds – We started my graduate education journey together many years ago, and while you were unable to complete the journey with me, I am forever grateful to you for the continuous support you showed in all facets of my life.

To Dr. Adrienne Sauder – Thank you for being my person. You were always a source of support, a sympathetic ear, a tough love provider, and everything in between. You helped me through all of my Ph.D. endeavours and I couldn't imagine going through those with anyone else but you.

To Amrit – Like a true friend, you didn't think twice about offering to help me with my qualitative analysis. I am indebted to you for the countless hours you spent as my interrater. Dinner in England will be on me!

To my family: Steven, Jessica, Anderson, Desmond, Adam, Margaret and Walter – The number of times you indicated how proud of me you were cannot be summed. You took the time to ask about my dissertation and engaged me in discussions that made me contemplate different views. The support you have shown over the last several years has been tremendous and I look forward to toasting your endless love and encouragement at my convocation.

A very special thank you goes to my parents, Mavildia & Luis. You were selfless in providing my brother and me with lives you could have only imagined for yourselves, and anything you could do to make life easier for me while I pursued schooling, you did. Words cannot express the extreme love, gratitude and pride I have for you. This has been a long time coming, and I hope I have made you proud.

Last, but not least, I owe everything to my incredible husband, Chris. I have told you many times that I owe my academic success to you. From my bachelor's degree through to now, you have always believed in me and encouraged me to keep going. My pursuit of a Ph.D. came at the cost of you pursuing your own, and I hope that one day you may return to school to finish your journey as well. You lived through it all with me: the a-ha moments, the self-doubt, the awards and accomplishments, and the procrastination. The completion of this dissertation is just as much my accomplishment as it is yours, and I am honoured to submit it with your surname. My gratitude and my love for you are endless.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Overwhelming agreement among researchers has indicated that, in comparison to typically developing peers, individuals with Autism Spectrum Disorder (ASD) demonstrate weaker social skills. This is to be expected as the "social impairment [in ASD] is the defining component of the syndrome" (Heflin & Alaimo, 2007, p. 5). It is believed that these social impairments may be tied to the fact that many individuals with ASD do not develop a theory of mind, or that theory of mind is developed at a much later age than what is typical (Sweetenham, 1996). Theory of mind is "the ability to attribute mental states to self and others in order to predict and explain behaviour; an ability that appears to be a prerequisite for normal social interaction" (Frith & Happé, 1999, p. 2). Mental states have been referred to by researchers as being the beliefs, intentions, knowledge, desires, emotions and feelings of an individual (Patnaik, 2008; Dr. Maria Legerstee, personal communication, September 15, 2009). For example, when Max is seen carrying a coat, we *know* that Max *believes* that it might get cold and that he *wants* the coat to keep him warm. The concept of theory of mind is viewed as a theory because we cannot observe mental states (Patnaik, 2008).

Theory of mind was of interest in this research because it addressed concepts also found in social skill interventions, such as understanding emotions, recognizing facial expressions, and understanding others' beliefs. However, the basic difference between theory of mind and social skill interventions is that theory of mind addresses a general understanding about others, while social skill interventions teach individuals how to interact with others. For example, when we see Max carrying his coat, three actions may result in terms of our social interaction: (a) we will not ask him why he has a coat, as we

have already established theory of mind; (b) Max's actions may cue our actions, in that we may bring a coat as well; and (c) we will engage in conversation about the weather (e.g. 'I wasn't aware it was going to get cold later on today'). In this view, theory of mind precedes social interaction.

Lack of social skills can be very problematic for individuals with ASD as they foray into the social world, with the possibility for low-self esteem, social anxiety, social rejection, bullying, isolation, depression, and school refusal (Bellini, 2006; Bosacki & Astington, 1999; Chamberlain, Kasari, & Rotheram-Fuller, 2007; Howard, Cohn, & Orsmond, 2006; Myklebust, 2002; Ozonoff & Miller, 1995; Tantam, 2000). Therefore, school can be an especially difficult environment as individuals with ASD are expected to cope with "the social demands of school which include interactions with peers, understanding rules and codes of conduct (Attwood, 1998), and what to do at break and lunch times when they are typically left to their own devices (Wing, 1996)" (Wainscot, Naylor, Sutcliffe, Tantam, & Williams, 2008, p. 26). This is particularly problematic as adolescents spend approximately 32% of their time at school (Csikszentmihalyi & Larson, 1984).

As a result, many research studies dedicated to improving the social skills of individuals with ASD have focused on several facets such as verbal communication (Ozonoff & Miller, 1995), eye gaze (Adams, Gouvousis, VanLue, & Waldron, 2004), and initiating interactions (LeGoff, 2004). However, as noted by Knott, Dunlop, and Mackay (2006) there is a lack of information about the capabilities of children and adolescents with ASD who attend inclusive classrooms. In fact, Chamberlain et al. (2007) similarly noted that "the involvement of children with ASD in the social structures of regular

classrooms reveals a mixed picture" (p. 239). Interestingly, Chamberlain et al. (2007) and Knott et al. (2006) indicated that perhaps individuals with ASD do not necessarily experience the social problems as suggested above. It was noted that individuals with ASD "managed to avoid social isolation" (Chamberlain et al., 2007, p. 239) while Knott et al. (2006) noted that individuals with ASD managed to sustain several relationships. Although the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (American Psychiatric Association, 2013) indicates that social skills are a core deficiency for individuals with ASD (to be discussed in more detail below), these studies suggested that it could not be definitively stated that all individuals with ASD lack social skills.

Based on growing evidence of this discrepancy, this study explored whether adolescents in this population are socially competent at: (a) home; or (b) school. Although social competence is a relatively subjective term,

> most people would agree, however, that strong self-esteem, with its accompanying dimensions of identity and self-worth, is a cornerstone of social success. Healthy and vital friendships with others are also commonly seen as indicators of social competence (Sacks & Wolffe, 2006, p. 119).

Therefore, this study required adolescents with ASD, their parent(s), and teacher to reflect on the self-esteem, self-worth and healthy and important friendships of the adolescent with ASD. Adolescent participants were targeted as few studies have looked beyond pre- or elementary-school children (Bellini, Peters, Benner, & Hopf, 2007). This study also examined which factors appeared to contribute to social competence. For example, it was important to determine whether adolescents required some form of social skill intervention to help them fit in with their peers.

The next section provides an overview of the special education landscape followed by a description of how the definition of ASD has evolved over time. In addition, the theoretical framework that guided this research, specifically theory of mind and social cognitive theory, will also be discussed. The chapter will then conclude with a review of the literature, focusing on research pertaining to theory of mind in ASD, the social experiences of individuals with ASD, and the examination of social competence in ASD.

Exceptionalities and Inclusion

Students with exceptionalities are described as, "those children who exhibit differences in learning and behaviour that significantly affect their educational potential and whose exceptional needs cannot be met by typical approaches to schooling" (Edmunds & Edmunds, 2008, p. 14). Students with exceptionalities typically struggle in the education system, often requiring an individualized program of special education (Edmunds & Edmunds, 2008). Up until 1975 in the United States, students with exceptionalities were often denied individualized programs and were confined to segregated classrooms as school officials had no legal obligation to provide students with exceptionalities access to regular classroom education (Heward, 2003). However, in 1975 the United Nations created the Declaration of Rights of Disabled Persons, ensuring that individuals with disabilities were entitled to the same rights as others, including education, work, and voting (Hutchinson, 2010). Based on this declaration, the Canadian Human Rights Act of 1977 stated that "no one should be discriminated against for reasons of physical or mental ability" (Hutchinson, 2010, p. 4). During this period of time, the United States of America was also effecting changes to its legislature, leading to the introduction of Public Law 94-142 (Heward, 2003). The law provided that schools

throughout the United States were to provide a "free and appropriate program of public education in the least restrictive environment" to all students, regardless of ability (Heward, 2003, p. 20). With these changes occurring in the United States, schools in Canada also began to offer students with exceptionalities an education in the least restrictive environment (Edmunds & Edmunds, 2008). For the first time, all students under the umbrella of exceptionalities were entitled to a regular classroom education in North America, thus the beginning of the concept of inclusion.

Inclusion is described as "a philosophy that advocates for a commitment to considering the regular classroom (age-appropriate within the community school) as the first placement option for the education of students with exceptionalities" (Edmunds & Edmunds, 2008, p. 24). The widely accepted belief is that inclusion offers students with exceptionalities a chance for social and academic success (Heward, 2003). Although there are mixed results regarding how successful inclusive settings are for the social skills of individuals with ASD (Harrower & Dunlap, 2001), it is believed that these settings can provide students with ASD the opportunity to improve their social, emotional, and cognitive development through practice with their typically developed peers, which they would otherwise be unable to do in a self-contained setting (Boutot & Bryant, 2005).

In order to discuss the potential for an improvement in the social, emotional, and cognitive skills of students with ASD that may result from social interactions within inclusive classrooms, it is first important to describe ASD.

Diagnostic and statistical manual of mental disorders, 4th edition, text revision (DSM-IV-TR). Until 2013, the DSM-IV-TR was the standard used by mental health professionals to classify psychiatric disorders (American Psychiatric Association, 2014).

According to the DSM-IV-TR, Autistic Disorder and Asperger's Disorder were two of the five possible disorders falling under the broader umbrella diagnosis of Pervasive Developmental Disorders (American Psychiatric Association, 2000).

Autistic disorder. In the DSM-IV-TR, Autistic Disorder was defined as differing from typical development in three specific areas: deficits in communication, socialization, and interests and activities (American Psychiatric Association, 2000). These deficits are further explained in Table 1. It is important to note that while it was not recognized as a separate disorder within the DSM-IV-TR, some individuals were classified as having high-functioning Autistic Disorder. Individuals with high-functioning Autistic Disorder generally displayed the same impairments as those with Autistic Disorder, with the exception that they did not have an intelligence level falling in the range of intellectual disabilities (Heflin & Alaimo, 2007). Individuals with high-functioning Autistic Disorder were not, however, considered the same as individuals with Asperger's Disorder. The difference between high-functioning Autistic Disorder and Asperger's Disorder was that individuals with high-functioning Autistic Disorder demonstrated a delay in language acquisition prior to 3 years of age and intellectual disabilities, whereas individuals with Asperger's Disorder did not demonstrate these delays/deficits (American Psychiatric Association, 2000).

Asperger's disorder. Asperger's Disorder (also commonly referred to as Asperger's Syndrome), on the other hand, was believed to differ from Autistic Disorder in that individuals with Asperger's Disorder did not demonstrate delays in language acquisition prior to 3 years of age (American Psychiatric Association, 2000). According to Heflin and Alaimo (2007), the language development of individuals with Asperger's Disorder

Table 1

Comparison of ASD in DSM-IV and DSM-5

Component of Definition	DSM-IV	DSM-5
Criteria Required	Six (or more) items from all three categories with at least two from socialization, and one each from communication, and interests and activities	Persistent deficits in socialization, and at least two from interests and activities
Deficit in Socialization	a. marked impairment in the use of multiple nonverbal behaviours b. failure to develop peer relationships appropriate to developmental level c. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people d. lack of social or emotional reciprocity	a. deficits in social-emotional reciprocity (e.g., *failure to initiate or respond to social interactions)* b. deficits in nonverbal communicative behaviors used for social interaction c. deficits in developing, maintaining, and understanding relationships (e.g., *difficulties in sharing imaginative play or in making friends)*
Deficit in Communication	a. delay in, or total lack of, the development of spoken language b. marked impairment in the ability to initiate or sustain a conversation with others c. stereotyped and repetitive use of language or idiosyncratic language d. lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level	Subsumed into other components of definition (*see italic font*)

Component of Definition	DSM-IV	DSM-5
Deficit in Interests & Activities	a. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus b. apparently inflexible adherence to specific, nonfunctional routines or rituals c. stereotyped and repetitive motor mannerisms d. persistent preoccupation with parts of objects	a. stereotyped or repetitive motor movements, use of objects, or speech (e.g., *echolalia and idiosyncratic phrases*) b. insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior c. highly restricted, fixated interests that are abnormal in intensity or focus d. hyper- or hypo-reactivity to sensory input or unusual interests in sensory aspects of the environment
Age of Onset	Prior to 3 years of age in at least one of the following areas: social interaction, language as used in social communication, or symbolic or imaginative play	Early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life

(American Psychiatric Association, 2000; American Psychiatric Association, 2013)

was characterized as typical, often using extensive vocabularies. However, these individuals struggled with certain aspects of communication as it related to social interactions. For example, they often failed to determine whether or not the listener was interested in the conversation and they often failed to give the listener an opportunity to interact in the dialogue (Heflin & Alaimo, 2007). Individuals with Asperger's Disorder typically had a great deal of difficulty with non-verbal messages and they struggled to pick up social cues (e.g., failed to recognize that when their conversational partner was frequently looking at their watch this was a sign of disengagement) (Heflin & Alaimo, 2007). Further impairments in their social abilities included difficulties in maintaining eye contact, difficulties in interpreting facial expressions, and an acute interest in seeking out others who could add to their knowledge on their favourite topic (Heflin & Alaimo, 2007). This often resulted in a lack of shared interests with their same-aged peers. In regards to their circumscribed and restricted interest and activities they, too, showed a narrow range of interests as well as a rigid adherence to routines and rituals (American Psychiatric Association, 2000). Finally, in comparison to Autistic Disorder, individuals with Asperger's Disorder did not typically demonstrate any delay in cognitive development or self-help skills, however some individuals did have challenges with fine motor abilities and/or spatial reasoning (e.g., accurately perceiving where their bodies were in relation to objects) (American Psychiatric Association, 2000).

Diagnostic and statistical manual of mental disorders, 5th edition (DSM-5). In 2013, the American Psychiatric Association published the DSM-5, wherein Autistic Disorder (both low- and high-functioning) and Asperger's Disorder were merged under the umbrella diagnosis of ASD. This new diagnosis requires that a deficit is noted in

socialization skills, as well as the presence of circumscribed interests and activities (American Psychiatric Association, 2013). As can be seen in Table 1, the deficits in communication required by the DSM-IV-TR are now subsumed into the socialization and interest and activities criteria in the DSM-5. Moreover, the severity of the disorder is now differentiated across three levels, as shown in Table 2. It is important to note here that the previous diagnoses of high-functioning Autistic Disorder and Asperger's Disorder would now likely be grouped under Level 1 of this table, as these individuals would be able to speak in full sentences, as per the example contained within the table.

Relevance of differentiating between DSM versions. Differentiating between the two versions of the DSM is relevant as participants in this study were identified under the DSM-IV-TR. Therefore, they report themselves as having either high-functioning Autistic Disorder or Asperger's Disorder. Moreover, as will be seen in the literature review, some differentiation is made by researchers as to the skill set of these two groups. All references to ASD from this point forward will refer to the DSM-5 definition, unless otherwise stated.

Summary & relation to study. The school setting now has students with exceptionalities interacting in a multitude of ways, ranging from having lunch with friends in the cafeteria to partaking in classroom projects with partners or in groups. Yet, the ASD diagnosis indicates that social interaction is a key impairment. Therefore, I wanted to hear from those involved in the school setting if the social skills of individuals with ASD are impairing the social interactions they are having at school. Also, I wanted to find out what is making these social interactions work and what is hindering them. Moreover, I wanted to determine if there is some transference of social competence to or

Table 2

Severity levels for ASD in DSM-5

Severity level	Social communication	Restricted, repetitive behaviours
Level 3 Requiring very substantial support	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches.	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 Requiring substantial support	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and now has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.

Severity level	Social communication	Restricted, repetitive behaviours
Level 1 Requiring support	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but whose to-and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful.	Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

(American Psychiatric Association, 2013)

from the school and home settings. To do this, I asked about the adolescent's self-esteem, self-worth, and relationships with others.

Theoretical Framework

In order to understand the problem set out in this dissertation, it is important to begin with an explanation of the theories that form the basis of social competence. In order to do so, I will start by describing theory of mind and then make the necessary connections to social cognitive theory.

Theory of mind. As was previously described, theory of mind allows us to understand the actions of others by supposing their emotions, desires, feelings, knowledge, beliefs and intentions (Frith & Happé, 1999; Patnaik, 2008). The following section will describe how theory of mind develops in typically developing individuals and how it can be assessed.

Normal developmental trajectory. In its early phases of research, it was believed that theory of mind was a skill that began to develop around 4 or 5 years of age (Steiner-Bell & Kirby, 2002); however, significant research since then has shown that not only do babies demonstrate precursors to theory of mind, but that theory of mind really does not become stable until the late teens or early twenties (Ormrod, 2007).

Infants (0-12 months). In the first few months of life infants begin to show a preference for humans as social entities. This is demonstrated when infants are shown various faces where the eyes, nose and mouth are placed in various configurations. As Morton and Johnson (1991) demonstrated, infants spent more time looking at normally configured faces, indicating they were using information from their environments to make the distinction between typical and atypical faces. Once this preference for typical

social entities is established, infants quickly begin to show that they understand human intention. For instance, when an adult appeared to be *trying* to pull apart a dumbbell and failed, the infant would successfully complete the intended act of the adult (Johnson, 2000). Yet, when provided with a robot attempting to pull the dumbbell apart, the infant made no effort to complete the task. Once the child is in the later stage of infancy and is capable of actions such as object manipulation and self-propelled movement, the existence of a very basic form of theory of mind can be demonstrated through joint attention. As Carpenter, Nagell and Tomasello (1998) demonstrated, infants are capable of understanding mutual interest in an object, therefore, when an infant perceived that the adult was not taking into account the infant's interest in the object (e.g., pulling the toy away from the infant), the infant would look at the adult's eyes to infer the adult's intention.

*Toddlers (12-36 months).*With a basic understanding of human interaction in place by the end of the first year of life, children are prepared to engage in more complex interactions with adults. It is at this point that children begin to understand others' desires (Repacholi & Gopnik, 1997). Specifically, infants were shown an experimenter looking at two different foods and emoting either a like or a dislike for each of the foods. Then, when the experimenter ate the disliked food, the toddlers showed surprise, as opposed to when the experimenter ate the liked food. Growing from this understanding of desires, toddlers then go on to demonstrate an understanding of others' beliefs and feelings during pretend play. When playing *doctor* with mom or a sibling, toddlers understood that the *patient* was not really sick and that the *doctor* was not really treating the sickness (Youngblade & Dunn, 1995). The understanding of others' beliefs and feelings is further

perpetuated by parenting style (Ruffman, Perner and Parkin, 1999). Children, who were asked by their parent to take into consideration the feelings of someone the child had just wronged, later went on to develop an advanced theory of mind. Then, finally, just before children reach the preschool age, they are almost capable of passing first-order false-belief tasks. First-order belief refers to what the child (person A) believes another person (person B) is thinking (Dr. Janet Astington, personal communication, February 9, 2010). An example of a first-order false-belief task is the change of location false-belief task. Here, the child witnesses an individual placing an object in a particular location and leaving the room. In the meantime, a third party enters the room and moves the object from its original location to a new location. The child then witnesses the first individual returning to the room and is asked where the individual will go to obtain their object. Research by Clements and Perner (1994) has shown that when the eye gaze of a 3-year old was measured during change of location false-belief tasks, the child would look to the right location, but would provide an incorrect response (i.e., the alternative) verbally.

Preschoolers (3-5 years). It is argued that up until 4 or 5 years of age children simply cannot respond accurately to false-belief tasks due to the language and executive function demands related to the task (Astington & Hughes, 2011). On the other hand, 5-year-olds seem to achieve the minimal amount of control in regards to these demands and perform quite well on false-belief tasks (Wimmer & Perner, 1983). For example, the ability to anticipate the behaviour of another person based on an understanding of his/her mental state is a necessary condition for being able to lie (Patnaik, 2008). However, this seems to be insufficient as it is argued that due to the continued development of executive functioning, preschoolers may still struggle with lying as they would need to coordinate

their non-verbal behaviour with their verbal statements (Talwar & Lee, 2002). This would involve the inhibition of feelings such as fear, guilt or excitement.

School-aged children (6+ years). Once 6-year-olds learn to manipulate theory of mind sufficiently enough to lie, they begin to demonstrate an ability for second-order beliefs. Second-order belief refers to what the child (person A) believes another person (person B) is thinking about what a third party (person C) or more is thinking (Astington & Hughes, 2013). This ability, to think about the thoughts of another, or alternatively, hold a belief about the beliefs of another, is evident in what are typically referred to as Maxi and Hanna tasks (to be described below); however, it is argued that mastery of second-order beliefs might not be obtained until 9 years of age (Dr. Janet Astington, personal communication, February 9, 2010). Also, around 6 years of age, children begin to understand that an individual can have an emotion about something, but may behave differently than what that emotion would dictate. For instance, a child will understand that although they dislike a gift they were just given, the polite response would to be feign excitement (Talwar, Murphy, & Lee, 2007). Then, around 8 years of age, children begin to understand that others may have a different perspective than they do. For instance, with Piaget's three mountains task (Dr. Janet Astington, personal communication, January 5, 2010) children were presented with a diorama of a village surrounded by three mountains and a doll that was placed at various positions within the diorama. Children were then presented with a set of pictures taken of the diorama from different angles, and children were asked to select the pictures that captured the doll's views. During the pre-school period when false-belief tasks are possible, children would struggle with this perspective-taking task, yet 8-year-olds did not demonstrate this

difficulty. While the majority of theory of mind abilities are in place by 8 years of age, the development of a select few abilities continues into the junior high and high school years. Specifically, between 11 and 14 years of age, children come to the realization that people can "have multiple and conflicting motives and emotions" (Ormrod, 2007, p. 84). Adolescents, between 14 and 18 years of age, on the other hand, can recognize that past events and present circumstances can affect a person's behaviour, as well as realizing that people "are not always aware of why they act as they do" (Ormrod, 2007, p. 84). In summary, the growth and development of theory of mind appears to be:

> structured by four key milestones: (1) infants' intuitive understanding of ordinary actions as reflecting others' attention and intentions; (2) older infants' and toddlers' implicit understanding of goals that appear at odds with the real world; (3) preschoolers' reflective understanding of representational mental states; and (4) school-age children's further developed understanding of interpretation and multiple recursions of mental states (Astington & Hughes, 2013, p. 403).

Theory of mind tasks. Due to the fact that the majority of theory of mind research has focused on 3- to 5-year-olds (Keceli Kaysili & Acarlar, 2011), the tasks that have been created as litmus tests to determine the presence of theory of mind abilities are specific to false-belief understanding and second-order false-beliefs.

False-belief tasks. The premise of all false-belief tasks is that they require a person to have an incorrect belief based upon what they know as opposed to what the situation actually is (Astington & Hughes, in 2013). A common false-belief task is the change of location task, also known as the Maxi test (Wimmer & Perner, 1983). In this task a child witnesses a doll named Maxi placing his chocolate in a kitchen cupboard and then going

outside to play. In the meantime, Maxi's mother comes into the kitchen and places the chocolate in the refrigerator. The child is then asked where Maxi will look for his chocolate when he comes in from outside. The correct answer would be that the child recognizes that Maxi did not have the benefit of seeing his mother move his chocolate and that Maxi will look in the cupboard.

Another commonly used false-belief task is the unexpected contents task, also known as the Smarties task (Perner, Leekam, & Wimmer, 1987). In this task a child is shown a Smarties candy tube and asked what they think is inside of the tube. Then, after a response is given, the tube is opened to reveal contents other than Smarties candy (e.g., pencils). Once the pencils are safely hidden in the tube, a doll is placed in the room and the child is asked to guess what the doll will think is inside of the tube. A correct response requires the child to understand that the doll is unaware that the contents are different from the labeling on the tube and that the doll would think the tube contains Smarties.

A third type of false-belief task used to determine theory of mind abilities is the knowledge change task. In this task a child was asked to help a puppet colour a picture of a house. Once it had been established that the child could follow the puppet's instructions (e.g., using the blue crayon when asked to colour the door of the house), the puppet asked the child to colour the roof chartreuse and proceeded to point out to the child which crayon is chartreuse. While the child was colouring the roof of the house the experimenter asked the child when they learned the name for the colour chartreuse, how they had learned the name for that colour and which colour they had known longer, either red or chartreuse. Correct responses included indicating that they had just learned it from

the puppet and that they have known the colour red longer (Davis-Unger & Carlson, 2008).

A fourth false-belief task is the appearance-reality task. In this type of task a child is shown what looks to be a common object, but in reality the object is something quite different. For instance, Melot and Angeard (2003) presented a child with an object that looked like a peach. Using visual clues only, the child had to indicate what they thought the object was. Then, the child was asked to touch the object to realize that it was really a rock painted as a peach. The child was then asked to indicate what they had thought the object was when they first saw it. A correct response required the child to indicate that they had been fooled by the appearance of the object.

Second-order false-belief task. Second-order false-beliefs are typically assessed with the Maxi and Hanna task, a revised version of the Maxi change of location false-belief task (Dr. Janet Astington, personal communication, January 12, 2010). In the Maxi and Hanna task the child witnesses Maxi placing his chocolate in the cupboard and leaving his sister Hanna alone in the kitchen. As Maxi is leaving the kitchen the child is told that Hanna really wants Maxi's chocolate and that Maxi knows this. Then, the child witnesses Maxi peaking from the doorway as Hanna moves Maxi's chocolate from the cupboard to the refrigerator. Additionally, the child is told that Hanna cannot see Maxi watching her. When Maxi returns to the kitchen the child is asked where Maxi will look for his chocolate. A correct answer requires the child to understand that while Hanna thinks she has fooled Maxi, she is really the one who has a false-belief. In other words, the child believes that Hanna's actions are a result of Hanna not knowing that Maxi was watching her move his chocolate.

Summary. Although theory of mind was once believed to emerge around 4 or 5 years of age, research has demonstrated that precursors to theory of mind are evidenced in the first year of life. Theory of mind then gradually develops in its various forms across childhood and adolescence, concluding around 18 years of age with an in-depth understanding of others' behaviour. In order to measure the presence of theory of mind, researchers have relied upon false-belief tasks. These false-beliefs tasks vary in complexity, ranging from first-order false-beliefs (i.e., attributing a false-belief to an object/event) to second-order false-beliefs (i.e., attributing a false-belief to the thoughts of others). The following section will now examine the second theory relevant to this study: social cognitive theory.

Social cognitive theory. Social cognitive theory, as proposed by Albert Bandura in 1986, allows us to understand human behaviour in a general sense, and the motivating factors for said behaviour (Pellegrini & Bjorklund, 1998). In addition to the external social influences that impact this understanding of human behaviour, cognitive factors such as beliefs, self-perceptions, and expectations are also considered (Woolfolk, Winne, & Perry, 2011). In this theory, Bandura (1996) proposed that humans can be characterized by a set of five distinct capabilities: (a) symbolization; (b) forethought; (c) self-regulation; (d) self-reflection; and (e) vicarious learning.

Basic capabilities. Symbolization refers to "the ability to think about our social behaviour in words and images" (Pellegrini & Bjorklund, 1998, p. 121) such as storing a symbol of a red, glowing stove top in one's mind to represent the danger of touching a hot stove. Forethought refers to the recognition that consequences drive actions, whether those actions are our own or those of others such as doing things one has seen lead to

success and avoiding those things that have led to failure (Bandura, 1989). Self-regulation entails "adopting standards of appropriate behaviour for ourselves (i.e., aspirations, or hoped-for levels of accomplishment) as well as social and moral standards" such as respecting another person's property and not engaging in theft or defacing of said property (Pellegrini & Bjorklund, 1998, p. 121), while self-reflection allows individuals to analyze their "own thinking and personal efficacy" such as when a student compares their own self-evaluated performance to that given by a teacher on a report card or test (Bandura, 1996, p. 5516). Finally, vicarious learning describes how learning does not necessarily transpire from reinforcement or the reproduction of modelled behaviours, but that learning can result from watching a model and representing mentally what the model did (Pellegrini & Bjorklund, 1998).

Before proceeding, I would like to re-establish the basic principles of theory of mind. Specifically, that there must be some form of prediction or explanation of behaviour which is guided by the beliefs, intentions, knowledge, desires, emotions and feelings of an individual (Frith & Happé, 1999; Patnaik, 2008).). I propose that given these principles and the brief descriptions of the basic capabilities provided above, two of Bandura's basic human capabilities overlap significantly with theory of mind. The following section will provide additional information on each of these capabilities.

Forethought. As mentioned, forethought describes how one's actions are guided by knowing or anticipating possible outcomes. Bandura (1989) argued that purposeful human behaviour is guided by forethought. He elaborated on this idea by separating actions into future events and current motivators. Specifically, he stated that future events on their own cannot be the cause of current motivations and actions; however, when

future events are known to be possible, and are represented cognitively in the present, foreseeable future events are converted into current motivators and regulators of behaviour (Bandura, 1989). In other words, by virtue of time sequencing, current actions dictate unknown future events; however, if those unknown future events become evident in the present time, then behaviours and actions can dictate the subsequent resulting future event. For example, a child is not likely to complete their homework and do their chores in a timely manner if they are unaware that by doing so their parent intends to take them out for ice cream; however, if the child thinks that it is possible their parent may reward them for good behaviour they are more likely to complete their homework and do their chores.

Interestingly, the ability for forethought is not only self-directed; it can be applied to the actions of others. According to Snyder (1981) acting on erroneous beliefs can cause others to behave in ways that validate the erroneous beliefs. This chain reaction is illustrated in Figure 1. An example of this is when a teenager takes their parent's keys from the foyer table and fails to return them to the same location. When the parent goes to retrieve their keys from the foyer table, they learn the keys are not there and then search for the keys in the teenager's pocket. Because the parent took it upon himself/herself to search for the keys and does not scold the teenager for not returning the keys to their original location, the teenager will never learn to return the keys to the foyer table. Therefore, the next time the teenager takes the keys, they are liable to leave the keys in a new location (altering others' behaviour). Due to the fact that the teenager now thinks the keys can be left anywhere, the parent may not locate the keys in the foyer table

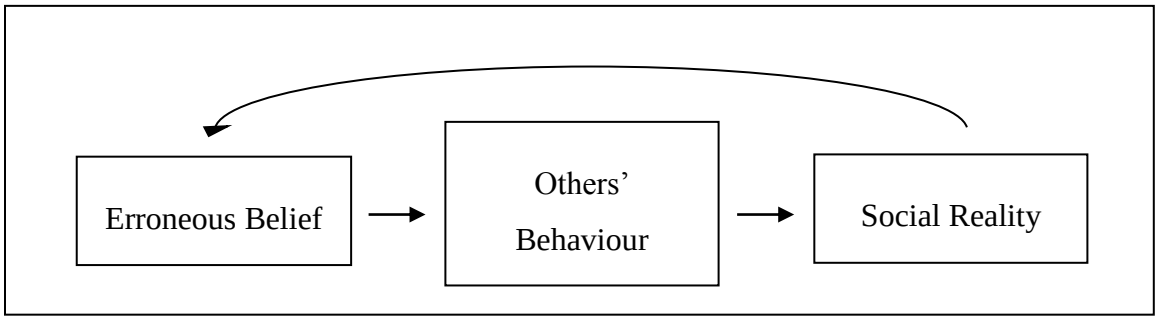


Figure 1. Application of forethought to others

or the pocket next time. Therefore, this can shape the social reality in the direction of the misbelief.

The ability for forethought undergoes significant developmental changes; infants are born with a limited capability that is overwhelmingly shaped by interactions with the environment, while children's and adults' abilities are significantly influenced by memory skills (Bandura, 1989). It is the development of memory skills that "helps children to remember what actions in what situations produced what outcomes, so they have available the information needed to formulate rules of behaviour" (Bandura, 1989, p. 43). The concept of forethought is relevant to the current research because it overlaps with theory of mind, in that knowledge about one's self and others can predict and explain behaviour.

Self-reflection. Again, as was mentioned, self-reflection is the ability to evaluate one's thinking and behaviours. As Bandura suggested, "in verifying thought through self-reflective means [individuals] monitor their ideas, act on them or predict occurrences from them, judge from the results the adequacy of their thoughts, and change them accordingly" (1989, p. 58). Certainly, this capability takes centre stage in everyday life, as individuals constantly think such things to themselves as 'considering I had very little sleep, I did fairly well in that meeting' or 'I think I did pretty well on that task; I bet my boss will acknowledge my hard work' or 'I thought I had a good handle on that test material but I didn't do well on the test; maybe next time I will have to study harder'. Also at the base of self-reflection is the idea that "judgments concerning the validity and functional value of one's thoughts are formed by comparing how well thoughts match some indicant of reality" (Bandura, 1989, p. 58). This verification of one's thoughts can

take one of four modes: enactive, vicarious, persuasory, and logical (Bandura, 1996). Enactive verification refers to the “adequacy of the fit between thought and the results of one's actions; good matches corroborate thoughts [while] mismatches tend to refute them” (Bandura, 1989, p. 58). Vicarious verification differs by focusing on “observing the effects produced by somebody else's actions [which] serves as a way of checking the correctness of one's own thinking” (Bandura, 1989, p. 58). Persuasory verification relies on comparing one’s thoughts to the beliefs of other individuals, which often occurs in matters where one has little or no specialized knowledge on a topic (Bandura, 1996), while logical verification is based on what is already known, and where the individual "can derive knowledge about things that extend beyond their experience and check the validity of their reasoning" (Bandura, 1996, p. 5517).

Relation between theory of mind and social cognitive theory. As I previously suggested, I propose that two of Bandura’s basic human capabilities overlap significantly with the basic principles of theory of mind. The following section will describe how I propose that these two theories overlap.

Forethought and false-belief tasks. Common to both social cognitive theory and theory of mind is the idea that misbeliefs shape an individual’s actions and thoughts. The example of forethought previously provided (i.e., the parent erroneously looking for their car keys in the foyer table) is a traditional change of location task. Comparing this to the traditional theory of mind Maxi test, Maxi would look for his chocolate where he last placed it, much like the parent would look for their keys where they last placed them. Furthermore, much like the ability of forethought is developed through memory skills, the ability to recognize that others have different beliefs, emotions, and thoughts, and the

resultant actions of those other individuals are dependent on the individual utilizing their memory. Specifically, for those utilizing theory of mind, they must keep in their working memory the idea that Person A believes something, Person B has done something that impacts Person A's belief, and that they, Person C knows all details pertaining to this scenario. Additionally, they may pull from long term memory references to other scenarios where they, Person C, were Person A or Person B. This is closely linked to the concept of self-reflection which is discussed next.

Self-reflection and false-belief tasks. Within self-reflection and theory of mind tasks there is the shared concept of thinking about one's thoughts and comparing them to actual events that occur. Certainly, in a Maxi false-belief task, the individual's belief that Maxi will look for his chocolate in the kitchen cupboard is verified when Maxi does indeed come inside from playing and heads directly for the cupboard. An individual who has not attained theory of mind will be quite surprised when Maxi heads to the cupboard when they know he should be looking in the refrigerator. With sufficient erroneous thinking, it is plausible the individual reformulates their line of thinking to align with their reflections.

Summary & relation to study. I propose that similarities exist between social cognitive theory and theory of mind. These similarities are evidenced in the knowledge that is needed to correctly predict or explain behaviour (as evident in the change of location scenarios provided above for forethought and false-belief tasks) and the ability to verify one's thoughts within the context of reality (as evident in self-reflection and false-belief tasks). Moreover, much like theory of mind is limited during the first few years of life, social cognitive theory is also limited in childhood as forethought and self-reflection

require multiple interactions with the environment to inform our understanding of how social interactions work. It appears that both theory of mind and social cognitive theory indicate that appropriate social interactions require that the individual receives external information from the environment in order to process their own internal thoughts.

In regards to the research questions proposed in this study, I wanted to draw some parallels between the social competence of individuals with ASD and theory of mind and social cognitive theory.

Literature Review

Since ASD has been defined and the theories relevant to this study have been proposed, I will now present a summary of the research that has been conducted with individuals with ASD. Specifically, I will present research pertaining to: (a) theory of mind in ASD, (b) the social experiences of individuals with ASD, and (c) the examination of social competence in ASD.

Theory of mind in ASD. Research has shown that most children with ASD consistently fail to develop theory of mind. It is thought that this inability leads to social and communicative impairments (Swettenham, 1996). As a result, various interventions and techniques have been developed to try to improve theory of mind, and by extension, improve social skills. Several studies have noted that individuals with ASD struggle to truly grasp theory of mind (Baron-Cohen, Leslie, & Frith, 1985; Frith & Happé, 1999; McGregor, Whiten, & Blackburn, 1998; Steiner-Bell & Kirby, 1998). For example, in one study children with ASD were taught to understand a doll's behaviour by illustrating the doll's *thoughts* using pictures that were attached to the doll's head. If the doll was *thinking* that her toy was hidden in the red box, then the doll would have a picture of the

red box attached to her head. Children with ASD were able to pass the false-belief task following the picture-in-the-head technique; however, they were not able to generalize this false-belief knowledge to acted out, real-life scenarios (McGregor et al., 1998). In fact, the common position of researchers is that individuals with ASD struggle with theory of mind tasks due to: (a) tasks being too heavily laden with verbal instructions and interactions, and (b) individuals with ASD simply failing to possess the necessary verbal and communication abilities necessary for theory of mind (Astington, 2000; Hale & Tager-Flusberg, 2005; Happé, 1995; Milligan, Astington, & Dack, 2007; Tager-Flusberg & Joseph, 2005). Although a handful of research suggests that individuals with ASD can perform well on theory of mind tasks, there are some caveats. For instance, Ozonoff, Rogers, and Pennington (1991) found that in comparison to typically developing peers, individuals with Asperger's Disorder performed just as well on theory of mind tasks; however, this was not the case with individuals with high-functioning Autistic Disorder, who performed worse than typically developing control peers. Interestingly, Scheeren, de Rosnay, Koot, and Begeer (2013) disputed this through their research which stated that individuals with high-functioning Autistic Disorder performed as well on theory of mind tasks as their typically developing peers; however, this was more so the case for adolescent participants than child participants. One of the commonly proposed caveats for theory of mind tasks is that their applicability to real life situations is criticized as findings have been limited to laboratory settings. Although Frith, Happé, and Siddons (1994) found that some participants were able to generalize their theory of mind skills to real life scenarios, the majority of their participants appeared to only pass theory of mind tasks in laboratory settings because they would apply *hacking* skills to the problem at

hand. In other words, the individuals with ASD would apply previously learned strategies to the theory of mind task without truly understanding the thoughts, emotions, and behaviours of the other person.

In summary, research has demonstrated that individuals with ASD have difficulty passing theory of mind tasks. Moreover, in the cases where individuals with ASD could pass theory of mind tasks in the laboratory, they struggled to generalize theory of mind abilities to real life settings. Researchers have suggested that the difficulty with theory of mind tasks can be attributed to a lack of verbal communication skills, which would result in individuals with high-functioning Autistic Disorder performing worse than individuals with Asperger's Disorder. Moreover, this would also account for the differences in theory of mind abilities in adolescents with ASD in comparison to children with ASD. Therefore, my research attempted to determine if individuals with ASD were capable of passing theory of mind tasks and how this may relate to their social experiences.

Social experiences of individuals with ASD. Given that theory of mind ability has significant implications on the social and communicative skills of individuals with ASD, researchers set out to examine exactly how these individuals function in various social settings given this deficiency. While the majority of research examines the social experiences of individuals with ASD amongst their peers at school, some researchers have also examined the social experiences that occur within the home with parents and siblings. The following section will examine the social experiences within both environments.

School setting. In examining relationships with peers, researchers have noted that, generally speaking, individuals with ASD have no friendships at all (Orsmond, Krauss, &

Seltzer, 2004). However, the reasons behind the lack of friendships are believed to be quite different depending on gender. Specifically, Dean et al. (2014) found that the reason why some girls with ASD were not nominated as a friend was because they were ignored or overlooked by their typically developing peers, while the reason why some boys with ASD were not nominated as a friend was because their ASD diagnosis was easily detected, making them *different*. Given this, it is not surprising that individuals with ASD experience greater levels of loneliness in comparison to their typically developing peers (Locke, Ishijima, Kasar, & London, 2010). Interestingly, however, researchers have found that not all individuals with ASD are destined to this fate. In fact, some researchers have found that a few individuals with ASD can identify at least one friendship (Bauminger & Kasari, 2000; Kuo, Orsmond, Cohn, & Coster, 2011; Orsmond et al., 2004). This friendship, however, tends to be predominant in earlier elementary school grades (e.g., grade 1) and wanes as the individual with ASD ages (e.g., grade 4) (Rotheram-Fuller, Kasari, Chamberlain & Locke, 2010). Moreover, friendships tend to occur with an individual who also has an exceptionality (Bauminger & Kasari, 2000; Bauminger, Solomon, Aviezer, Heung, Gazit, et al., 2008; Kuo et al., 2011; Locke et al., 2010). When examining the activities individuals with ASD partake in with their friends, it is found that activities are not varied and tend to be formal and centered on a shared hobby (Kuo et al., 2011; Orsmond et al., 2004). Taken together, it is not surprising that 52% of individuals with ASD are reported to have low levels of social network centrality in their classrooms (Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011; Rotheram-Fuller et al., 2010). These issues are further impacted by the findings of Filipek et al. (1999),

which states that "a child may want 'friends' but usually does not understand the concept of the reciprocity and sharing of interests and ideas inherent in friendship" (p. 444).

While it may seem promising that individuals with ASD are capable of friendship, these relationships tend to be of poor quality. For instance, when asked about their perceptions of their own friendships, individuals with ASD indicated that their friend did not provide them with sufficient companionship, security, help and closeness (Bauminger, Solomon, Aviezer, Heung, Gazit, et al., 2008; Bauminger & Kasari, 2000; Bauminger, Shulman, & Agam, 2004; Locke et al., 2010; Kasari et al., 2011;). Unfortunately, it seems that these deficiencies in the friendship may lie solely with the individual with ASD. When being observed in interactions with peers, researchers found that individuals with ASD demonstrated a low frequency of: goal-directed behaviours, non-verbal behaviours, coordinated play, sharing and positive affect than that demonstrated by their typically developing peers (Bauminger, Solomon, Aviezer, Heung, Gazit, et al., 2008). Moreover, Bauminger, Solomon, Aviezer, Heung, Gazit, et al. (2008) also noted that the interaction style of individuals with ASD is more rigid, resulting in less social conversation and less fun than that experienced by their typically developing peers. Another common problem is that when observing children with ASD on the playground, they were found to spend more time socially isolated than in social engagement (Kasari et al., 2011; Sigman et al., 1999). It also appears that social initiations are commonly reported as a source of impairment. In fact, it was reported that individuals with ASD did not make initiations at the rate of their typically developing peers (Anderson, Moore, Godfrey, & Fletcher-Flinn, 2004; Lord & Hopkins, 1986) and initiations were dependent on the individual's interest in being social (Sigman et al.,

1999). Fortunately, when individuals with ASD did make an initiation, it was noted that their peer responded the majority of the time (Lord & Hopkins, 1986). However, when the individual with ASD was on the receiving end of an initiation, two things typically occurred. First, they tended to only respond to initiations that were made both verbally and non-verbally. Secondly, when an initiation was made in a verbal format only, individuals with ASD struggled to acknowledge the initiation (Lord & Hopkins, 1986). Even more problematic is that when an individual with ASD did acknowledge an initiation by their peers, they tended to fail to engage beyond the initial initiation (e.g., a child with ASD who was invited to play on the swings would not see playing on the slide as an option beyond swinging) (Brown & Whiten, 2000; MacIntosh & Dissanayake, 2006).

Although these results are disheartening, not all research findings pertaining to friendship are negative. In fact, Calder, Hill, and Pellicano (2012) found that none of the children with ASD in their study were socially isolated in the classroom. It appears that given some time to grow and mature, individuals with ASD can improve the likelihood of establishing friendships. Specifically, it was found that as individuals with ASD grew older they were more capable of demonstrating more pro-social behaviours, less parallel and better coordinated play, more conversation flow, and more affective closeness (Bauminger, Solomon, Aviezer, Heung, Gazit, et al., 2008; Orsmond et al., 2008). Moreover, significant research has demonstrated that having a typically developing friend is positively correlated with the social efforts of individuals with ASD. Bauminger, Shulman, and Agam (2003) and Bauminger-Zviely and Agam-Ben-Artzi (2014) found that more effort was made by children with ASD to connect with their typically

developing peers than with their peers with ASD. This was further supported by the research of Bauminger, Solomon, Aviezer, Heung, Brown, et al. (2008) which states that those in mixed-ability friendships had more stable relationships, were more responsive to one another, had more complex play, had more fun together and appeared closer than those in non-mixed friendships. The strength of mixed-ability friendships is further substantiated by comparing interventions provided to typically developing peers and interventions provided to individuals with ASD. When the typically developing peer received the intervention in lieu of the child with ASD, the child with ASD became less socially isolated on the school playground and was more frequently nominated as a reciprocal peer (Kasari, Rotheram-Fuller, Locke, & Gulsrud, 2012). Regardless of what the friendship is attributed to, be it personal growth or the typical development of the friend, there are great advantages to individuals with ASD having friendships. In fact, Mazurek (2014) reported that having a friend led to decreased feelings of loneliness and a strong effect on the self-reported self-esteem, depression and anxiety levels of individuals with ASD.

In summary, the research examining the friendships of individuals with ASD provided a mixed picture. A significant proportion of the research suggested that individuals with ASDs have no friends at all. Several studies suggest that individuals with ASD do have at least one friendship; however, this friendship tended to wane by grade 4, tended to be with an individual who also has an exceptionality, and tended to be of poor quality. Some researchers offered a different finding, suggesting that individuals with ASD did develop pro-social skills across childhood that enabled them to enjoy stable friendships with typically developed peers. Therefore, my research attempted to

determine the quality and quantity of the adolescent's social experiences at school as reported by adolescents with ASD, their parent(s), and teacher. Due to the differing social experiences in the school setting reported across the literature, it is important for me to discuss a growing problem in schools today, and one of particular relevance to special education: bullying as it relates to ASD.

Bullying. Of the scant literature available on ASD and bullying, there is a consensus that individuals with ASD are at significant risk of bullying (Cappadocia, Weiss, & Pepler, 2012; Chen & Schwartz, 2012; Hebron & Humphrey, 2014; Schroeder, Cappadocia, Bebko, Pepler, & Weiss, 2014; Sofronoff, Dark, & Stone, 2011). In fact, Hebron and Humphrey (2014) suggest that students with ASD are three times more likely to experience bullying compared to their typically developing peers. Additionally, Schroeder et al. (2014) suggest that in some cases children with ASD are more likely to be bullied than their peers with other special needs. The bullying experienced by individuals with ASD appears to be limited to verbal, social, physical and exclusion bullying (Cappadocia et al., 2012; Schroeder et al., 2014; Sofronoff et al., 2011); cyber bullying and sexual harassment are infrequently reported as forms of bullying (Sofronoff et al., 2011). Not unlike their typically developing peers, particular factors make an individual with ASD more susceptible to being bullied. Specifically, these factors include mental health issues, lack of friendships, an inability to control their emotions (e.g., anger) or behaviour, and verbal difficulties (Cappadocia et al., 2012; Hebron & Humphrey, 2014; Schroeder et al., 2014). Interestingly, although parents and teachers report that bullying is an issue for individuals with ASD, they appear to have different views on the particulars of the bullying. For example, Hebron and Humphrey (2014)

found that parents were more likely than teachers to report that their child was being bullied, yet Chen and Schwartz (2012) reported that parents and teachers agreed on the number of times the individual with ASD was being bullied. However, when comparing the act of being a bully, Chen and Schwartz (2012) found that teachers were more likely than parents to indicate that the student with ASD was being the bully. Sofronoff et al. (2011) substantiates this finding by stating that it is in fact rare for a parent to report that their child is being a bully or is victimizing other children.

In summary, researchers suggest that individuals with ASD have a significantly increased risk of experiencing bullying compared to their peers. Moreover, one of the factors that make an individual with ASD more susceptible to bullying is a lack of friendships. Given that this study attempted to examine the social experiences of individuals with ASD both at home and at school, it was possible that bullying might emerge as a common theme amongst participants.

Home setting. Interestingly, social deficits are not isolated to interactions with peers but also extend to interactions with family members. In fact, when examining the interactions that took place within the home, researchers found that individuals with ASD were also less likely to initiate social interactions in comparison to their typically developing peers (Jones & Schwartz, 2009; Knott, Lewis, & Williams, 1995; Ruble, 2001). Additionally, when family members attempted the initiation, research showed that individuals with ASD were likely to ignore or reject the initiation (Adamson, McArthur, Markov, Dunbar, & Bakeman, 2001; Doussard-Roosevelt, Joe, Bazhenova, & Porges, 2003; Jones & Schwartz, 2009; Knott et al., 1995). In the rare instances when the individual with ASD did respond to their family's initiations, the interaction was cut

short. Specifically, the individual with ASD would communicate solely in an effort to end the interaction as opposed to continuing it (Jones & Schwartz, 2009).

When examining the relationship between individuals with ASD and their siblings, it was found that individuals with ASD spent significantly less time with their siblings at home in comparison to their typically developing peers and peers with Down Syndrome (Knott et al., 1995). However infrequent these interactions were, it was found that the quality of the interactions were significantly better than those had with peers at school. Specifically, the interactions were deemed to be positive 40-50% of the time, prolonged (approximately 40 minutes in length), and varied (ranging from rough and tumble to sophisticated play) (Knott et al., 1995). This lent itself well to the finding of McHale, Sloan and Simeonsson (1986), who found that when interviewed about their perceptions of their sibling with ASD, siblings tended to rate their sibling in more favourable terms than less favourable. In fact, siblings only rated their siblings with ASD in less favourable terms when they: (a) were concerned with the sibling's future; (b) perceived parents were playing favourites; and (c) perceived their peers were rejecting their sibling (McHale et al., 1986).

The research pertaining to parental interactions tends to focus on maternal initiations. When mothers were observed interacting with their child with ASD it was found that they spent more time attempting initiations than they did when interacting with their typically developing child (Adamson et al., 2001). Doussard-Roosevelt et al. (2003) noted that when the mothers put a large amount of effort into engaging their child and utilizing both verbal and non-verbal bids, the child with ASD was more likely to respond. However, it was also noted that of the methods used to initiate, children with ASD

preferred non-verbal bids, such as proximity and object manipulation (Doussard-Roosevelt et al., 2003). Although it appeared that mothers acted differently with their child with ASD than their typically developing child, the differences in perception of their children stopped here. In fact, when asked about the at-home interactions of their child with ASD, parents indicated the child was only slightly more isolated than their typically developing child, and that many happy family occasions were celebrated together as a family unit (Church, Alisanski, & Amanullah, 2000).

In summary, researchers continued to present a mixed picture regarding the social experiences of individuals with ASD at home. Researchers noted that individuals with ASD did not tend to initiate social interactions with family members, and would only communicate in an effort to end a social interaction. However, the quality of relationships with siblings was generally reported as being positive. Research pertaining to the social experiences of individuals with ASD was limited to interactions with mothers, and suggested that mothers spent a significant amount of effort attempting to engage their child with ASD in social interactions in comparison to that spent with their typically developed child(ren). Given that my study attempted to examine the social experiences of individuals with ASD both at home and at school, the social experiences with siblings and parents were also examined.

Examination of social competence in ASD. The DSM-5 clearly states that individuals with ASD struggle with social skills. Based on this, it is not surprising that few studies have looked at the potential social competence of students with ASD. In fact, a search of the literature will show that the majority of studies are social skill interventions. This suggests that the majority, if not all, students with ASD require these

interventions in order to be socially competent in their classroom. Moreover, although an individual with ASD may exhibit good communication skills to an observer who is unfamiliar with their diagnosis, this communication is impaired in that it is restricted in terms of scope, usually pertaining to the individual with ASD's interests (Van Lang et al., n.a.). However, others would argue that social competence is dependent upon particular factors. For instance, when examining the quality of social outcomes in adolescents with Asperger's Disorder, Montgomery, Stoesz, and McCrimmon (2012) found that only a lack of emotional intelligence impacts the adolescent's ability to have quality relationships. Indeed, it is important that the distinction can be made between beliefs held about the individual with ASD and their actual skill set. Deschamps, Been, and Matthys (2014) found that although parents and teachers believe that children with ASD have empathic deficits, these children performed just as well as their typically developing peers on cognitive and affective empathy tasks. This misbelief about the children's abilities is perhaps closely tied to the findings of Billstedt, Gillberg, and Gillberg (2005) wherein the majority of participants retained some form of ASD diagnosis 13 to 22 years later. This suggests that "moving off the autism spectrum into social and communicative function that is within normal limits is not generally considered a realistic goal, and indeed, is not a common outcome" (Fein et al., 2013, p. 195). However, recent literature is beginning to focus on optimal outcome individuals. Optimal outcome individuals are a minority of individuals who have been previously diagnosed with ASD but have subsequently lost their diagnosis due to their functioning skills becoming on par with their typically developing peers. In fact, it is estimated that 3-25% of the majority of cohorts consist of individuals whom have lost their ASD diagnosis (Helt, Kelley,

Kinsbourne, Pandey, Boorstein, Herbert, & Fein, 2008). Although Fein et al.'s (2013) research indicates that optimal outcome individuals performed better than individuals with high-functioning Autistic Disorder on socialization skills, not all participants with high-functioning Autistic Disorder performed poorly. In fact, Chamberlain et al. (2007) support this finding by revealing that it is quite possible that individuals with ASD may not necessarily be void of all social skill. Specifically, when examining the involvement of children with ASD in the classroom, it was noted that some individuals with ASD "had only a few weak ties and no reciprocal friendships, while others were centrally involved and enjoyed considerable reciprocity" (Chamberlain et al., 2007, p. 239). Interestingly, Knott et al. (2006) further substantiated this claim and noted while examining the skills and competencies of individuals with ASD in inclusive classrooms that some children and parents agreed that: (a) the child had at least one close friend; (b) it was easy for the child to make friends; (c) the child had previously been invited to go to another's house; (d) the child saw their school friends on the weekends; (e) the child had someone to sit next to in class; and (f) the child would be invited to be on a team. Therefore, given the results of these studies it appears there is no definitive evidence that all students with ASD lack social skills.

Summary & relation to study. Taken together, the literature depicts a spectrum of social competence. In some cases, social skills are lacking altogether (e.g., failing to pass theory of mind tasks) or deficient in some way (e.g., an inability to control emotions and/or actions). On the other hand, some research supports a basis for social competence through reciprocated friendships and the shedding of the ASD diagnosis.

For the purpose of this research study, I wanted to examine the social competence of adolescents with ASD. This required examining the environments where individuals with ASD spend the majority of their time: home and school. Additionally, to provide a fuller picture of the social competence of adolescents with ASD, I wanted to examine the factors that contribute to and hinder social competence. The fundamental questions in this investigation were:

1. Do adolescents with ASD experience social competence at home or at school?
2. What are the factors that appear to contribute to and/or hinder the perceived social competence of these adolescents as reported by parents, teachers, and selves?

Chapter 2: Method

The methodological framework for this study was a mixed methods approach. Mixed method refers to a research design that "focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies" (Creswell & Plano Clark, 2007, p. 5). I utilized quantitative measures to examine *if* and *how* frequently adolescents engaged in socially competent behaviours. The qualitative measure provides details pertaining to the social experiences of adolescents with ASD.

Participants

The following section will describe the three groups of participants used in the study.

Adolescents. Adolescents were recruited based on the presence of three inclusion criteria: (a) a diagnosis of high-functioning autism or Asperger's Disorder; (b) enrollment in a high school in Ontario and (c) proficiency in English as their primary language. Seventeen adolescents with ASD (16 male, 1 female) were recruited to the study. The adolescents ranged from 13 years of age to 19 years of age at the beginning of the study (M = 15.4 years, SD = 1.4 years). Fifteen adolescents were enrolled in a high school in Southwestern Ontario, while the other two adolescents were enrolled in grade 8. Five adolescents were diagnosed under the DSM-IV-TR as having high-functioning Autistic Disorder, eleven adolescents were diagnosed under the DSM-IV-TR as having Asperger's Disorder, and one participant was diagnosed under the DSM-IV-TR as having pervasive developmental disorder, not otherwise specified. Fifteen adolescents were of Caucasian descent, while one adolescent was of Hispanic descent and one adolescent was of Asian descent. All participants had at least one sibling, and only in one case did the

sibling live away from the family home (i.e., attending post-secondary schooling in another city). Seven adolescents had an older sibling, while nine adolescents were the oldest sibling. One participant was an identical twin with no other siblings. Two of the seventeen adolescents had a sibling who had also been diagnosed with ASD. In one of these cases, the two siblings with ASD had another sibling who was typically developing. Ten adolescents came from a nuclear family, while four adolescents came from a blended family and three adolescents came from a single-parent family.

Parents. The mothers of all 17 adolescents participated in the study. In three cases, the fathers also elected to participate in the study. Fifteen of the mothers were of Caucasian descent, while one mother was of Asian descent and another mother was of Hispanic descent. In regards to the fathers, two fathers were of Caucasian descent and one was of Hispanic descent. No additional demographic information was obtained for parents.

Teachers. A total of six special education resource teachers participated in the study. Three teachers were female and the other three teachers were male. Five teachers were of Caucasian descent, while one teacher was of Hispanic descent. No additional demographic information was obtained for teachers.

Measures

As previously indicated, having a strong theory of mind is related to having good social skills, yet it is argued that individuals with ASD are deficient in both. Therefore, it was important that the participants were administered both theory of mind and social skill measures to establish the presence of each skill set (or lack thereof).

Theory of mind measures. To test theory of mind, participants were asked to complete the Empathy Quotient for Adults (Baron-Cohen & Wheelwright, 1999), the Friendship and Relationship Quotient (Baron-Cohen & Wheelwright, 2000), the Cambridge Mindreading Face-Voice Battery (Golan, Baron-Cohen, & Hill, 2006a), and a verbal false-belief task (Hollebrandse, Hobbs, De Villiers, & Roeper, 2008).

Empathy Quotient for Adults. The Empathy Quotient for Adults (Baron-Cohen & Wheelwright, 1999) is a measure of empathy that accurately identifies adults with ASD (Muncer & Ling, 2006). The Empathy Quotient for Adults was selected over other empathy measures (e.g., The Balanced Emotional Empathy Scale [Mehrabian, 1996]) because one of the authors (i.e., Baron-Cohen) also co-created the Cambridge Mindreading Face-Voice Battery and the Friendship and Relationship Quotient. Therefore, there is good concurrent validity between the measures (Baron-Cohen & Wheelwright, 2003). In terms of reliability, test-retest reliability is high, with a correlation of 0.97 (Baron-Cohen & Wheelwright, 2004). In terms of validity, the Empathy Quotient for Adults has concurrent validity with the Autism Spectrum Quotient and the Interpersonal Reactivity Index (Baron-Cohen & Wheelwright, 2004; Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). The Empathy Quotient for Adults was normed on individuals with autism (M = 34.2 years, age range: 15.4-59.9 years) and a control group of participants (M = 34.2 years, age range: 17.4-56.4 years). Scores on this scale can range between 0 and 80 points with a low score indicating that the individual lacks empathic ability in comparison to their typically developing peers, while a high score indicates that the individual is capable of empathy similar to that of their typically developing peers. The mean score of participants with autism spectrum disorder obtained

by Baron-Cohen and Wheelwright (1999) was *M* = 20.4, *SD* = 11.6, while the mean score for control participants was *M* = 42.1, *SD* = 10.6. The Empathy Quotient for Adults was administered by paper and pencil (see Appendix A for a copy of the Empathy Quotient for Adults).

Friendship and Relationship Quotient. The Friendship and Relationship Quotient, also created by Baron-Cohen & Wheelright (2003), measures the extent that participants "enjoyed close, empathic supportive friendships; who liked and were interested in people; who enjoyed interaction with others for its own sake; and for whom friendships were important" (Baron-Cohen & Wheelwright, 2003, p. 509). I selected the Friendship and Relationship Quotient to measure friendship characteristics as it has good concurrent validity with the Empathy Quotient for Adults, and because no other appropriate friendship test was available. The creators did not report the extent to which the test is reliable; however, the creators do suggest there is good construct validity (Baron-Cohen & Wheelwright, 2003). The Friendship and Relationship Quotient was normed on individuals with autism (*M* = 34.3 years, age range: 14.0-63.9 years) and a control group of participants (*M* = 40.5 years, age range: 18.0-66.4 years). Scores on this scale can range between 0 and 140 points with a low score indicating that the individual does not have an interest in friendships and other close relationships in comparison to their typically developing peers, while a high score indicates that the individual demonstrates an interest for these relationships that is similar to their typically developing peers. The mean score of participants with autism spectrum disorder obtained by Baron-Cohen and Wheelwright (2000) was *M* = 53.2, *SD* = 18.3, while the mean score for control participants was *M* = 70.3, *SD* = 15.7. The Friendship and Relationship Quotient was

administered by paper and pencil (see Appendix B for a copy of the Friendship and Relationship Quotient).

Cambridge Mindreading Face-Voice Battery. The Cambridge Mindreading Face-Voice Battery assesses the "emotional repertoire of adults...and [examines] each emotion thoroughly through both visual and auditory modalities" (Golan, Baron-Cohen, & Hill, 2006b, p. 171). Although this measure is not the only measure available to examine mindreading abilities (for instance, the Reading the Mind in Films Test [Golan, Baron-Cohen, Hill, & Golan, 2006] and the Reading the Mind in the Voice Test [Golan, Baron-Cohen, Hill, & Rutherford, 2006] were also feasible tests), it is practical to make use of the Cambridge Mindreading Face-Voice Battery as it addresses the skills of understanding emotions expressed both through the voice and the eyes simultaneously. While the reliability statistics for this measure are not available due to a lack of test reviews, the creators indicate that items were validated prior to group analysis and there is a significant correlation with other eye and voice recognition tests (Golan, Baron-Cohen, & Hill, 2006b). The Cambridge Mindreading Face-Voice Battery was normed on individuals with autism (M = 30.2 years, age range: 17.9-49.9 years) and a control group of participants (M = 27.1 years, age range: 17.6-51.2 years). For this measure, scores on visual and auditory stimuli are added together to obtain an overall score. Scores on this scale can range between 0 and 100 points with a low score indicating that the individual struggles to identify emotions presented to them visually and/or aurally in comparison to their typically developed peers, while a high score indicates that the individual is capable of identifying a range of emotions that are presented visually or aurally that was on par with their typically developed peers. The mean score of participants with autism

spectrum disorder obtained by Golan et al. (2006a) was *M* = 68.1, *SD* = 11.7, while the mean score for control participants was *M* = 86.3, *SD* = 6.0. The Cambridge Mindreading Face-Voice Battery was administered by the DMDX program on a Windows based laptop.

Bake sale task. The verbal false-belief task, referred to as the bake sale task, is a story that is accompanied by four pictures that serve as memory aids which examines an individual's ability to pass first- and second-order false-beliefs. Modelled after Perner & Wimmer's (1985) ice cream truck story, the bake sale task begins with

> protagonist 1 and 2 initially sharing the same belief…(Sam and Maria initially thinking that there were chocolate-chip cookies at the bake sale of the church). Then protagonist 1's belief changes without protagonist 2 knowing about it (Sam's mom tells Sam that they are selling pumpkin pie). Next, protagonist 2 learns that the reality is different, without protagonist 1 knowing about this (Maria finds out that there are only brownies left). At that point protagonist 1 has a first-order belief which differs from his initial belief and also from the reality (Sam's new thought is that they are selling pumpkin pie, not chocolate-chip cookies; he doesn't know that in reality they are selling brownies). Protagonist 2 knows the reality, which is different from her second-order belief about protagonist 1 (Maria knows they are selling brownies, but thinks that Sam still thinks that they are selling chocolate-chip cookies). (Hollebrandse, van Hout, & Hendriks, 2014, p. 324)

The validity statistics for this measure are not available; however, the reliability has been reported to be 0.84 (Girli & Tekin, 2010). The Bake Sale Task was normed on a control

group (*M* = 6.11 years, age range: 6.1 – 7.10 years) of participants. Scores on this scale can range between 0 and 6 points with a low score indicating that the individual struggles with theory of mind tasks in comparison to their typically developed peers, while a high score indicates that the individual shares the same capability of passing first order and second order theory of mind tasks as their typically developed peers. The mean score for Hollebrandse et al's (2014) control group was 4 out of 6 questions. In this study, the bake sale task was administered verbally, together with a Microsoft PowerPoint slideshow of the written story below each of the four pictures (see Appendix C for a print out of slideshow).

Social skills measures. While the theory of mind tests were completed by the adolescent participants only, the social skill measures were completed by the adolescent, their parent(s), and their teacher(s).

Social Skills Improvement System Rating Scales. The adolescents were asked to complete the social skills scale of the Social Skills Improvement System Rating Scales (Gresham & Elliott, 2008), which measures "student social behaviours that [are] important for school success" (Doll & Jones, 2010, para. 1). The Social Skills Improvement System Rating Scales was selected over other measures (e.g., Social Skills Rating System; Gresham & Elliott, 1990), which report low to moderate evidence of reliability and validity, as well as low stability across forms (McLean, 1992). Moreover, the Social Skills Improvement System Rating Scales was selected with the desire of having the adolescent participants self-assess their social skills, an option that is not typically offered in other social skill tests. The Social Skills Improvement System Rating Scales is deemed to have good reliability and validity. In regards to reliability, the Social

Skills Improvement System Rating Scales has adequate internal consistency ranging from 0.72 to 0.95 and a test-retest correlation of 0.79 (Doll & Jones, 2010). In regards to validity, the Social Skills Improvement System Rating Scales is consistent with other tests measuring similar behaviours (i.e., construct validity; Doll & Jones, 2010) and that the DSM-IV-TR and individual expertise were consulted in order to establish content validity (Crosby, 2011). Additionally, the Social Skills Improvement System Rating Scales has evidence of concurrent validity with other social skill tests. For example, with the Vineland Adaptive Behavior Scale socialization domain it has correlations of 0.65 and 0.44 for the teacher and parent forms, respectively (Gresham, Elliott, & Kettler, 2010). The Social Skills Improvement System Rating Scales was normed on a group of control participants (M = 14.11 years, age range: 13.0-18.11 years). Scores on this scale can range between 40 and 160 points with a low score indicating very poor social skills, and a high score indicating very strong social skills. The standardized mean score as reported by Gresham and Elliott (2008) is M = 100, SD = 15. The Social Skills Improvement System Rating Scales were administered by paper and pencil (see Appendix D for a copy of the Social Skills Improvement System Rating Scales).

Vineland Adaptive Behavior Scale, 2nd Edition. The parent(s) and teacher(s) were asked to complete the socialization domain of the Vineland Adaptive Behavior Scale, 2nd Edition (Sparrow, Balla, & Cicchetti, 2005). The Vineland Adaptive Behavior Scale, 2nd Edition is used to "determine the relationship of adaptive behaviour levels to levels of clinical, cognitive, or educational functioning" (Sparrow, Balla, & Cicchetti, 1984, p. 5), while the social skill and relationship domain measures interpersonal relationships, play and leisure, and coping skills (Stein, 2010). Although I could have chosen to use the

Social Skills Improvement System Rating Scales (Gresham & Elliott, 2008) with the parent(s) and teacher(s), I determined that the Vineland Adaptive Behavior Scale, 2nd Edition has significantly more test reviews and is the predominant test used by researchers (Salvia, Ysseldyke, & Bolt, 2010). Beyond the fact that the Vineland Adaptive Behavior Scale, 2nd Edition is "well respected…with a strong reputation" (Stein, 2010, para. 18), it consists of good levels of reliability and validity. In terms of reliability, internal consistency is good across the test (high 0.80 to mid 0.90), with the socialization domain being quite reliable (Stein, 2010). Moreover, test-retest reliability is in the good to excellent range (low 0.80 to mid 0.90) and interrater reliability is 0.70 to 0.80 on the parent form, and 0.40 to 0.60 on the teacher rating form (Stein, 2010). In terms of validity, the Vineland Adaptive Behavior Scale, 2nd Edition has good content and concurrent validity. With respect to content validity, there is a theoretical link to adaptive behaviour as identified by the American Psychiatric Association and the content appears representative of the "acquisition of behaviours and skills with age" (Stein, 2010, para. 12). In regards to concurrent validity, the Vineland Adaptive Behavior Scale, 2nd Edition is correlated with other adaptive tests (e.g., Adaptive Behavior Assessment System, 2nd Edition; Harrison & Oakland, 2003), with the teacher form at 0.52 to 0.70, and the parent form was 0.69 to 0.78 (Stein, 2010). Moreover, strong areas of similarity exist between the Vineland Adaptive Behavior Scale, 2nd Edition and the Adaptive Behavior Assessment System, 2nd Edition in regard to communication and socialization (Stein, 2010). The Vineland Adaptive Behavior Scale, 2nd Edition was normed on a group of control participants from birth to 90 years old. Scores on this scale can range between 20 and 160 points with a low score indicating very poor social skills, and a high score

indicating very strong social skills. The standardized mean Vineland Adaptive Behavior Scale score as reported by Sparrow, Balla, & Cicchetti (2005) is $M = 100$, $SD = 15$. The Vineland Adaptive Behavior Scale, 2nd Edition was administered by paper and pencil. Please see Appendix E for a copy of the parent version of the socialization scale, and Appendix F for a copy of the teacher version of the socialization scale.

Semi-structured interview. To support the quantitative data, participants were also asked to take part in a semi-structured interview. Semi-structured interviews allow researchers to "delve deeply into a topic and understand thoroughly the answers provided" (Harrell & Bradley, 2009, p. 27). Unlike unstructured interviews, the researcher begins each interview with a set of standardized questions that must be covered (Harrell & Bradley, 2009). Moreover, unlike structured interviews, the interview questions merely serve as a guide and do not hinder the participants from providing details, examples and stories (Gay, Mills, & Airasain, 2006). Semi-structured interviews can be hindered by issues such as person confounds (e.g., individuals responding the way they think the researcher expects them to) and reverse causality (i.e., researchers drawing incorrect conclusions about the correlation between variables; Pelham & Blanton, 2003). Additionally, the researcher has to be careful not to ask leading questions such as 'you have good social experiences, don't you?' as these can add to person confounds (Harrell & Bradley, 2009). However, there are solutions to these potential problems. In regards to addressing person confounds, it is important that the researcher show no preference for a particular type of answer, which can be controlled through carefully worded guiding questions (Pelham & Blanton, 2003). In order to address issues resulting from reverse causality it is important to make repeated assessments of the variables that the researcher

is interested in, whether that be asking the same question several times (but in different words) or by asking several individuals who are intimate with one another to answer the same or similar questions (Pelham & Blanton, 2003).

In consultation with my dissertation committee members, interview questions were developed and broken into four sections, specifically: introduction, social experiences, characteristics of social competence, and contributions to social competence (see Appendix G for the interview protocol). As previously indicated, some individuals with ASD (specifically, those previously diagnosed with Autistic Disorder under the DSM-IV-TR) may have had deficient verbal skills, therefore resulting in an increased level of non-verbal responses. Although these deficiencies were expected to be at a minimum given that these adolescents had to have demonstrated a sufficient level of verbal abilities to be enrolled in inclusive classrooms in high school, I wanted to offer a manner in which to capture the non-verbal responses of these participants. Therefore, the adolescent's interviews were video recorded, while parent and teacher interviews were audio recorded.

Procedure

The following section describes the procedures used to collect and analyze the data.

Recruitment. Prior to beginning this study, ethics approval was obtained from the Western University Faculty of Education Sub-Research Ethics Board. Participants were recruited to the study by one of three methods (see Appendix H for a copy of the ethics approval). In the first method, a school board in Southwestern Ontario mailed information letters to the parent(s) of adolescents known to be diagnosed with ASD. Those interested in participating in the study were asked to contact me directly. In the second method, advertisements were placed on the websites of Autism Ontario, The

Asperger Society of Ontario, and Geneva Centre for Autism (see Appendix I for a sample advertisement). Again, those interested in participating in the study were asked to contact me directly. In the third method, I contacted participants by email after they were referred to me by friends who were familiar with my study. In order to include teachers in the study, I was required to obtain the approval of the applicable school board. Therefore, I applied for ethical approval in 28 school boards across Southwestern Ontario. Unfortunately, those applications coincided with the province-wide teacher strike of 2012, resulting in only four school boards providing ethical approval. Of the seventeen adolescent participants, only nine adolescents belonged to the approved school boards. The other eight participants belonged to school boards that had not provided ethical approval, and thus these participants' teachers were not invited to participate in the study.

To recruit teachers, parents were asked for the name of the special education resource teacher. This was based on the assumption that the special education resource teacher could speak more holistically to the needs and abilities of the adolescent as opposed to a subject teacher who often only saw the adolescent for an hour a day, five times a week for only one school semester. Invitations were first forwarded to the school Principal, who, if agreeable to their teachers participating, then forwarded the email on to the special education resource teacher (see Appendix J for a sample email invitation). The special education resource teacher of nine adolescents obtained this invitation from their school Principal. In two cases the special education resource teacher was responsible for two adolescents, so the special education resource teacher completed two sets of data. In four cases the special education resource teacher was responsible for only one adolescent,

while in one case the special education resource teacher opted not to participate in the study.

Data Collection. Measures were administered to adolescents across four sessions, each lasting from 20 minutes to 90 minutes. All sessions were completed in the adolescents' homes and in a six month time span. In the first session, adolescents were provided with a verbal description of the study, together with a Letter of Information (see Appendix K for the adolescent version of Letter of Information). Adolescents were then given an opportunity to ask questions prior to providing their signed consent (see Appendix L for the adolescent consent form). This was then followed up with the administration of the Empathy Quotient for Adults. In the second session, adolescents were administered the Friendship and Relationship Quotient and the Social Skills Improvement System Rating Scales. Adolescents were offered a brief break in-between each assessment. In the third session, adolescents were administered the bake sale task and the Cambridge Mindreading Face-Voice Battery. Again, adolescents were offered a brief break in-between each assessment in addition to the breaks built into the Cambridge Mindreading Face-Voice Battery. In the fourth session, adolescents were asked to participate in the semi-structured interview.

Measures were administered to parents in their homes and across two sessions, each lasting from 20 minutes to 150 minutes. In the first session, which corresponded with the first session with adolescents, parents were also provided with a verbal description of the study, together with a Letter of Information (see Appendix M for the parent version of Letter of Information). Parents were then given an opportunity to ask questions prior to providing their signed consent (see Appendix N for the parent consent form). This was

then followed with the administration of the socialization domain of Vineland Adaptive Behavior Scale, 2nd Edition. I initially administered only the age appropriate questions on each of the Vineland Adaptive Behavior Scale, 2nd Edition subscales, but I later determined that all questions in each subdomain should be administered. Subsequently, the Vineland Adaptive Behavior Scale, 2nd Edition was re-administered to parents by email approximately six to 11 months following the initial administration of the measure. Two parents did not respond to my request. In the second session, which corresponded with the fourth session with adolescents, parents were asked to participate in the semi-structured interview. In three cases, both parents (i.e., mother and father) took part in the interview. Parent interviews took place after their child had completed their interview.

Measures were administered to teachers at their workplace and in one session, ranging from 35 minutes to 70 minutes. The session began by providing teachers with a verbal description of the study, together with a Letter of Information (see Appendix O for the teacher version of Letter of Information). Teachers were then also given an opportunity to ask questions prior to providing their signed consent (see Appendix P for the teacher consent form). This was then followed with the administration of the Vineland Adaptive Behavior Scale, 2nd Edition and the semi-structured interview.

Data Analysis. The Bake Sale Task, Cambridge Mindreading Face-Voice Battery, Empathy Quotient for Adults, Friendship and Relationship Quotient, Social Skills Improvement System Rating Scales and Vineland Adaptive Behavior Scale, 2nd Edition were scored as directed by each respective test manual. Correlations were used to "determine whether, and to what degree, a relationship exists between two or more quantifiable variables" (Gay et al., 2006, p. 191). It is important to note that given the

number of correlations and the sample size, there was the possibility of Type II errors occurring. A Type II error refers to the researchers failing to "reject a null hypothesis that is really false" (Gay et al., 2006, p. 342). I used a one-tailed test, which "assumes that a difference can occur in only one direction" (Gay et al., 2006, p. 345). This, in turn, may reduce the probability of making a Type II error.

I chose not to use multiple regression because, according to Tabachnick and Fidell (2007), the sample size needs to be greater than 50 cases plus eight times the number of independent variables. My sample was too small for this analysis. I did not conduct analyses of variance also because of the small sample size. In order to correctly reject the null hypothesis when it is false (otherwise known as power), analyses of variance require a large sample size (Howell, 2004). In 1988, Cohen suggested that the minimum recommended power researchers should strive for is 0.80. This would provide that 80% of the time the null hypothesis will be correctly rejected when it is false. In order to obtain this level of power, Cohen (1988) provided that approximately 30 participants per cell would be required. Again, no cell in my study approached this minimum number of participants required.

The semi-structured interviews were transcribed verbatim. Interrater reliability was conducted with an individual with previous interview and thematic analysis experience Interrater reliability was modeled on Hruschka et al.'s (2004) intercoder reliability process. To create an initial codebook, we independently examined an initial subset of three interviews pertaining to one adolescent to propose a set of codes, commonly acknowledged as meaning units in thematic analysis (Creswell, 2007). We then met to compare these proposed codes, resulting in our agreement on a master list of codes to be

used in the NVivo software (QSR International, 2012). This master list of codes was revised until strong interrater agreement (i.e., percentage of agreement of 97.71%) occurred. We then applied the final version of the master of list of codes to the remaining interviews (see Appendix Q for the final version of the master list of codes). The 22 codes were then analyzed to identify emergent themes (Bryant, 2011).

Chapter 3: Results

The results section is divided into the following main subsections: (a) theory of mind assessments, (b) social skill assessments, (c) correlations, and (d) semi-structured interviews. The first subsection provides descriptive data summaries for each of the four theory of mind assessments administered to adolescents. The second subsection provides descriptive data summaries for the social skill assessments each group of participants completed. The third subsection presents the relationships between the quantitative measures discussed in subsections (a) and (b). Finally, the fourth subsection provides an analysis of the themes noted across the semi-structured interviews.

Theory of Mind Measures

I administered four measures that examined the theory of mind abilities of the adolescents. The following section will examine each of these.

Empathy Quotient for Adults. A one-sample t-test was conducted to compare the obtained Empathy Quotient for Adults score (M = 33.53, SD = 11.54) with the normed Empathy Quotient for Adults score (M = 42.1, SD = 10.6); t(16) = -3.063, p = 0.007. These results suggest that the sample mean in this study is significantly lower than the norm group. The distributions of scores obtained by my participants on the Empathy Quotient for Adults are presented in Figure 2.

Friendship and Relationship Quotient. A one-sample t-test was conducted to compare the obtained Friendship and Relationship Quotient score (*M* = 72.24, *SD* = 15.84) with the normed Friendship and Relationship Quotient score (*M* = 70.3, *SD* = 15.7); *t*(16) = 0.504, *p* = 0.621. These results suggest that the sample mean in this study is

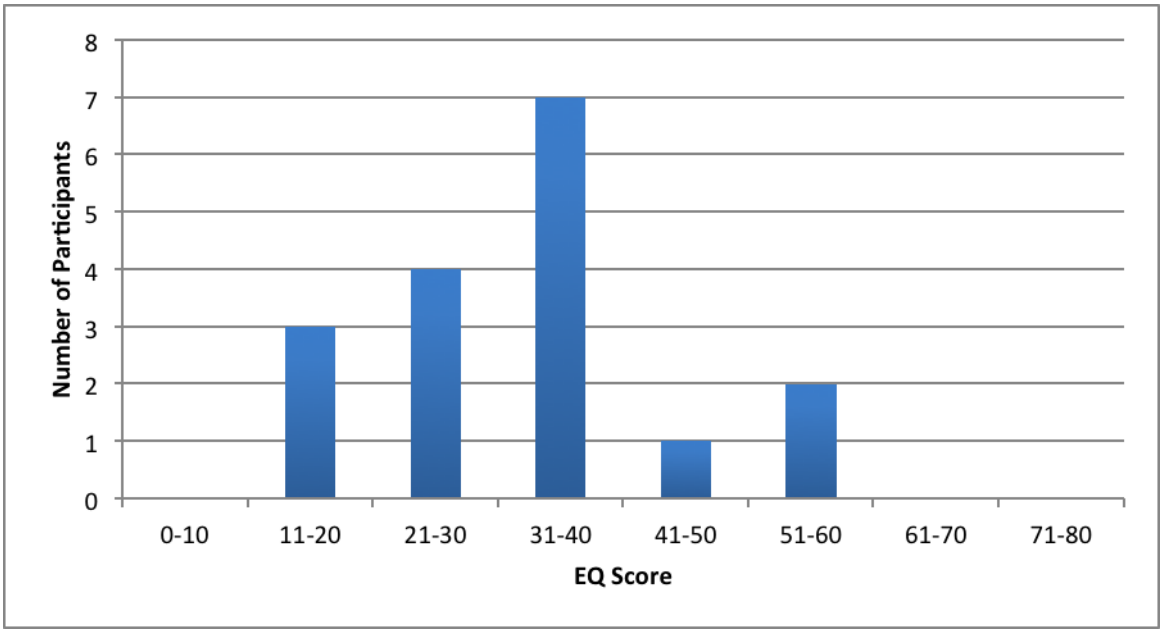


Figure 2. Distribution of Empathy Quotient for Adults' scores amongst participants (*N* = 17).

not significantly different than the norm group. The distribution of scores obtained by the participants on the Friendship and Relationship Quotient are presented in Figure 3.

Cambridge Mindreading Face-Voice Battery. A one-sample t-test was conducted to compare the obtained Cambridge Mindreading Face-Voice Battery score (M = 51.71, SD = 16.65) with the normed Cambridge Mindreading Face-Voice Battery score (M = 86.3; SD = 6.0); $t(16) = -8.567$, $p = 0.000$. This result suggests that that the sample mean in this study scored significantly lower than the norm group. The distribution of overall scores obtained by the participants on the Cambridge Mindreading Face-Voice Battery is presented in Figure 4.

Bake Sale Task. A one-sample t-test was conducted to compare the obtained Bake Sale Task score (M = 3.71, SD = 2.17) with the normed Bake Sale Task score (M = 4.0); $t(16) = -0.558$, $p = 0.584$. This result suggests that that the sample mean in this study is not significantly different than the norm group. The distributions of my sample's scores on the Bake Sale Task are presented in Figure 5.

Summary of Theory of Mind Scores. An examination of the theory of mind assessments reveals a mixed picture. When adolescents were self-reporting their empathy skills and interest in friendships, they surpassed the scores obtained by their peers with autism in the norm sample. Moreover, participants performed equal to or better than their typically developed peers in the norm sample. However, when their performances on emotion recognition and false-belief tasks were measured, they performed weaker than their typically developing peers in the norm samples. With the Cambridge Mindreading Face-Voice Battery, participants performed poorer than the individuals with autism in the norm sample. Therefore, it seems that participants were able to provide appropriate social

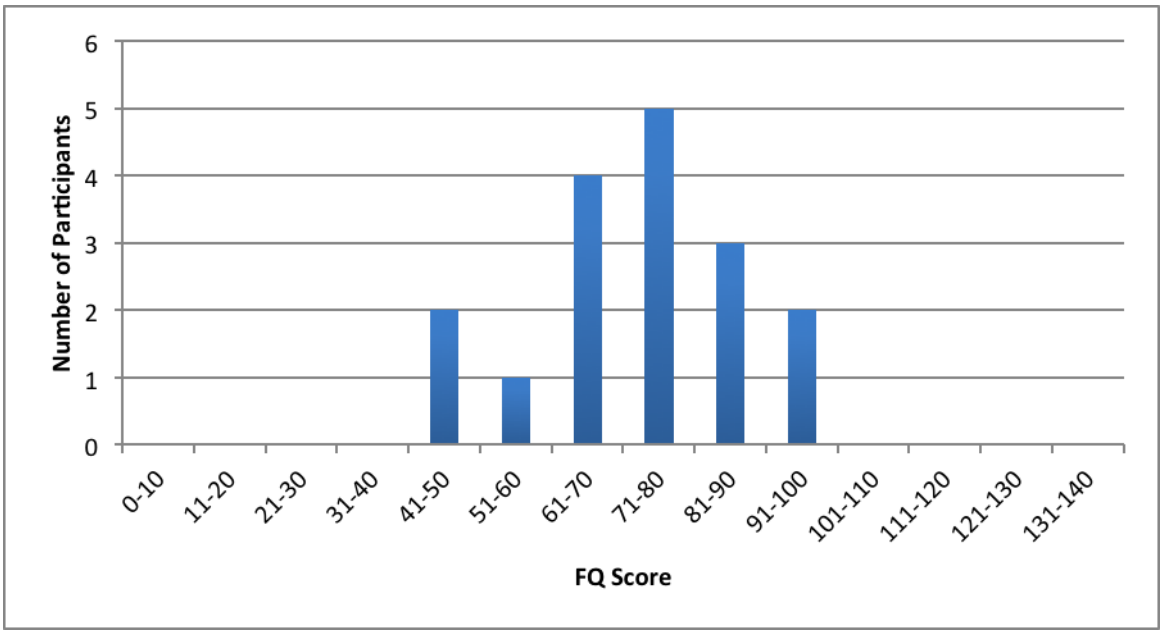


Figure 3. Distribution of Friendship and Relationship Quotient scores amongst participants (*N* = 17)

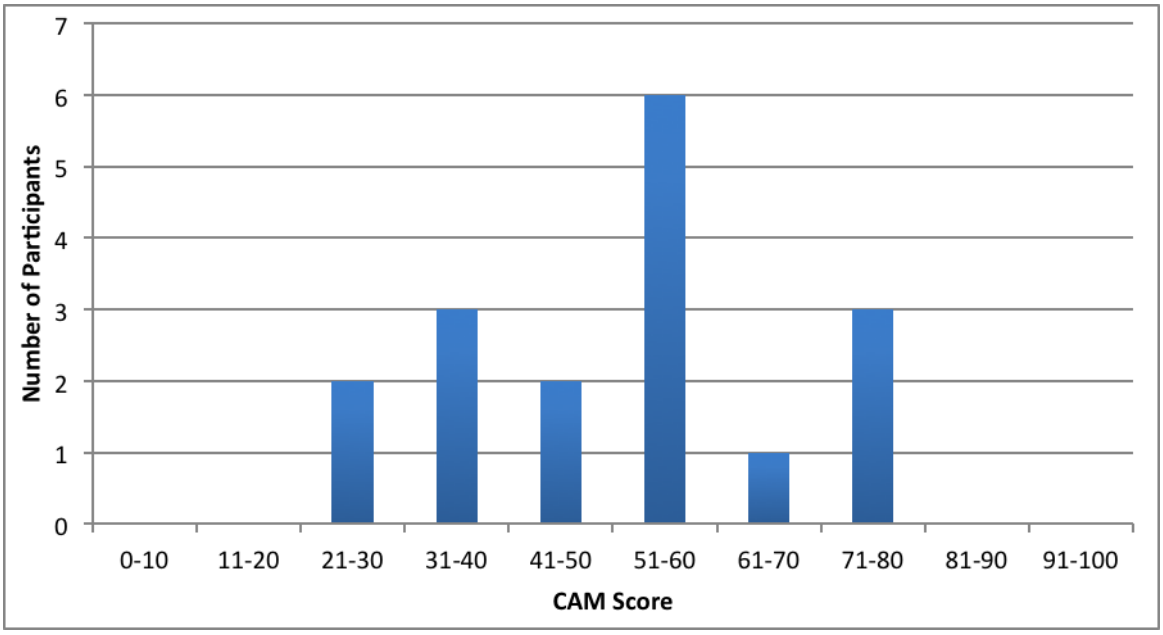


Figure 4. Distribution of Cambridge Mindreading Face-Voice Battery scores amongst participants (N = 17).

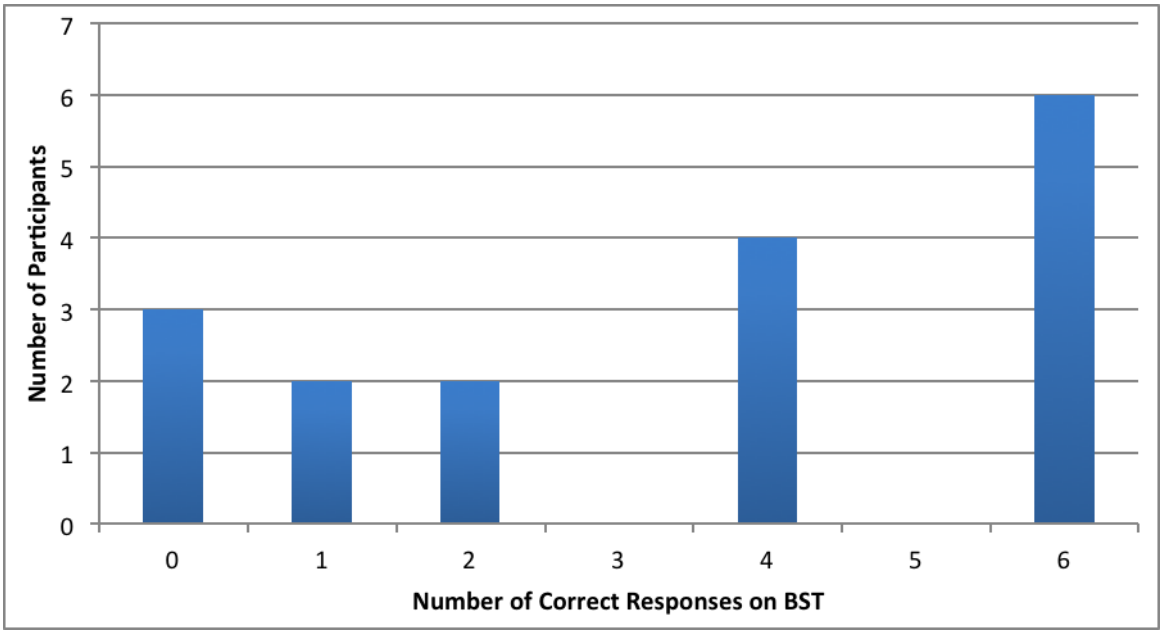


Figure 5. Distribution of Bake Sale Task scores amongst participants (N = 17).

responses on the Empathy Quotient for Adults and the Friendship and Relationship Quotient; however, they were unable to neither recognize complex emotions nor understand others' behaviours, as required in the Cambridge Mindreading Face-Voice Battery and the Bake Sale Task.

Social Skills Measures

Each participant was administered a measure that examined the social skills of the adolescent with ASD. The following section will examine each group's scores on the social skills measure.

Social Skills Improvement System Ratings Scales. A one-sample t-test was conducted to compare the obtained Social Skills Improvement System Ratings Scale score (M = 97.35, SD = 13.12) with the normed Social Skills Improvement System Ratings Scale score (M = 100.0; SD = 15.0); $t(16) = -0.832$, $p = 0.418$. These results suggest that the sample mean in this study is not significantly different than the norm group. The distributions of the sample's scores on the Social Skills Improvement System Ratings Scales are presented in Figure 6.

Vineland Adaptive Behavior Scale – Parent Scores. A one-sample t-test was conducted to compare the obtained Vineland Adaptive Behavior Scale – Parent socialization domain score (M = 66.93, SD = 12.05) with the normed Vineland Adaptive Behavior Scale - Parent socialization domain score (M = 100.0; SD = 15.0); $t(14) = -10.628$, $p = 0.000$. These results suggest that the sample mean in this study is significantly lower than the norm group. The distribution of my sample parent scores on the Vineland Adaptive Behavior Scale are presented in Figure 7.

Vineland Adaptive Behavior Scale – Teacher Scores. A one-sample t-test was

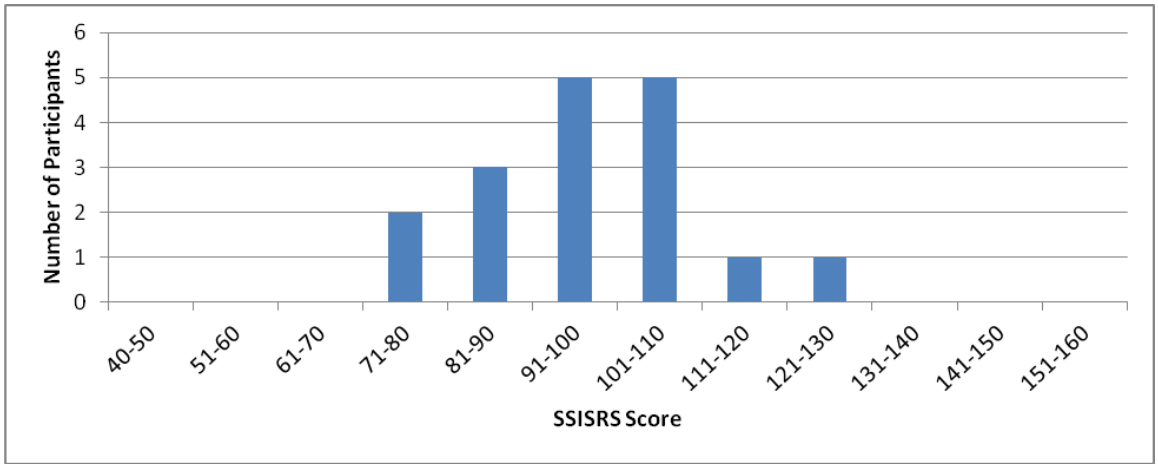


Figure 6. Distribution of Social Skills Improvement System Rating Scales scores amongst participants (N = 17).

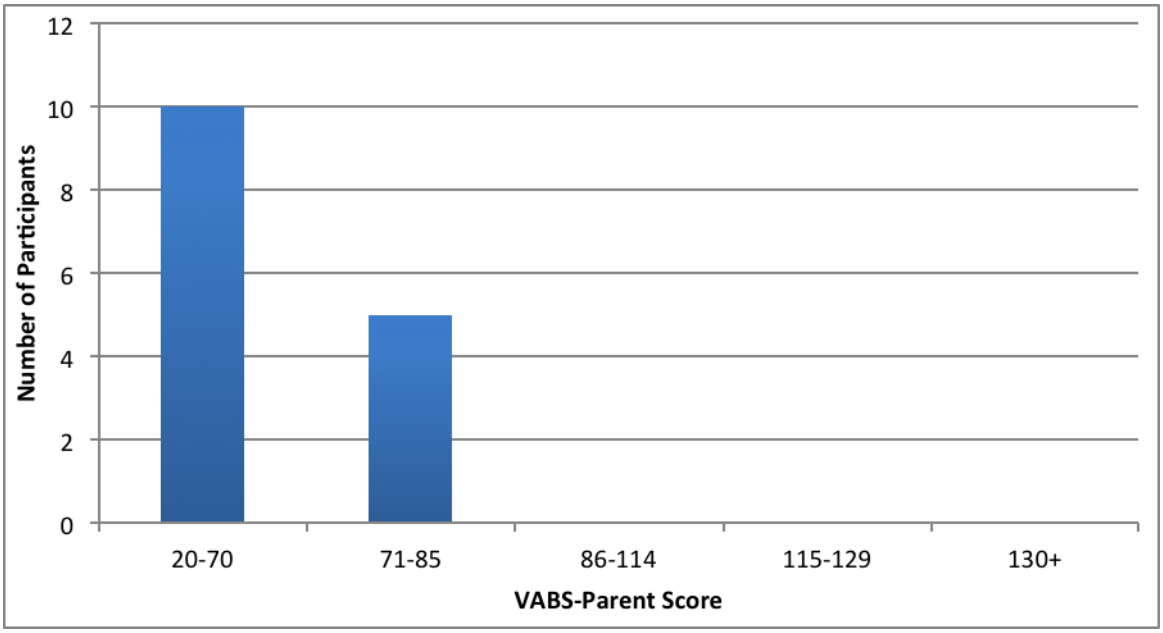


Figure 7. Distribution of Vineland Adaptive Behavior Scale parent scores amongst participants (*N* = 15).

conducted to compare the obtained Vineland Adaptive Behavior Scale – Teacher socialization domain score (M = 72.38, SD = 13.06) with the normed Vineland Adaptive Behavior Scale – Teacher socialization domain score (M = 100.0; SD = 15.0); $t(7) = -5.983$, $p = 0.001$. These results suggest that the sample mean in this study is significantly lower than the norm group. The distribution of my sample teacher scores on the Vineland Adaptive Behavior Scale are presented in Figure 8.

Summary of Social Skills Scores. Overall, all of the participants agreed that adolescents possessed weaker social skills than their typically developing peers. Interestingly, adolescents reported their social skills were only slightly weaker than their typically developing peers, while parents and teachers reported the adolescents' social skills as being moderately weaker than those demonstrated by typically developing peers.

Correlations

A bivariate correlation matrix consisting of diagnosis, the theory of mind measures, and the social skill measures is presented in Table 3. One-tailed tests were used because, based on the literature, individuals with autism are expected to perform poorly on all of the measures in comparison to their typically developed peers. Significant correlations that were found will be discussed in further detail.

Significant Correlations. The Empathy Quotient for Adults was strongly correlated with the Social Skills Improvement System Rating Scales, $r_s(15) = 0.745$, $p \leq 0.000$. As seen in Table 4, an examination of the correlation among subscales revealed that moderate-to-strong correlations existed between the Empathy Quotient for Adults and the Social Skills Improvement System Rating Scales communication subscale, $r_s(15) = 0.774$, $p \leq 0.000$, cooperation subscale, $r_s(15) = 0.742$, $p \leq 0.000$, empathy subscale,

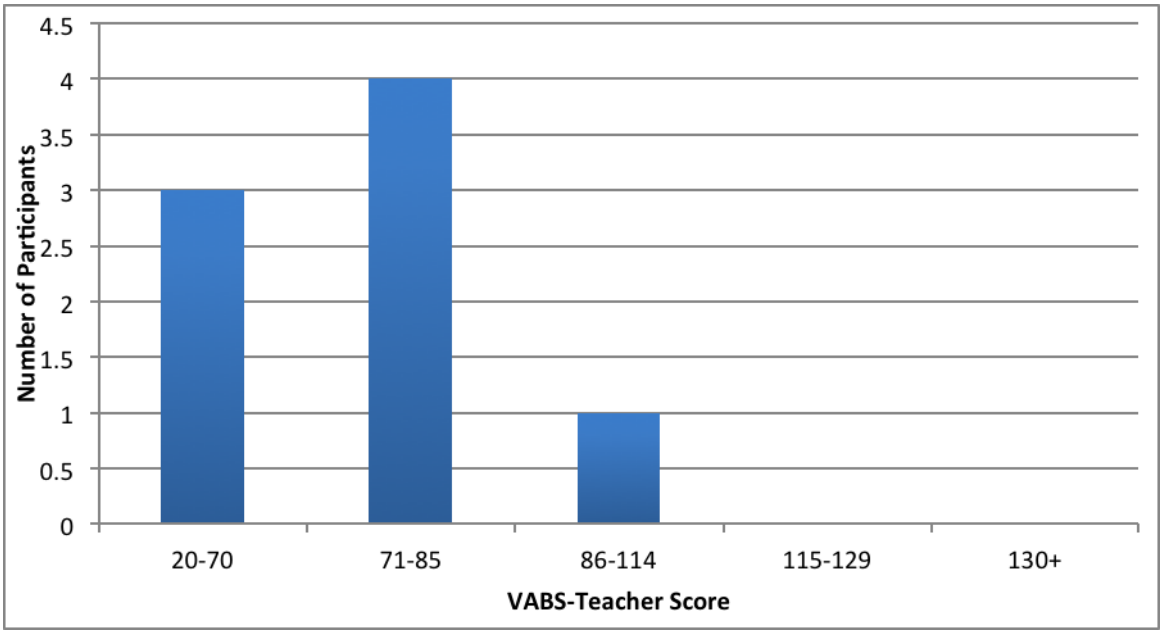


Figure 8. Distribution of Vineland Adaptive Behavior Scale teacher scores amongst participants (N = 8).

Table 3.
Correlation matrix for independent variables

	Diagnosis	EQ	FQ	SSISRS	BST	CAM	VABS-P	VABS-T
Diagnosis	1.000							
EQ	-0.146	1.000						
FQ	-0.266	0.202	1.000					
SSISRS	-0.315	**0.745****	**0.520***	1.000				
BST	0.109	-0.167	-0.185	-0.351	1.000			
CAM	-0.029	-0.112	-0.108	-0.188	**0.775****	1.000		
VABS-P	-0.105	0.341	-0.099	0.068	-0.367	**-0.493***	1.000	
VABS-T	0.097	0.192	-0.180	-0.216	**0.820****	**0.687***	0.430	1.000

Note. Diagnosis = Disorder According to Diagnostic & Statistical Manual of Mental Disorders, 4th Edition, Text Revision; EQ = Empathy Quotient for Adults; FQ = Friendship and Relationship Quotient; SSISRS = Social Skills Improvement System Rating Scales; BST = Bake Sale Task; CAM = Cambridge Mindreading Face-Voice Battery; VABS-P = Vineland Adaptive Behavior Scale, Parent Respondent; VABS-T = Vineland Adaptive Behavior Scale, Teacher Respondent. Significant correlations, $p<0.05$, are highlighted in bold with * and are for one-tailed tests. Significant correlations, $p<0.01$, are highlighted in bold with ** and are for one-tailed tests.

Table 4.

Correlation of Empathy Quotient for Adults scores and Friendship and Relationship Quotient scores with Social Skills Improvement System Rating Scales subscale scores

	SSISRS Subscale Scores						
	Communication	Cooperation	Assertion	Responsibility	Empathy	Engagement	Self-Control
EQ Score	0.774**	0.742**	0.043	0.268	0.614**	0.485*	0.753**
FQ Score	0.502*	-0.030	0.526*	-0.089	0.400	0.526*	-0.100

Note. SSISRS = Social Skills Improvement System Rating Scales; EQ = Empathy Quotient for Adults; FQ = Friendship and Relationship Quotient. Significant correlations, $p<0.05$, are highlighted in bold with * and are for one-tailed tests. Significant correlations, $p<0.01$, are highlighted in bold with ** and are for one-tailed tests.

$r_s(15) = 0.614$, $p = 0.004$, engagement subscale, $r_s(15) = 0.485$, $p = 0.024$, and self-control subscale, $r_s(15) = 0.753$, $p \leq 0.000$.

Similarly, the Friendship and Relationship Quotient was moderately correlated with the Social Skills Improvement System Rating Scales, $r_s(15) = 0.520$, $p = 0.016$. As seen in Table 4, an examination of the correlation among subscales revealed that moderate correlations existed between the Friendship and Relationship Quotient and the Social Skills Improvement System Rating Scales communication subscale, $r_s(15) = 0.502$, $p = 0.020$, assertion subscale, $r_s(15) = 0.526$, $p = 0.015$, and engagement subscale, $r_s(15) = 0.526$, $p = 0.015$.

The Bake Sale Task was very strongly correlated with two measures: the Cambridge Mindreading Face-Voice Battery, $r_s(15) = 0.775$, $p \leq 0.000$, and the Vineland Adaptive Behavior Scale – Teacher Scores, $r_s(15) = 0.820$, $p = 0.006$. When the Bake Sale Task and the Cambridge Mindreading Face-Voice Battery were examined at the subscale level, moderate-to-strong correlations were noted between first order theory of mind and face tasks, $r_s(15) = 0.641$, $p = 0.003$, and between second order theory of mind and face tasks, $r_s(15) = 0.484$, $p = 0.024$. In regards to the voice task, a strong correlation was found with only second order theory of mind, $r_s(15) = 0.638$, $p = 0.003$. Please refer to Table 5 for these subscale correlations. No significant correlations were found at the subscale level between the Bake Sale Task and the Vineland Adaptive Behavior Scale – Teacher Scores.

The Cambridge Mindreading Face-Voice Battery was correlated with two additional measures: the Vineland Adaptive Behavior Scale – Parent Scores, $r_s(15) = -0.493$, $p = 0.031$ and the Vineland Adaptive Behavior Scale – Teacher Scores, $r_s(15) =$

Table 5.

Correlation of Bake Sale Task subscale scores, Vineland Adaptive Behavior Scale - Parent Score socialization subdomain scores, and Vineland Adaptive Behavior Scale - Teacher Score socialization subdomain scores with Cambridge Mindreading Face-Voice Battery subscale scores

	CAM Subscale Score	
	Face	Voice
BST Subscale Score		
1st Order	0.641**	0.388
2nd Order	0.484*	0.638**
VABS-P Socialization Subdomain Score		
Interpersonal Skills	-0.351	-0.710**
Play & Leisure	-0.216	-0.360
Coping Skills	-0.389	-0.517*
VABS-T Socialization Subdomain Score		
Interpersonal Skills	0.667*	0.442
Play & Leisure	0.749*	0.419
Coping Skills	0.323	0.400

Note. CAM = Cambridge Mindreading Face-Voice Battery; BST = Bake Sale Task; VABS-P = Vineland Adaptive Behavior Scale, Parent Respondent; VABS-T = Vineland Adaptive Behavior Scale, Teacher Respondent. Significant correlations, $p<0.05$, are highlighted in bold with * and are for one-tailed tests. Significant correlations, $p<0.01$, are highlighted in bold with ** and are for one-tailed tests.

0.687, $p = 0.030$. When the Cambridge Mindreading Face-Voice Battery and the Vineland Adaptive Behavior Scale – Parent Scores were examined at the subscale level, moderate-to-strong negative correlations were noted between voice tasks and interpersonal skills, $r_s(15) = -0.710$, $p = 0.001$, and voice tasks and coping skills, $r_s(15) = -0.517$, $p = 0.024$. Please refer to Table 5 for these subscale correlations. When the Cambridge Mindreading Face-Voice Battery and the Vineland Adaptive Behavior Scale – Teacher Scores were examined at the subscale level, strong correlations were noted between face tasks and interpersonal skills, $r_s(15) = 0.667$, $p = 0.035$, and face tasks and play and leisure, $r_s(15) = 0.749$, $p = 0.016$. Please refer to Table 5 for these subscale correlations.

Summary of Correlations. Overall, it appears that the three participant groups (i.e., adolescents, parents, and teachers) in my study do not agree regarding the social competence of the adolescent. Adolescents continued to report themselves as having moderate-to-strong social skills. Interestingly, teachers also reported adolescents as having strong social skills, specifically in regards to recognition of emotions displayed through the face. Parents, however, reported their adolescents as possessing weak social skills.

Semi-Structured Interviews

Each of the participants were asked to participate in a semi-structured interview that examined the adolescent's social experiences, social competence, and contributors to social competence. The following section will outline common themes that were noted by me and the interrater. A list of frequencies and percentages for each theme is provided in Table 6.

Table 6.

Frequencies and percentages for semi-structured interview themes

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Percent	Frequency	Percent
Social Experiences – Relationships with Parents	Preference for mother	9/17	53%				
	No preference	5/17	29%				
	Engage in activities	10/17	59%	7/17	41%		
	Engage in conversations	6/17	35%				
	Few opportunities to engage	5/17	29%				
	Tumultuous relationship with father	7/17	41%	8/17	47%	3/8	38%
Social Experiences – Relationships with Siblings	Engage in activities	9/17	53%	10/17	59%		
	Protective/ affectionate bond	3/17	18%	9/17	53%		

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
	Tumultuous relationship	13/17	76%	13/17	76%	4/8	50%
	Few social interactions			5/17	29%		
Social Experiences – Relationships with Peers	Maximum of three friends	9/17	53%	6/17	35%	3/8	38%
	Several friendships	6/17	35%	7/17	41%	2/8	38%
	Best friend	6/17	35%	5/17	29%	2/8	25%
	Friends from school	10/17	59%	6/17	35%		
	Friends from autism youth group	3/17	18%	6/17	35%	3/8	38%
	Friendships for 10+ years	4/17	24%				
	Friendships for 1-4 years	6/17	35%				
	Friendships with typically developed peers	12/17	71%	9/17	53%		

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
	Friendships with children with exceptionalities	7/17	41%	4/17	24%	2/8	25%
	Interact with friends at school	13/17	76%	7/17	41%		
	Interact with friends at home	12/17	71%	10/17	59%		
	Using phones/Facebook to interact with friends	9/17	53%	6/17	35%		
	Adolescent initiated social interactions	8/17	47%	7/17	41%		
	Friends initiated social interactions	8/17	47%	8/17	47%	2/8	25%
	Shared interests with friends	11/17	65%	6/17	35%		
	Fear of being judged/ostracized by friends	3/17	18%				

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
	Friend is a negative influence			4/17	24%		
	Previously involved in acts of bullying	8/17	47%	11/17	65%	2/8	25%
	Susceptible to verbal bullying	5/8	63%	8/11	73%	2/2	100%
	Bullying occurred at school	4/8	50%	11/11	100%		
	Friend/teacher intercepted bullying			3/11	27%		
	Adolescent was bully	2/8	25%				
	Adolescent engaged in physical altercation with bully	2/8	25%				
	Adolescent had romantic interest	3/17	18%	8/17	47%	2/8	25%
	Adolescent lacked skills to navigate romantic relationship			2/8	25%		

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
Social Experiences – Relationships with Teachers	Adolescent valued academic help from teacher	7/17	41%				
	Teacher appreciated/ supported adolescent's differences	3/17	18%				
	SERT is positive school support	3/17	18%	8/17	47%		
	SERT is like a 'second mom'	3/17	18%				
	SERT works closely with parent			6/17	35%		
	School/Board does not embrace inclusive policies			6/17	35%		
	Teacher lacked skills to teach students with exceptionalities			4/17	24%		

Topic	Theme	Adolescents		Parents		Teachers	
		Frequency	Percent	Frequency	Theme	Frequency	Percent
Characteristics of Social Competence – Perceptions of Social Competence	Adolescent is socially competent	10/17	59%				
	Adolescent is not socially competent			13/17	77%	7/8	88%
	Lack of social competence due to lack of friendships			6/17	35%	4/8	50%
	Lack of social competence due to lack of self-esteem			5/17	29%		
	Others would agree with assessments of adolescent's social competence	17/17	100%	15/17	88%	7/8	88%

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
Characteristics of Social Competence – Social Competence Skills	Adolescent primarily focuses on words	11/17	65%	11/17	65%	5/8	63%
	Adolescent is attuned to tone of words			4/11	36%		
	Adolescent pays attention to facial cues	6/17	35%	6/17	35%		
	Adolescent initiates social interactions with others	6/17	35%	6/17	35%		
	Adolescent is conscientious of others' feelings/needs	6/17	35%				
	Adolescent made efforts to acclimatize to social norms			8/17	47%	4/8	50%
	Adolescent observed others to ascertain appropriate behavior	3/17	18%				

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
	Adolescent prefers to be alone	5/17	29%				
	Adolescent does not initiate social interactions	5/17	29%	5/17	29%	5/8	63%
	Adolescent perseverates on topics			5/17	29%	4/8	50%
	Adolescent is too rigid			4/17	24%		
Contributions to Social Competence – Informal Social Skill Lessons	Parent taught social skills	11/17	65%	14/17	82%		
	Parent taught manners	5/17	29%				
	Parent taught how to engage in social situations	3/17	18%				
	Friend taught social skills			8/17	47%		
	Teacher taught social skills	8/17	47%	11/17	65%	8/8	100%

		Adolescents		Parents		Teachers	
Topic	Theme	Frequency	Percent	Frequency	Theme	Frequency	Percent
Contributions to Social Competence – Formal Social Skill Lessons	Adolescent was enrolled in a program	6/17	35%				
	Adolescent learned about conversation skills, personal space, identifying emotions	4/6	67%	4/6	67%		
	Parents valued parent support groups			2/6	33%		
	Programs did not generalize beyond training sessions			2/6	33%		

Social Experiences. Participants were asked to discuss the social relationships between: (a) adolescent and parent, (b) adolescent and siblings, (c) adolescent and peers, and (d) adolescent and teacher.

Relationships with Parents. More than half of the adolescents indicated they preferred interacting with their mother, while several indicated they had no preference. For instance, Luke indicated that he felt "more comfortable around mom" while Sophia indicated that interacting with mom and dad was "the same". While approximately half of the adolescents and parents reported that adolescents engaged in activities with their parents, several teenagers indicated that they enjoyed engaging in conversations with their parents. For example, Sharon indicated that, "Sophia and I spend a lot of time together, the two of us. We go for walks or sometimes a bike ride", while Michael indicated he enjoyed "talks with my mom".

On the other hand, some adolescents indicated that they had few opportunities to interact with the parent because the parent was too busy. For instance, when asked what activities he engaged in with mom, James responded "usually nothing due to her being very, very busy". Another common trend reported by approximately half of the respondents in each group is that the adolescent had a tumultuous relationship with their father. For example, Evelyn indicated that her son had "a hard time with my husband…John's a man now and he's got some strong opinions. So, they seem to clash a lot", while Mr. Scott said of the same relationship, "I definitely think he sees his dad as a disciplinarian and the guy he butts heads with".

Relationships with Siblings. The majority of parents and their teens indicated that the adolescent engaged in various activities with their sibling(s). For instance, when asked what her children do together, Susan replied that,

> video games are one. Up at the cottage they swim and tube. Down here they used to bike ride together, but now Michael goes by himself. They hang out with [my other son's] friends, which involves video games and horsing around. They would play hockey and Michael would skate when we used to have a rink in our backyard.

Closeness between siblings was a common theme, with some adolescents and half of the parents indicating a protective or affectionate bond existed between siblings. For example, when describing an instance where her son was being bullied at school, Mary indicated that her daughter would,

> get her and her friends to kind of hover around Alexander and talk to whoever is there and say 'you leave him alone. That's my brother. You leave him alone. You deal with him and you're going to have to deal with me and all of my friends behind me'.

However, relationships between siblings were not always so positive. In fact, the majority of respondents in each group indicated that relationships with siblings were at times tumultuous. For instance, Jacob indicated that, "I don't really do much with my sister because of the way she treats me and the way she's really disrespectful to me", while Margaret indicated that between her children "there is some sibling rivalry there and they don't know how to co-exist sometimes; so they get angry at each other for various things". Relationships between siblings were so strained that some parents went

so far as to say that few to no social interactions occurred between the siblings. This is illustrated by Karen, who when asked to speak about the experiences her son had with his brother, replied “there aren’t any”.

Relationships with Peers. The semi-structured interview divulged that three types of relationships existed between the adolescent and his/her peers: (a) friendships, (b) bullies, and (c) romantic interests.

In regards to friendships, half of the teens and some of their parents and teachers indicated that the adolescent had a maximum of three friends. As Evelyn illustrated, “it was Jamal, Cameron and Adam who were his friends in the true sense of the word”. However, some of the respondents from each group indicated that the adolescent had several friends. For example, Helen indicated that her son would have “five or six friends sleep over and they’d all hang out”. Additionally, some of the respondents in each group indicated that the teen had a best friend. For example, Patrick indicated that his “best friend is Kaitlyn”. The friendships appeared to result from interactions at two locales: school and autism youth groups. The majority of the teens and some parents indicated that the adolescent’s friendships resulted from interactions at school, while some of the respondents from each group indicated that the adolescent’s friendships resulted from an autism-specific youth group. For example, Mary shared that her son “met a new friend at school. He came home like a little kid and said ‘I made a new friend today’”, while Elizabeth indicated that her son had “more friends through [his autism group]...he has his one friend that he sees all of the time”. Some of the teens reported that they had been friends with someone for approximately 10 years or more, while others reported that they had been friends with someone for approximately 1 to 4 years, which coincided with the

amount of time they had been enrolled in a high school. For instance, James indicated he had been friends with another boy “since pre-school”, while Paul indicated he had been friends with another boy “since grade 9, so three years”. The majority of adolescents and their parents reported that friendships were made with typically developed peers; however, some of the respondents in each group indicated that friendships were made with another child with exceptionalities. This was illustrated by Jacob who said “most of the friends that I have, they’re mostly...they don’t have disabilities. They’re just perfectly normal”, while Judith and Raymond indicated that their son “has a group of friends that have been categorized as being similar to him according to the school guidelines”. The majority of the teens and approximately half of their parents reported that interactions with friends tended to take place at school. For example, Annie indicated that her son and his friend “don’t spend any time together outside of school”. On the other hand, the majority of the teens and their parents indicated that interactions with friends also took place at home. This was illustrated by Elizabeth, who said her son and his friend “hang out at one another’s houses and play video games”.

In regards to connecting with friends, approximately half of the adolescents and their parents reported that telephones and Facebook messages were the tools most commonly used. As Mark described it “we all had each other’s numbers. If somebody was doing something, they would call one person up and that person would call the next person until we all got together as a group”. While almost half of the teens and their parents indicated that the adolescent initiated the social interactions, nearly an equal number of respondents indicated that the adolescent’s friends initiated the social interactions. For example, when asked who normally started a conversation, Zachary

responded that “it goes both ways. I ask them or they ask me”. On the other hand, Mr. Moore indicated that Peter “would never initiate. It would always be Ryan with maybe something on his computer or a book he got from the library”. Finally, when describing the quality of the friendships, the majority of the teens and some of their parents indicated that shared interests were at the core of the friendships. For example, William noted that he and his friend “both have a common interest in music and we jam a lot”. Although the majority of reports regarding friendship were positive, two problems were noted. First, a few adolescents indicated that they were afraid to share their diagnosis with their friend(s) for fear of being judged and/or ostracized. For example, Jacob indicated that:

> it was so difficult to tell it in front of my friends because what if they judged me? What if they just got away from me and said ‘that kid is so stupid now that he is autistic. I can’t believe I was friends with him over the years’.

Secondly, several parents indicated that they felt their child’s friend(s) was a negative influence. As Pamela described it “the last one I believe was abusing substances. Smoking and doing weed and possibly drinking. I don’t think there was any parental supervision on that end”.

In regards to bullying, respondents from each group indicated that the adolescent had been involved in one or more acts of bullying. Jacob recalled his bullies “would yell right in front of my ears and walk right behind me. They were following me…and making fun of me”. Moreover, the majority of the respondents indicated that bullying tended to be verbal in nature. For example, Diane said that her son “gets called a ‘fag’ all of the time”. Approximately half of the teens and all of their parents indicated that the bullying occurred at school. Judith and Raymond indicated that “by the time Paul got to

grade 3 and 4 people were figuring him out and they would tease him about stuff because they knew what his triggers were". Although some parents indicated that a friend or a teacher intercepted the bullying, the end result was not always so favourable. For example, Susan indicated that she knew:

> that there were a couple of female teachers that tried to intercept, but instead of doing it in a way that was helpful, they actually pulled the girls out of the classroom that were bullying Sophia and said to them flat out 'you need to stop doing this'. So, they knew that she had tattled and it just got worse.

Interestingly, the adolescent was not always on the receiving end of a bullying interaction. In fact, a couple of the teens admitted that they had been the bully. For instance, Mark admitted that he bullied another child with Asperger's Disorder by "making fun of him to his face in a cryptic way that he wouldn't understand. So, I'd be making fun of him and he wouldn't notice because I acted like I was being really friendly". Moreover, one of the teens who had bullied admitted that he had engaged in a physical altercation with a bully. Patrick indicated that he "got into this rather big fight with this guy in elementary school because he was bullying someone; we wound up going into this corner of the yard".

In regards to romantic relationships, some of the respondents in each group indicated that the adolescent had a romantic interest. John spoke freely about his romantic interest, indicating that he had "a crush on a girl named Courtney". It is important to note that a couple of parents were worried about their adolescent's romantic interests, as their child lacked the skills necessary to navigate a relationship with the opposite sex. For

example, Elizabeth noted that although her son was “coming out of his shell, he still needs to learn a lot of the rules and if a girl says ‘no, I don’t want to date you’”.

Relationships with Teachers. When discussing their relationships with their teacher(s), adolescents tended to focus on the support their teacher(s) provided. In fact, nearly half of the teens said that they valued the academic help their teachers had provided them. This was illustrated by William who said his teacher “really helped me out a lot. He explained what I needed to do and we had a lot of common interests”. Additionally, some of the teens indicated that their teacher appreciated the characteristics that made them different and that their teacher(s) supported these differences. For example, Patrick indicated that his “tech teacher is awesome and he kind of gets where I’m coming from. He knows that I get all of the stuff. He told me before that he really likes that I ask so many questions”. Although they tended to speak about their teachers in a general sense, a few adolescents and half of the parents specifically referred to the Special Education Resource Teacher as being a positive school support. For instance, Kathleen said:

> Mr. Moore...we cannot say enough about Mr. Moore. He is spectacular. He has just made life at high school bearable. He has a great sense of humour and he has the ability to set an expectation and expect the children to get them and he’ll help them get there. He doesn’t set anything out of bounds, but he’s also going to make it so that you can achieve that goal and then he’s going to push that goal marker back a little bit further.

The relationships established with the Special Education Resource Teacher were so strong that a few of the teens indicated that their Special Education Resource Teacher

served as a *second mom* for them at school, while some parents indicated the Special Education Resource Teacher worked closely with them and/or kept them informed of their child's daily life at school. For example, Nicholas indicated that Ms. Jones was "like a mother. Like a teacher/mom", while Margaret indicated that Ms. Hill "even met me at a Tim Horton's in Barrie to figure out what to do with Patrick at a time when teachers weren't meeting because they weren't supposed to".

Unfortunately, positive references from parents did not extend beyond the Special Education Resource Teachers. In fact, approximately one-third of parents indicated that their child's school/school board did not truly embrace inclusive education policies. For example, Kathleen described an incident where school policy required students with exceptionalities to take a *special* bus to school. Kathleen decided to enroll her son in a different school board because she felt the previous board was "treating him like he didn't belong before he even got to the building". Additionally, a few parents indicated that their child's teacher(s) lacked sufficient skills to teach students with exceptionalities. For instance, Susan indicated that "the reason we left the public system originally was because they dumb it down. His grade 1 teacher gave him straight C's because she had never seen an IEP before and didn't know how to mark to one".

Characteristics of Social Competence. Participants were also asked to provide their perception of the adolescent's social competence and specific skills that supported or inhibited social competence.

Perceptions of Social Competence. When asked about social competence, the majority of adolescents believed they were socially competent, while the majority of

parents and teachers indicated that the teen was not socially competent. For example, William indicated:

> I usually qualify for all of these things. So, has a strong self-esteem...yes, that's true…and the accompanied feelings of being worthy of esteem or respect. It also includes healthy and important friendships with others, which I do have. I don't have enemies. So, yeah, that's also social success. I have a strong self-esteem because I don't think 'oh man, I'm a loser'. I think 'oh, I'm awesome'.

While some parents and teachers indicated that the adolescent's social incompetence was due to a lack of friendships, a handful of parents indicated the social incompetence was a result of a lack of self-esteem. For example, Evelyn indicated that she didn't think John's "self-esteem is very good. He says things like 'I'm so stupid' or 'I can't do that'. He says the right things when you ask him, but that's not what he exhibits". On the other hand, Mr. Robinson indicated that Zachary's:

> sense of self-esteem is strong and that's why it seems he always argues his case that what he was doing was quite reasonable and not inappropriate. He doesn't immediately cave and go 'oh, sorry'. So, to me, there is a strong self-esteem and self-worth. But the friendship is the piece that is missing. I don't see that one or two or five or ten people that he hangs with where there's that interaction of friendship, like 'what do you want to do today?' or 'can we share our notes from science?'. I have never seen those kinds of connections.

When asked if others would agree with their perception of the adolescent's social competence, nearly all of the participants indicated that, yes, others would agree with

their perception. For example, Diane replied that Nicholas “can put up a good front, depending on who it is and where he is, for a small time. Eventually the Real McCoy comes out. He can't hide it for long”.

Social Competence Skills. The majority of each respondent group indicated that the adolescent appeared to be focused on the words being spoken when engaged in social interactions. For example, Judith & Raymond indicated that “words are definitely there. With the body language it is more so nowadays. But yeah, it's words and the ideas you're trying to convey”. Additionally, some parents went on to say that their child was also attuned to the tone of the words. For instance, Margaret indicated that “recently Patrick started to say that my voice is different when I start to get upset; that it sends shivers up his spine. It's just that I am starting to get anxious and my voice is getting to a different pitch”. Moreover, some of the teens and their parents indicated that the teen was capable of paying attention to facial cues. For example, when asked what he focused on in social interactions, Alexander indicated “words and face”. When asked what he was paying attention to on the face, Alexander replied “the eyes and mouth”.

When asked about who typically initiates interactions, some of the teens and their parents indicated that the teen had initiated social interactions before. For instance, when I was setting up my camera to interview David and his mom, Elizabeth, David noted there was a quiet lull and he attempted to fill it by saying ‘how’s school going?’ Upon mentioning this to Elizabeth, she replied “I don't know that I've taught him that. I think he’s learning it now. He’s maturing and he's trying to be more aware of people's feelings and thoughts”. In fact, approximately one-third of adolescents reported that they have been conscientious of others feelings/needs. For example, John indicated that “I respect

other people as well. I don't want to do anything to them that they don't like, just like I don't want them to do anything I don't like". Additionally, half of the parents and teachers indicated that the teen made efforts to acclimatize to social norms by engaging in socially appropriate behavior. For example, Mary indicated that her son "does change his behaviour because he is trying to conform to the norm but still be authentic to him". This is closely related to the fact that a few adolescents indicated that they were capable of observing others to ascertain what was appropriate behavior. For instance, Luke indicated that "I observe and see how people would socialize and then I would try that too".

Unfortunately, there are certain factors that appear to limit social competence. For example, some of the teens reported that they often preferred to be alone than in the company of others. As Nicholas explained it, he'd "rather be alone doing [his] own thing". Closely related to this issue is that respondents from each group indicated that the adolescent did not initiate social interactions. For instance, Ms. Jones indicated that Paul "doesn't go out of his way. He's a strong and silent type of kid...He would sit quietly in the classroom by himself and may or may not speak to anybody for the whole semester". Moreover, some of the characteristics typically associated with Autism Spectrum Disorder also seemed to impede the adolescent from being socially competent. For example, parents and teachers indicated that the teen perseverated on topics. Mr. Moore indicated that students have come up to him saying "'William's a great guy but he just can't get off of rock and roll or Led Zeppelin and it's really starting to tick people off'". Additionally, several parents indicated that the adolescent was too rigid in their ways. For example, Evelyn indicated that John's:

> teachers encourage him to become involved with other people and what they're doing, but he really doesn't like that. It's all about what he likes. If they come into his circle, he'll allow them in for a bit and then he isolates again.

Contributions to Social Competence. Finally, participants were asked to comment on the informal social skill lessons adolescents received from parents, friends and teachers, as well as to speak to the pros and cons of participating in a formal social skills program.

Informal Social Skill Lessons. The majority of the teens and their parents indicated that the parent has contributed to the teen's social competence by teaching their child social skills. Specifically, adolescents indicated their parent taught them about manners and how to engage in social situations. For instance, William indicated that his parents taught him about "table manners and politeness", while Nicholas indicated that his mother had taught him about "maintaining eye contact" and "what to say in certain situations".

When asked if friend(s) had contributed to the teen's social competence, nearly half of the parents indicated 'yes'. For example, Sharon recalled her daughter "asking her friend 'if I say this to so and so, is that okay?' and they said 'no, don't say that'".

Teachers also reportedly contributed to the adolescent's social competence. In fact, approximately half of the teens and their parents and all teachers indicated that the teacher had provided the adolescent with informal social skill lessons. For example, William indicated that his teachers taught him "the basic stuff, like entering conversations", while Irene indicated her son's teacher taught him about distance by

pretending “there’s a hula hoop around you”. Mr. Robinson indicated that with Zachary he had to teach him:

> the circles thing…and the things you can say: there are things you can say to the boys in the locker room that doesn’t comes out into the hallway; there are ways that you talk with your family that are not ways you talk with people in your class.

Formal Social Skill Programs. Some of the teens confirmed that they have previously been enrolled in a social skills program. When discussing what was learned in the social skills program, the majority of the participants indicated that the adolescent had learned about conversation skills, personal space, and/or identifying emotions. For example, Mary indicated that in her son’s social skill group that adolescents would be encouraged to “ask a question of your neighbour, or find out what happened in the week, or discuss something personal”, while Sharon indicated that in her daughter’s social skill group “they focused on circles, which was particularly helpful for Sophia. So, things like stepping in too close and how a stranger requires a different amount of information”. Additionally, a couple of parents also indicated they valued the parent groups associated with the social skill programs. For instance, Cynthia and Steve indicated that they “learned a lot about other parents' challenges and everyday situations with their kids, as well as their strategies for dealing with different issues and a little bit more about Aspergers”.

Although parents felt their child had gained from being enrolled in a social skills program, they also felt that the social skill programs required fine-tuning. Specifically, a couple of parents indicated that the skills learned in the social skills group were not

generalized beyond the teaching session. For example, Mary indicated that although her son's social skill group had been taught how to initiate and maintain conversations, adolescents enrolled in that group did not attempt to use these skills with one another during free-time interactions. Yet, when her son was enrolled in another social skill group run through a different organization, her son was able to make friends with another boy enrolled in the second social skill program. Mary went on to explain that this new friend from the second social skill program had also been enrolled in the first social skill program, which led her to question "how can you do a whole year, from Fall until Spring, and not know that this boy is in your group? How social is that social group? Really, it's not".

Summary of Semi-Structured Interview Themes. Overall, adolescents in my study had numerous social experiences, various social skills, and several references to aid them with social skill attainment. In regards to their social experiences, the teens seemed to enjoy relationships with parent(s), sibling(s), peer(s), and teacher(s). Specifically, they enjoyed spending time with their mothers, while relationships with their fathers' tended to be tumultuous. Although they appeared to enjoy being engaged in activities with their siblings, those relationships could also be tumultuous. Adolescents appeared to have strong friendships with small groups of peers who shared common interests with them. These relationships tended to be with typically developing peers whom they met at school; however, time spent with these friends did extend to the home environment. Instances of bullying were commonly reported by the participants in my study. The teens tended to be bullied verbally while at school. In regards to relationships with teacher(s),

both adolescents and parents indicated a special fondness for the adolescent's Special Education Resource Teacher.

In regards to social competence, adolescents indicated they felt they were socially competent, but parent(s) and teacher(s) indicated the teen was not socially competent due to a lack of friendships and/or a lack of self-esteem. In regards to specific skills, adolescents were reported to be able to focus on the words in a conversation, were conscientious of others feelings/needs, and were willing to acclimatize to meet social norms. However, they struggled with social competence due to their perseveration on topics and their rigid mannerisms.

Finally, parents indicated that they taught their child about manners and conversation skills, while teachers indicated that they taught about personal space and information sharing. Roughly 1/3 of the participants had participated in a formal social skills program. These programs taught adolescents about conversation skills, personal space, and identifying emotions. However, the pitfall associated with formal social skill programs was that teens did not generalize the skills learned in those settings to other environments.

Chapter 4: Discussion

The purpose of this study was to examine if adolescents with ASD experience socially competence at home or at school, and, what factors hindered or contributed to their social competence. In this study social competence was defined as consisting of a strong self-esteem, a strong sense of self-worth, and healthy and vital friendships with others. The results chapter demonstrated that in regards to the quantitative measures, adolescents scored themselves as having some facets of social competence, while their parents and teachers indicated the adolescents did not possess social competence. However, on the qualitative measure, opinions regarding the adolescents' social competence appeared to align with one another, indicating that some basic social abilities exist, but for the most part, social competence was not on par with that demonstrated by typically developed peers.

This chapter will begin by addressing the first research question: whether adolescents with ASD experience social competence, followed by a discussion pertaining to the second research question: which factors served as contributors or hindrances to the perceived social competence. This is then followed by potential implications this research may have on the field of ASD. Finally, limitations will be presented as well as potential future directions for ASD research.

Question 1: Do adolescents with ASD experience social competence at home or at school?

As previously indicated, quantitative measures were used to determine the presence of social competence in adolescents. Adolescents were considered to be socially competent when they performed as well as typically developed peers on the measures.

Three of the seven quantitative measures indicated that adolescents did possess some facet of social competence. Specifically, adolescents performed on par with typically developed peers on the self-reported Social Skill Improvement System Rating Scales, the Bake Sale Task, and the Friendship and Relationship Quotient which indicates that adolescents: (a) believed that they possessed social skills; (b) possessed, at the very least, some basic theory of mind ability; and (c) had an interest in having friendships, as well as an understanding of how to behave in a friendship.

In regards to the adolescents' self-reports of social competence, this finding aligned with other studies where individuals with ASD rated themselves as having social competence while parents and/or teachers indicated otherwise (Knott et al., 2006; Koning & Magill-Evans, 2001; Lerner, Calhoun, Mikami, & De Los Reyes, 2012). However, Capps, Sigman, and Yirmiya (1995) suggested that individuals with ASD who score themselves as having poorer social competence in actuality have "stronger intellectual capabilities, greater understanding of others' emotional experiences, and [are] better able to access their own emotional experiences than were those who [perceive] themselves as more socially competent" (p. 137). It is unclear if this held true for the adolescents with ASD in this study who scored themselves as having poorer social skills. Although some disagreement exists regarding the accuracy of an individual with ASD capabilities to self-report, several studies agree that individuals with ASD, particularly those who are verbally able and are high-functioning, are capable of passing first order theory of mind tasks (Baron-Cohen, 2001; Beeger et al., 2010; Senju 2012), as was the case with adolescents in this study . Moreover, the majority of studies agree that individuals with

ASD do have an interest in friendships (Bauminger-Zviely, 2013; Causton-Theoharis, Ashby, & Cosier, 2009; Mendelson, Gates, & Lerner, 2016), as shown in this study.

In terms of the relation to the theoretical framework, theory of mind and social cognition abilities assisted the adolescents to score as well as typically developed peers on the measures. For instance, one of the questions on the Friendship and Relationship Quotient asks participants 'when having to say something critical to a friend is it best to broach the subject gently or to just come right out and say it?' Theory of mind is required for this question because the adolescent must consider how their friend may react, while social cognition is required because the individual would need to take this information into consideration to guide their behaviour. Similarly, the Bake Sale Task would require the adolescent to understand the thought processes of others' (i.e., theory of mind) and to keep this knowledge in mind to guide their response (i.e., social cognition).

In contrast, four quantitative measures indicated that adolescents did not possess social competency on par with that demonstrated by typically developed peers. Specifically, adolescents were assessed as performing worse than their typically developed peers on the Empathy and Relationship Quotient, the Cambridge Mindreading Face-Voice Battery, the Vineland Adaptive Behavior Scale – Parent Scores, and the Vineland Adaptive Behavior Scale – Teacher Scores. This indicates that: (a) neither parents nor teachers believed adolescents possessed age-appropriate social competence; and (b) particular difficulties were noted in regards to adolescents' abilities to demonstrate empathetic responses, as well as to identify emotions exhibited visually or aurally.

In regards to parents and teachers reports, it is important to keep in mind that several studies have previously shown that when questioned if an individual with ASD would be able to demonstrate a social skill, the parent and/or teacher indicated 'no', yet after-the-fact, the individual with ASD was able to demonstrate the social skill in question (Deschamps et al., 2014; Scheeren et al., 2013). Therefore, the opinions of others (i.e., parents and/or teachers) need to be interpreted cautiously. However, the inability of the adolescents in this study to demonstrate empathic abilities did align with Peterson's (2014) and Mathersul, McDonald, & Rushby's (2013) studies. Moreover, the adolescents' inability to identify emotions on the Cambridge Mindreading Face-Voice Battery mirrored the results of adults with ASD as noted in Golan et al's (2006b) study. However, Golan et al. (2006b) indicated that "individuals who are older than 18 (as the participants in [their] study were) would be expected to be familiar with [the] concepts" presented to them in the Cambridge Mindreading Face-Voice Battery. Given that only one of my participants was older than 18 years of age, the results on this measure may be more indicative of a lack of an age-appropriate tool, rather than a true difference in the emotion recognition skills of adolescents with ASD and their typically developed peers.

In terms of the relation to the theoretical framework, adolescents did not score as well as their typically developed peers because their theory of mind and social cognition abilities were lacking. For instance, on the Cambridge Mindreading Face-Voice Battery the adolescents struggled to take in all of the information presented to them in the visual and verbal tasks (i.e., social cognition) in order to correctly identify another's emotions (i.e., theory of mind). A similar pattern can also be established for the poor performance by the adolescents on the Empathy Quotient for Adults.

In summary, according to parents and teachers, adolescents did not possess social competency that was on par with typically developed peers. However, the measures also indicated that, at the very least, some basic skills pertaining to interacting with friends and understanding the thoughts, feelings, and beliefs of others were present. Therefore, some form of social competency appeared to exist, although this competency was not considered to be developmentally appropriate by parents and teachers. These findings appear to align with other research, and the inconsistent use of theory of mind and social cognition further contribute to the argument that the social competency of the adolescents in this study was limited.

Question 2: What are the factors that appear to contribute to and/or hinder the perceived social competence of these adolescents as reported by parents, teachers, and selves?

In addition to determining if adolescents with ASD experience social competence, it was important to also examine which factors were related to this perceived social competence. Therefore, I used the semi-structured interviews and the correlations to help explain what contributed to and hindered social competence.

Contributors to Social Competence. All three groups of participants indicated in the semi-structured interviews that parents (and in particular, mothers), siblings, friends and teachers contributed to the adolescents' social competence. This aligns with other research suggesting parents, siblings and teachers have a strong role to play in the social competency development of individuals with ASD (Lent, 2009; Närvänen & Markström, 2015; Perner, Ruffman, & Leekam, 1994).

Parents and siblings in my study were encouraging interactions and modeling of

socially appropriate behaviours by engaging adolescents in a variety of activities. For example, a family game night would allow adolescents to learn behaviours such as turn taking, conversational skills, and reading body language.

Typically developed peers also contributed to adolescents' social competence by serving as examples of appropriate behaviours amongst same-age peers. For example, these peers would often initiate interactions with adolescents, which would allow adolescents to learn how to strike up conversations with other same-aged peers. These initiations would then lead to the development of new friendships with others. Moreover, it was commonly reported that interactions with these friends took place equally at home and at school. By engaging in interactions in both environments, adolescents would learn how to adapt their behaviours to suit each scenario. For example, when the adolescent was at home and under few time restrictions, they were required to engage in prolonged interactions that revolved around shared interests; yet, when the adolescent was at school and limited to interactions that took place before school, between classes, or at lunch, they were required to utilize a different set of skills to engage in small talk.

Special education teachers also provided social skill lessons when the moment arose in the school setting. For example, when an adolescent became upset with his/her teacher or peers, the special education teacher would teach the adolescent about problem solving and constructive feedback. These lessons were then often utilized to help the adolescent develop resolutions when they came to school upset with their parents and/or siblings.

Interestingly, adolescents were reported to possess a skill that also contributed to their social competence. Specifically, all three groups of participants indicated that the

adolescent appeared to be capable of focusing on words that were being spoken, and, in some cases, the tone of the spoken words. This ability to focus on words being spoken would allow adolescents to capture instances of overt emotions, such as anger or elation, which would assist them in providing socially appropriate responses. For example, parents reported that adolescents changed their demeanor and adopted an anxious energy when approaching a parent who had recently yelled out in a stern voice 'come here'. The finding that adolescents with ASD were making use of verbal information does align with other research (Grossman, Klin, Carter, & Volkmar, 2000; Rieffe, Terwogt, & Kotronopoulou, 2007). Although it is unclear why the adolescents in my study were not as proficient in making use of visual information, Adolphs, Sears & Piven (2001) have suggested that amygdala dysfunction may impair the individual's "ability to link visual perception of socially relevant stimuli with retrieval of social knowledge and with elicitation of social behavior" (p.232).

The significant correlation between the Bake Sale Task and the Cambridge Mindreading Face-Voice Battery suggests that adolescents were identifying some simple mental states through emotion recognition on the Cambridge Mindreading Face-Voice Battery, as well as identifying some simple mental states as shown through understanding others' thoughts on the Bake Sale Task. Therefore some basic mental state understanding is present.

In terms of the relation to the theoretical framework, all of the interactions with family, peers and teachers served as opportunities for the adolescent to utilize their theory of mind and social cognition abilities. Successful interactions required that the adolescent took in all of the verbal information presented to them (i.e., social cognition) to

understand the emotions, desire, thoughts, beliefs and intentions of others (i.e., theory of mind) in order to guide their appropriate responses and behaviours (i.e., social cognition).

Hindrances to Social Competence. All three groups of participants indicated in the semi-structured interviews that relationships with fathers and siblings, interactions with bullies, and lack of formal social skill lessons served as hindrances to the adolescent's social competence. Relationships with fathers and siblings were often referred to as 'tumultuous', which not only prohibited these relationships from serving as examples of positive social interactions, but was also reported to undermine the self-esteem and/or self-worth of the adolescent. For example, adolescents were reported to become very upset and have extreme reactions when their siblings made negative comments about them because they did not want anyone to think of them in a negative way. Interactions with bullies also had a similar effect, which was to be expected given that the literature indicates negative interactions (e.g., being bullied) strongly impacts an individual's self-esteem and self-worth, even for typically developed individuals (Lakey, Tardiff, & Drew, 1994; O'Moore & Kirkham, 2001). Finally, although parents and teachers made many efforts to teach adolescents social skills, they acknowledged that they likely failed to cover all of the topics typically taught in formal social skills groups. For example, it was unlikely that many parents or teachers taught the adolescent topics such as how to sustain conversations during activities, how to handle rumours and gossip, or how to engage in appropriate dating etiquette as is typically covered in some formal social skills program (e.g., PEERS, Semel Institute UCLA, 2011).

In terms of the relation to the theoretical framework, the tumultuous relationships with others demonstrates how the adolescents did not make use of their theory of mind

and social cognition abilities. These difficult interactions were further antagonized by the adolescent failing to take into account the other person's state of mind (i.e., theory of mind) and using that information to interact with that other person in a less explosive manner (i.e., social cognition). The lack of formal training further hinders the adolescents' ability to make use of their theory of mind and social cognition abilities as they are likely not being taught by their family or teachers how to take in all of the social information available to them (i.e., social cognition) and using that information to make sense of the behaviours of those around them (i.e., theory of mind).

Summary

It appears that parents, teachers, and friends were encouraging the adolescent to engage in social interactions, and through these interactions, these individuals were attempting to teach and/or model appropriate behaviours to the adolescent. Moreover, they appeared to possess an ability to identify basic mental states on two of the quantitative measures. However, negative interactions with fathers and siblings, as well as with bullies took their toll on the self-esteem of these adolescents. Additionally, the lack of structured and thorough social lessons left these adolescents without a full repertoire of socially appropriate behaviours to draw upon as they engaged in various social interactions. Although these findings were supported by other research, it is important to note that the contributors also require strong theory of mind and social cognition abilities, while hindrances were marred by a lack of these abilities.

Conclusion

So, are individuals with ASD socially competent? Unfortunately, I would say no, for several reasons. Firstly, some adolescents were only capable of basic theory of mind

abilities that was on par with that demonstrated by typically developed 4-year-olds. On top of that was the adolescents' struggle to demonstrate age-appropriate empathic skills and to identify emotions in others. Therefore, the adolescents' ability to understand the emotions, thoughts, and behaviours of others appeared to be limited. Secondly, regardless of fact that most adolescents did not benefit from formal social skill programs, they were provided opportunities to practice social skills with various individuals. Therefore, it seems plausible that they were struggling to generalize social skills from one social experience to another. Lastly, several negative opportunities with siblings and bullies were reported by all groups of participants to be related to the adolescents' self-esteem, which is a required component of social competence.

However, I would also say that adolescents were not completely lacking social competence. Firstly, adolescents did possess a basic theory of mind in the form of first-order false-belief understanding, as well as an age-appropriate interest in and an understanding of friendships. Therefore, some elements, albeit limited elements, of social competence were present. Moreover, adolescents' theory of mind abilities appeared to improve with age, which was supported by other literature (Scheeren et al., 2013). Secondly, although previous researchers indicated children with ASD had significant theory of mind deficits due to difficulties interpreting verbal cues (Astington 2000; Hale & Tager-Flusberg, 2005; Happé 1995; Milligan, Astington, & Dack, 2007; Tager-Flusberg & Joseph, 2005), these difficulties did not appear to be an issue for adolescents in this study. Further research is required to determine if all adolescents with ASD are capable of interpreting verbal cues.

Potential Implications of this Study

Although it appeared that the social competence of these adolescents was limited, they did possess precursory abilities in the form of first-order theory of mind, an ability to focus on verbal cues, as well as an interest in and understanding of friendships that could set the stage for potential growth of social competence. To achieve a developmentally appropriate social competence, however, several steps would need to take place.

Firstly, specific difficulties were noted in regards to perspective taking and emotion recognition. However, it was commonly reported by all groups of participants that adolescents were attending to verbal cues, as illustrated by the example of the adolescent becoming anxious when told sternly to 'come here'. Therefore, it is plausible that difficulties with perspective taking may be linked to difficulties with interpreting visual cues. Certainly, this is something that should be researched in greater depth; however, formal social skill training programs could begin to revolve particular sessions around visual cue attunement (e.g., focusing on body language and facial expressions).

Secondly, many adolescents in this study had not taken part in formal social skills training programs. Many parents acknowledged that there was a lack of funding and age-appropriate community resources available for formal social skills training. Therefore, it is recommended that governments and autism organizations should attempt to work together to find additional funding to create more formal social skill groups, ensuring that all communities have programs available for individuals with ASD of all ages.

Thirdly, parents and teachers are encouraged to continue teaching social skills (also referred to as 'manners' by the teenagers) to the adolescents. Although the qualitative portion of this study examined which factors contributed to and/or hindered adolescent

social competence, it is unclear how much of an influence each contributor and/or hindrance had on the quantitative measure of the adolescents' social competence. It is suspected that the informal lessons provided by the parents and teachers did not hinder adolescent social competence, but rather, nurtured its growth. For example, the adolescents were conscientious in saying 'hello' when visited by me without social prompts by their parent.

Fourthly, teachers and school administrators can support the self-esteem of children and adolescents with ASD by continuing to implement zero tolerance policies for bullying, and by teaching all students, regardless of ability, about diversity. With diminished negative experiences at school, and improved social skill abilities obtained by formal social skill lessons, the self-esteem of the child or adolescent can potentially grow.

Finally, it is evident that more research examining the social competence of adolescents with ASD is required. Several of the measures used within this study (namely, the Empathy Quotient for Adults, the Friendship and Relationship Quotient, the Cambridge Mindreading Face-Voice Battery, and the Bake Sale Task) were not normed on adolescent populations. Moreover, the majority of the existing literature examining the social competence of individuals with ASD is specific to young children. Additional research could shed more light on what is hindering adolescents with ASD from having age-appropriate social competence.

Limitations and Future Directions

There were several limitations associated with this study. In regards to the participants, my sample size was small, which greatly limits the generalizations that can be made from this research. Secondly, the timing of this study coincided with the

provincial teachers' strike, limiting my access to teachers and potentially to more adolescent/parent/teacher trios. Thirdly, the male-to-female ratio in this study was not aligned with the ASD norms of 5:1 (Centers for Disease Control and Prevention, 2015). Future studies should attempt to obtain a larger and more varied sample, as it is unlikely that my small sample captured the true state of social competence in adolescents with ASD. Lastly, differences between parents and teachers may have limited the conclusions that can be made from this study. It is my suspicion that the reason why parent and teacher responses did not always overlap was because parents may have been comparing the adolescent to children who are typically developed, while teachers may have been comparing the adolescent to other adolescents that had varying abilities. Moreover, parents based their responses on daily interactions with the adolescent, while teachers interacted with adolescents less frequently. It is recommended that future studies include participants with similar exposure to the individual with ASD to determine if these differences persist.

While the measurements used in this study were not intended for use with an adolescent population, there were no other age-appropriate measurements that could be used to examine the social competence of adolescents with ASD. In the case of the Empathy Quotient for Adults, the Friendship and Relationship Quotient and the Cambridge Mindreading Face-Voice Battery the intended populations were adults, while the Bake Sale Task was intended for use with younger children. This may have resulted in the adolescents scoring lower on the Empathy Quotient for Adults, the Friendship and Relationship Quotient, and the Cambridge Mindreading Face-Voice Battery, and scoring higher on the Bake Sale Task. It is unclear how future studies could forego this limitation

without new, age-appropriate measures being available for use. Additionally, it is unclear if during data collection respondents were referring to one setting (i.e., school versus home) more so than the other when providing their responses. Future work should attempt to differentiate results according to setting.

It is recommended that a larger scale study, with the addition of the above noted changes be implemented in order to determine with greater certainty the state of the social competence of individuals with ASD.

Final Thought

Individuals with ASD did not appear to be socially competent; however, the presence of precursory abilities provided promise for the eventual attainment of social competence. It is my hope that the findings and limitations of this study will encourage other researchers to go beyond questioning *if* individuals with ASD can become socially competent to *how* individuals with ASD can be supported in order to become socially competent. I believe this endeavour should begin by examining how the social competence of individuals with ASD differs across the lifespan.

References

Adams, L., Gouvousis, A., VanLue, M., & Waldron, C. (2004). Social story intervention: Improving communication skills in a child with an autism spectrum disorder. *Focus on Autism and Other Developmental Disabilities, 19*, 87-94.

Adamson, L. B., McArthur, C., Markov, Y., Dunbar, B., & Bakeman, R. (2001). Autism and joint attention: Young children's responses to maternal bids. *Applied Developmental Psychology*, *22*, 439-453.

Adolphs, R., Sears, L., & Piven, J. (2001). Abnormal processing of social information from faces in autism. *Journal of Cognitive Neuroscience, 13*, 232-240.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed., text revision)*. Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Psychiatric Association. (2014). About DSM-5. In *DSM-5 Development*. Retrieved from http://www.dsm5.org/about/Pages/Default.aspx.

Anderson, A., Moore, D. W., Godfrey, R., & Fletcher-Flinn, C. M. (2004). Social skills assessment of children with autism in free-play situations. *Autism, 8*, 369-385.

Astington, J. W. (2000). Language and metalanguage in children's understanding of mind. In J. W. Astington (Ed.), *Minds in the making: Essays in honor of David R. Olson* (pp. 267-284). Oxford, UK: Blackwell Publishers.

Astington, J. W., & Hughes, C. (2013). Theory of mind: Self-reflection and social understanding. In P. D. Zelazo (Ed.), *Oxford handbook of developmental psychology* (pp. 398-424). Oxford, UK: Oxford University Press.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development. Vol.6. Six theories of child development* (pp. 1-60). Greenwich, CT: JAI Press.

Bandura, A. (1996). Social cognitive theory of human development. In T. Husen & T. N. Postlethwaite (Eds.), *International encyclopedia of education* (2nd ed., pp. 5513-5518). Oxford: Pergamon Press.

Baron-Cohen, S. (2001). Theory of mind in normal development and autism. *Prisme, 34,* 174-183.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition, 21,* 37-46.

Baron-Cohen, S., & Wheelwright, S. (1999). *The empathy quotient for adults*. Cambridge, UK: Autism Research Centre.

Baron-Cohen, S., & Wheelwright, S. (2000). *Friendship and relationship quotient*. Cambridge, UK: Autism Research Centre.

Baron-Cohen, S., & Wheelwright, S. (2003). The friendship questionnaire: An investigation of adults with asperger syndrome or high-functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders, 33*, 509-517.

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders, 34*, 163-175.

Bauminger, N., & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development, 71*, 447-456.

Bauminger, N., Shulman, C. & Agam, G. (2003). Peer interaction and loneliness in high-functioning children with autism. *Journal of Autism Developmental Disorders, 33*, 489-507.

Bauminger, N., Shulman, C. & Agam, G. (2004). The link between perceptions of self and of social relationships in high-functioning children with autism. *Journal of Developmental and Physical Disabilities, 16*, 193-214.

Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Brown, J., & Rogers, S. J. (2008). Friendship in high-functioning children with autism spectrum disorder: Mixed and non-mixed dyads. *Journal of Autism Developmental Disorders, 38*, 1211-1229.

Bauminger, N., Solomon, M., Aviezer, A., Heung, K., Gazit, L., Brown, J., & Rogers, S. J. (2008). Children with autism and their friends: A multidimensional study of friendship in high-functioning autism spectrum disorder. *Journal of Abnormal Child Psychology, 36*, 135-150.

Bauminger-Zviely, N. (2013). *Social and academic abilities in children with high-functioning autism spectrum disorders*. New York: Guilford Press.

Bauminger-Zviely, N., & Agam-Ben-Artzi, G. (2014). Young friendship in HFASD and typical development: Friend versus non-friend comparisons. *Journal of Autism and Developmental Disorders, 44*, 1733-1748.

Beeger S., Gevers C., Clifford, P., Verhoeve M., Kat, K., Hoddenback E., & Boer, F. (2011). Theory of mind training for children with autism: A randomized control trial. *Journal of Autism and Developmental Disorders, 41*, 997-1006.

Bellini, S. (2006). The development of social anxiety in high functioning adolescents with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 21*, 138–145.

Bellini, S., Peters, J. K., Benner, L., & Hopf, A. (2007). A meta-analysis of school-based social skills interventions for children with autism spectrum disorders. *Remedial and Special Education, 28*, 153-162.

Billstedt, E., Gillberg, C., & Gillberg, C. (2005). Autism after adolescence: Population-based 13- to 22-year follow up study of 120 individuals with autism diagnosed in childhood. *Journal of Autism and Developmental Disorders, 35*, 351-360.

Bosacki, S., & Astington, J. W. (1999). Theory of mind in preadolescence: Relations between social understanding and social competence. *Social Development, 8*, 237-255.

Boutot, E.A., & Bryant, D.P. (2005). Social integration of students with autism in inclusive settings. *Education and Training in Developmental Disabilities, 40*, 14-23.

Brown, J., & Whiten, A. (2000). Imitation, theory of mind and related activities in autism. *Autism, 4*, 185-204.

Bryant, L. H. (2011). The structure of mixed method studies in educational research: A content analysis. *Journal of Research in Education, 22*, 82-99.

Calder, L., Hill, V., & Pellicano, E. (2012). Sometimes I want to play by myself: Understanding what friendship means to children with autism in mainstream primary schools. *Autism, 17*, 296-316.

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*, 266-277.

Capps, L., Sigman, M., & Yirmiya, N. (1995). Self-competence and emotional understanding in high-functioning children with autism. *Development and Psychopathology, 7*, 137-149.

Carpenter, M., Nagell, L., & Tomasello, M. (1998). Social cognition, joint attention, and communicative competence from 9 to 15 months of age. *Monographs of the Society for Research in Child Development, 63(4)*.

Causton-Theoharis, J., Ashby C., & Cosier, M. (2009). Islands of loneliness: Exploring social interaction through the autobiographies of individuals with autism. *Intellectual and Developmental Disabilities, 47*, 84-96.

Centers for Disease Control and Prevention. (2015). Data and Statistics. In *Autism Spectrum Disorder (ASD)*. Retrieved from http://www.cdc.gov/ncbddd/autism/data.html.

Chamberlain, B., Kasari, C., & Rotheram-Fuller, E. (2007). Involvement or isolation? The social networks of children with autism in regular classrooms. *Journal of Autism and Developmental Disorders, 37*, 230-242.

Chen, P., & Schwartz, I. S. (2012). Bullying and victimization experiences of students with autism spectrum disorders in elementary schools. *Focus on Autism and Other Developmental Disabilities, 27,* 200-212.

Church, C., Alisanski, S., & Amanullah, S. (2000). The social, behavioral, and academic experiences of children with asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 15,* 12-20.

Clements, W. A., & Perner, J. (1994). Implicit understanding of belief. *Cognitive Development, 9,* 377-395.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd Ed.). Hillsdale, NJ: Erlbaum.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.

Crosby J. W. (2011). Test review. *Journal of Psychoeducational Assessment, 29,* 292-296.

Csikszentmihalyi, M., & Larson, R. (1984). *Being adolescent: Conflict and growth in the teenage years*. New York: Basic Books.

Davis-Unger, A. C., & Carlson, S. M. (2008). Development of teaching skills and relations to theory of mind in preschoolers. *Journal of Cognition and Development, 9,* 26-45.

Dean, M., Kasari, C., Shih, W., Frankel, F., Whitney, R., Landa, R., Lord, C., Orlich, F., King, B., & Harwood, R. (2014). The peer relationships of girls with ASD at school: Comparison to boys and girls with and without ASD. *Journal of Child Psychology and Psychiatry, 55,* 1218-1225.

Deschamps, P. K. H., Been, M., & Matthys, W. (2014). Empathy and empathy induced prosocial behavior in 6- and 7-year-olds with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 44*, 1749-1758.

Doll, B., & Jones, K. (2010). [Review of the Social Skills Improvement System Rating Scales]. In R. A. Spies, J. F. Carlson, & K. F. Geisinger (Eds.), *The Eighteenth Mental Measurements Yearbook* (pp. 561-565). Lincoln, NE: The Buros Institute of Mental Measurements.

Doussard-Roosevelt, J. A., Joe, C. M., Bazhenova, O. V., & Porges, S. W. (2003). Mother-child interaction in autistic and nonautistic children: Characteristics of maternal approach behaviors and child social responses. *Development and Psychopathology, 15*, 277-295.

Edmunds, A. L., & Edmunds, G. A. (2008). *Special education in Canada*. Toronto: McGraw-Hill Ryerson.

Fein, D., Barton, M., Eigsti, I., Kelley, E., Naigles, L., Schultz, R. T., Stevens, M., Helt, M., Orinstein, A., Rosenthal, M., Troyb, E., & Tyson, K. (2013). Optimal outcome in individuals with a history of autism. *Journal of Child Psychology and Psychiatry, 54*, 195-205.

Filipek, P. A., Accardo, P. J., Baranek, G. T., Cook, E. H., Jr., Dawson, G., Gordon, B., Gravel, J. S., Johnson, C. P., Kallen, R. J., Levy, S. E., Minshew, N. J., Prizant, B. M., Rapin, I., Rogers, S. J., Stone, W. L., Teplin, S., Tuchman, R. F., & Volkmar, F. R. (1999). The screening and diagnosis of autistic spectrum disorders. *Journal of Autism and Developmental Disorders, 29*, 439-484.

Frith, U., & Happé, F. (1999). Theory of mind and self-consciousness: What is it like to be autistic? *Mind & Language, 14*, 1-22.

Frith, U., Happe, F., & Siddons, F. (1994). Autism and theory of mind in everyday life. *Social Development, 3*, 108-124.

Gay, L. R., Mills, G. E., & Airasian, P. (2006). *Educational research: Competencies for Analysis and Applications* (8th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Girli, A., & Tekin, D. (2010). Investigating false belief levels of typically developed children and children with autism. *Procedia Social and Behavioral Sciences, 2,* 1944-1950.

Golan, O., Baron-Cohen, S., & Hill, J. (2006a). *The Cambridge mindreading face-voice battery*. Cambridge, UK: Autism Research Centre.

Golan, O., Baron-Cohen, S., & Hill, J. (2006b). The Cambridge mindreading (CAM) face-voice battery: Testing complex emotion recognition in adults with and without asperger syndrome. *Journal of Autism and Developmental Disorders, 36*, 169-183.

Golan, O., Baron-Cohen, S., Hill, J. J., & Golan, Y. (2006). *Reading the Mind in Films Task*. Cambridge, UK: Autism Research Centre.

Golan, O., Baron-Cohen, S., Hill, J. J., & Rutherford, M. D. (2006). *Reading the Mind in the Voice Test – Revised*. Cambridge, UK: Autism Research Centre.

Gresham, F. M., & Elliot, S. N. (1990). *Social skills rating system.* Circle Pines, MN: American Guidance Service.

Gresham, F. M., & Elliott, S. N. (2008). *Social skills improvement system rating scales*. Minneapolis, MN: Pearson Assessments.

Gresham, F. M., Elliott, S. N., & Kettler, R. J. (2010). Base rates of social skills acquisition/performance deficits, strengths, and problem behaviors: An analysis of the social skills improvement system-rating scales. *Psychological Assessment, 22*, 809-815.

Grossman J. B., Klin A., Carter A. S., & Volkmar F. R. (2000). Verbal bias in recognition of facial emotions in children with asperger syndrome. *Journal of Child Psychology and Psychiatry*, *41*, 369–379.

Hale, C. M., & Tager-Flusberg, H. (2005). Social communication in children with autism: The relationship between theory of mind and discourse development. *Autism, 9*, 157-178.

Happé, F. G. (1995). The role of age and verbal ability in the theory of mind task performance of subjects with autism. *Child Development, 66*, 843-855.

Harrell, M. C., & Bradley, M. A. (2009). Semi-structured interviews. In *Data collection methods: Semi-structured interviews and focus groups* (pp. 23-78). Retrieved from http://www.rand.org/content/dam/rand/pubs/technical_reports/2009/RAND_TR718.pdf

Harrison, P. L., & Oakland, T. (2003). *Adaptive behavior assessment system* (2nd Ed.). Minneapolis: Pearson Assessment.

Harrower, J. K., & Dunlap, G. (2001). Including children with autism in general education classrooms: A review of effective strategies. *Behavior Modification, 25,* 762-784.

Hebron, J., & Humphrey, N. (2014). Exposure to bullying among students with autism spectrum conditions: A multi-informant analysis of risk and protective factors. *Autism, 18,* 618-630.

Heflin, L. J., & Alaimo, D. F. (2007). *Students with autism spectrum disorders: Effective instructional practices*. New Jersey: Pearson Education, Inc.

Helt, M., Kelley, E., Kinsbourne, M., Pandey, J., Boorstein, H., Herbert, M., & Fein, D. (2008). Can children with autism recover? If so, how? *Neuropsychological Review, 18,* 339-366.

Heward, W. L. (2003). Exceptional *children: An introduction to special education* (7th ed.). New Jersey: Pearson Education, Inc.

Hollebrandse, B., Hobbs, K., De Villiers, J. G. & Roeper, T. (2008). Second order embedding and second order false belief. In A. Gavarro, & M. J. Freitas (Eds.), *Language Acquisition and Development: Proceedings of GALA 2007* (pp. 270-280). Cambridge: Cambridge Scholar Press.

Hollebrandse, B., van Hout, A., & Hendriks, P. (2014). Children's first and second-order false-belief reasoning in a verbal and a low-verbal task. *Synthese, 191*, 321-333.

Howard, B., Cohn, E., & Orsmond, G. I. (2006). Understanding and negotiating friendships: Perspectives from an adolescent with asperger syndrome. *Autism, 10,* 619-627.

Howell, D. C. (2004). *Fundamental statistics for the behavioral sciences*. Belmont, CA: Brooks/Cole – Thomson Learning.

Hruschka, D. J., Schwartz, D., St. John, D. C., Picone-Decaro, E., Jenkins, R. A., & Carey, J. W. (2004). Reliability in coding open-ended data: Lessons learned from HIB behavioural research. *Field Methods, 16*, 307-331.

Hutchinson, N. L. (2010). *Inclusion of exceptional learners in Canadian schools: A practical handbook for teachers (3rd ed.)*. Toronto: Pearson Education Canada.

Johnson, S. C. (2000). The recognition of mentalistic agents in infancy. *Trends in Cognitive Sciences, 4*, 22-28.

Jones, C. D., & Schwartz, I. S. (2009). When asking questions is not enough: An observational study of social communication differences in high functioning children with autism. *Journal of Autism and Developmental Disorders, 39*, 432-443.

Kasari, C., Locke, J., Gulsrud, A., & Rotheram-Fuller, E. (2011). Social networks and friendships at school: Comparing children with and without ASD. *Journal of Autism and Developmental Disorders, 41*, 533-544.

Kasari, C., Rotheram-Fuller, E., Locke, J., & Gulsrud, A. (2012). Making the connection: Randomized controlled trial of social skills at school for children with autism spectrum disorders. *Journal of Child Psychology and Psychiatry, 53*, 431-439.

Keceli Kaysili, B., & Acarlar, F. (2011). The development of theory of mind according to false belief performance of children ages 3 to 5. *Educational Sciences: Theory & Practice, 11*, 1821-1826.

Knott, F., Dunlop, A-W., & Mackay, T. (2006). Living with ASD: How do children and their parents assess their difficulties with social interaction and understanding? *Autism, 10*, 609-617.

Knott, F., Lewis, C., & Williams, T. (1995). Sibling interaction of children with learning disabilities: A comparison of autism and down's syndrome. *Journal of Child Psychology and Psychiatry, 36*, 965-976.

Koning, C., & Magill-Evans, J. (2001). Social and language skills in adolescent boys with Asperger syndrome. *Autism, 5*, 23–36.

Kuo, M. H., Orsmond, G. I., Cohn, E. S., & Coster, W. J. (2011). Friendship characteristics and activity patterns of adolescents with an autism spectrum disorder. *Autism, 17*, 481-500.

Lakey, B., Tardiff, T. A., & Drew, J. B. (1994). Negative social interactions: Assessment and relations to social support, cognition, and psychological distress. *Journal of Social and Clinical Psychology*, 13, 42-62.

Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: Reliability and validity of the empathy quotient. *Psychological Medicine, 34*, 911-924.

LeGoff, D. B. (2004). Use of LEGO as a therapeutic medium for improving social competence. *Journal of Autism and Developmental Disorders, 34*, 557-571.

Lent, D. P. (2009). *Teacher perceptions of social skills instruction for students with aspergers syndrome* (Doctoral dissertation). Retrieved from ProQuest Information & Learning. (Accession Number 2009-99070-263)

Lerner, M.D., Calhoun, C.D., Mikami, A.Y., & De Los Reyes, A. (2012). Understanding parent-child social informant discrepancy in youth with high functioning autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42,* 2680-2692.

Locke, J., Ishijima, E. H., Kasari, C., & London, N. (2010). Loneliness, friendship quality and the social networks of adolescents with high-functioning autism in an inclusive school setting. *Journal of Research in Special Educational Needs, 10,* 74-81.

Lord, C., & Hopkins, J. M. (1986). The social behaviour of autistic children with younger and same-age nonhandicapped peers. *Journal of Autism and Developmental Disorders, 16,* 249-262.

MacIntosh, K., & Dissanayake, C. (2006). A comparative study of the spontaneous social interactions of children with high-functioning autism and children with asperger's disorder. *Autism, 10,* 199-220.

Mathersul, D., McDonald, S., & Rushby, J. A. (2013). Understanding advanced theory of mind and empathy in high-functioning adults with autism spectrum disorder. *Journal of Clinical and Experimental Neuropsychology, 35,* 655-668.

Mazurek, M. O. (2014). Loneliness, friendship, and well-being in adults with autism spectrum disorders. *Autism, 18,* 223-232.

McGregor, E., Whiten, A., & Blackburn, P. (1998). Teaching theory of mind by highlighting intention and illustrating thoughts: A comparison of their effectiveness with 3-year-olds and autistic individuals. *British Journal of Developmental Psychology, 16*, 281-300.

McHale, S. M., Sloan, J., & Simeonsson, R. J. (1986). Sibling relationships of children with autistic, mentally retarded, and nonhandicapped brothers and sisters. *Journal of Autism and Developmental Disorders, 16*, 399-413.

McLean, D. (1992). Book review: Social skills rating system (SSRS). *Journal of Psychoeducational Assessment, 10*, 196-205.

Mehrabian, A. (1996). *The Balanced Emotional Empathy Scale*. Monterey, CA: Albert Mehrabian.

Melot, A., & Angeard, N. (2003). Theory of mind: Is training contagious? *Developmental Science, 6*, 178-184.

Mendelson, J. L., Gates, J. A., & Lerner, M. D. (2016). Friendship in school-age boys with autism spectrum disorders: A meta-analytic summary and developmental, process-based model. *Psychological Bulletin, 142*, 601-622.

Milligan, K., Astington, J. W., & Dack, L. A. (2007). Language and theory of mind: Meta-analysis of the relation between language ability and false-belief understanding. *Child Development, 78*, 622-646.

Montgomery, J. M., Stoesz, B. M., & McCrimmon, A. W. (2012). Emotional intelligence, theory of mind, and executive functions as predictors of social outcomes in young adults with asperger syndrome. *Focus on Autism and Other Developmental Disabilities, 28*, 4-13.

Morton, J., & Johnson, M. H. (1991). CONSPEC and CONLERN: A two-process theory of infant face recognition. *Psychological Review, 98*, 164-181.

Muncer, S. J., & Ling, J. (2006). Psychometric analysis of the empathy quotient (EQ) scale. *Personality and Individual Differences, 40*, 1111-1119.

Myklebust, J. O. (2002). Inclusion or exclusion? Transitions among special needs students in upper secondary education in Norway. *European Journal of Special Needs Education, 17*, 251-263.

Närvänen, A., & Markström, A. (2015). Co-producing children's sociality in parent-teacher conferences. *Scandinavian Journal of Educational Research, 59*, 546-563.

O'Moore, M., & Kirkham, C. (2001). Self-Esteem and its relationship to bullying behaviour. *Aggressive Behaviour, 27*, 269-283.

Ormrod, J. E. (2007). *Educational psychology: Developing learners* (6th ed.). Upper Saddle River, NJ: Prentice Hall, Inc.

Orsmond, G. I., Krauss, M. W., & Seltzer, M. M. (2004). Peer relationships and social and recreational activities among adolescents and adults with autism. *Journal of Autism and Developmental Disorders, 34*, 245-256.

Ozonoff, S., & Miller, J. N. (1995). Teaching theory of mind: A new approach to social skills training for individuals with autism. *Journal of Autism and Developmental Disorders, 25*, 415-433.

Ozonoff, S., Rogers, S. J., & Pennington, B. F. (1991). Asperger's syndrome: Evidence of an empirical distinction from high-functioning autism. *Journal of Child Psychology and Psychiatry, 32*, 1107-1122.

Patnaik, B. (2008). Children's theory of mind: Educational, school and instructional implications. *Journal of the Indian Academy of Applied Psychology, 34,* 329-336.

Pelham, B. W., & Blanton, H. (2003). *Conducting research in psychology: Measuring the weight of smoke* (2nd ed.). Belmont, CA: Wadsworth.

Pellegrini, A. D., & Bjorklund, D. F. (1998). *Applied child study: A developmental approach* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Perner, J., Leekam, S., & Wimmer, H. (1987). Three-year-olds' difficulty with false belief: The case for a conceptual deficit. *British Journal of Developmental Psychology, 5*, 125-137.

Perner, J., Ruffman, T., & Leekam, S. R. (1994). Theory of mind is contagious: You catch it from your sibs. *Child Development, 65*, 1228-1238.

Peterson, C. (2014). Theory of mind understanding and empathic behavior in children with autism spectrum disorders. *International Journal of Developmental Neuroscience, 39*, 16-21.

QSR International. (2012). *NVivo 10* [computer software]. Doncaster: Australia.

Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14- and 18-month-olds. *Developmental Psychology, 33*, 12-21.

Rieffe, C., Terwogt, M. M., & Kotronopoulou, K. (2007). Awareness of single and multiple emotions in high-functioning children with autism. *Journal of Autism and Developmental Disorders, 37*, 455-465.

Rotheram-Fuller, E., Kasari, C., Chamberlain, B., & Locke, J. (2010). Social involvement of children with autism spectrum disorders in elementary school classrooms. *Journal of Child Psychology and Psychiatry, 51*, 1227-1234.

Ruble, L. A. (2001). Analysis of social interactions as goal-directed behaviors in children with autism. *Journal of Autism and Developmental Disorders, 31*, 471-482.

Ruffman, T., Perner, J., & Parkin, L. (1999). How parenting style affects false belief understanding. *Social Development, 8*, 395-411.

Sacks, S. Z., & Wolffe, K. E. (2006). *Teaching social skills to students with visual impairments: From theory to practice*. New York, NY: AFB Press.

Salvia, J., Ysseldyke, J. E., & Bolt, S. (2010). *Assessment in special and inclusive education* (11th ed.). Belmont, CA: Wadsworth.

Scheeren, A. M., de Rosnay, M., Koot, H. M., & Begeer, S. (2013). Rethinking theory of mind in high-functioning autism spectrum disorder. *Journal of Child Psychology and Psychiatry, 54*, 628-635.

Scheeren A. M., Koot, H. S., Mundy P. C., Mous, L., & Beeger, S. (2013). Empathic responsiveness of children and adolescents with high-functioning autism spectrum disorder. *Autism Research, 6*, 362-371.

Schroeder, J. H., Cappadocia, M. C., Bebko, J. M., Pepler, D. J., & Weiss, J. A. (2014). Shedding light on a pervasive problem: A review of research on bullying experiences among children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 44*, 1520-1534.

Semel Institute UCLA. (2011). UCLA Peers Clinic. Retrieved from https://www.semel.ucla.edu/peers.

Senju, A. (2012). Spontaneous theory of mind and its absence in autism spectrum disorders. *The Neuroscientist, 18*, 108-113.

Sigman, M., Ruskin, E., Arbelle, S., Corona, R., Dissanayake, C., Epinosa, M., Kim, N., Lopez, A., Zierhut, C., Mervis, C. B., & Robinson, B. F. (1999). Continuity and change in the social competence of children with autism, down syndrome, and developmental delays. *Monographs of the Society for Research in Child Development, 64*, 1-139.

Snyder, M. (1981). On the self-perpetuating nature of social stereotypes. In D. L. Hamilton (Ed.), *Cognitive processes in stereotyping and intergroup behavior* (pp. 182-212). Hillsdale, NJ: Erlbaum.

Sofronoff, K., Dark, E., & Stone, V. (2011). Social vulnerability and bullying in children with asperger syndrome. *Autism, 15*, 355-372.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1984). *Survey form manual for vineland adaptive behavior scales*. Circle Pines, MN: American Guidance Service, Inc.

Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (2005). *Vineland adaptive behavior scale* (2nd Ed.). San Antonio, TX: Pearson.

Stein, S. (2010). [Review of the test Vineland Adaptive Behavior Scales, Second Edition]. In R. A. Spies, J. F. Carlson, & K. F. Geisinger (Eds.), *The Eighteenth Mental Measurements Yearbook* (pp. 677-683). Lincoln, NE: The Buros Institute of Mental Measurements.

Steiner-Bell, K., & Kirby, J. R. (1998). Mindblindness: Implications for educating children with autism. *Developmental Disabilities Bulletin, 26*, 1-21.

Steiner-Bell, K., & Kirby, J. R. (2002). Teaching emotion and belief as mindreading instruction for children with autism. *Developmental Disabilities Bulletin, 30*, 16-58.

Swettenham, J. (1996). Can children with autism be taught to understand false-belief using computers? *Journal of Child Psychology and Psychiatry, 37*, 157-165.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th Ed.). Boston: Pearson Education, Inc.

Tager-Flusberg, H., & Joseph, R. M. (2005). How language facilitates the acquisition of false-belief understanding in children with autism. In J. W. Astington & J. A. Baird (Eds.), *Why language matters for theory of mind* (pp. 298-318). New York: Oxford University Press.

Talwar, V., & Lee, K. (2002). Development of lying to conceal a transgression: Children's control of expressive behaviour during verbal deception. *International Journal of Behavioral Development, 26*, 436-444.

Talwar, V., Murphy, S. M., & Lee, K. (2007). White lie-telling in children for politeness purposes. *International Journal of Behavioral Development, 31*, 1-11.

Tantam, D. (2000). Psychological disorder in adolescents and adults with asperger syndrome. *Autism, 4*, 47–62.

Van Lang, N., Sytema, S., De Bildt, A., Kraijer, D., Ketelaars, C., & Minderaa, R. (n.a.). Symptom structure underlying the ADOS-G and ADI-R in verbal children and adolescents with an autism spectrum disorder. Unpublished internal document, University of Groningen, Department of Child and Adolescent Psychiatry.

Wainscot, J. J., Naylor, P., Sutcliffe, P., Tantam, D., & Williams, J. V. (2008). Relationships with peers and use of the school environment of mainstream secondary school pupils with asperger syndrome (high-functioning autism): A case-control study. *International Journal of Psychology and Psychological Therapy*, *8*, 25-38.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13,* 103-128.

Woolfolk, A. E., Winne, P. H., & Perry, N. E. (2011). *Educational Psychology (5th Canadian Ed.)*. Toronto: Pearson Education Canada.

Youngblade, L. M., & Dunn, J. (1995). Individual differences in young children's pretend play with mother and sibling: Links to relationships and understanding of other people's feelings and beliefs. *Child Development*, *66*, 1472-1492.

Appendices

A: Copy of Empathy Quotient for Adults (EQ)

B: Copy of Friendship and Relationship Quotient (FQ)

C: Bake sale task slideshow (BST)

D: Copy of Social Skills Improvement System Rating Scales (SSISRS)

E: Copy of the parent version of the Vineland Adaptive Behavior Scale, 2nd edition (VABS-II)

F: Copy of the teacher version of the Vineland Adaptive Behavior Scale, 2nd edition (VABS-II)

G: Semi-Structured Interview Protocol

H: Ethics approval

I: Sample advertisement

J: Sample email

K: Adolescent version of letter of information

L: Adolescent version of consent form

M: Parent version of letter of information

N: Parent version of consent form

O: Teacher version of letter of information

P: Teacher version of consent form

Q: Master list of codes – final version

Appendix A

The Cambridge Behaviour Scale

Please fill in this information and then read the instructions below.

ALL INFORMATION REMAINS STRICTLY CONFIDENTIAL

Name:.....Sex:.....

Date of birth:..... Today's date:.....

How to fill out the questionnaire

Below are a list of statements. Please read each statement very carefully and rate how strongly you agree or disagree with it by circling your answer. There are no right or wrong answers, or trick questions.

IN ORDER FOR THE SCALE TO BE VALID, YOU MUST ANSWER EVERY QUESTION.

Examples

E1. I would be very upset if I couldn't listen to music every day.	strongly agree	(slightly agree)	slightly disagree	strongly disagree
E2. I prefer to speak to my friends on the phone rather than write letters to them.	strongly agree	slightly agree	slightly disagree	(strongly disagree)
E3. I have no desire to travel to different parts of the world.	(strongly agree)	slightly agree	slightly disagree	strongly disagree
E4. I prefer to read than to dance.	strongly agree	slightly agree	(slightly disagree)	strongly disagree

1. I can easily tell if someone else wants to enter a conversation.	strongly agree	slightly agree	slightly disagree	strongly disagree
2. I prefer animals to humans.	strongly agree	slightly agree	slightly disagree	strongly disagree
3. I try to keep up with the current trends and fashions.	strongly agree	slightly agree	slightly disagree	strongly disagree
4. I find it difficult to explain to others things that I understand easily, when they don't understand it first time.	strongly agree	slightly agree	slightly disagree	strongly disagree
5. I dream most nights.	strongly agree	slightly agree	slightly disagree	strongly disagree
6. I really enjoy caring for other people.	strongly agree	slightly agree	slightly disagree	strongly disagree
7. I try to solve my own problems rather than discussing them with others.	strongly agree	slightly agree	slightly disagree	strongly disagree
8. I find it hard to know what to do in a social situation.	strongly agree	slightly agree	slightly disagree	strongly disagree
9. I am at my best first thing in the morning.	strongly agree	slightly agree	slightly disagree	strongly disagree
10. People often tell me that I went too far in driving my point home in a discussion.	strongly agree	slightly agree	slightly disagree	strongly disagree
11. It doesn't bother me too much if I am late meeting a friend.	strongly agree	slightly agree	slightly disagree	strongly disagree
12. Friendships and relationships are just too difficult, so I tend not to bother with them.	strongly agree	slightly agree	slightly disagree	strongly disagree
13. I would never break a law, no matter how minor.	strongly agree	slightly agree	slightly disagree	strongly disagree
14. I often find it difficult to judge if something is rude or polite.	strongly agree	slightly agree	slightly disagree	strongly disagree
15. In a conversation, I tend to focus on my own	strongly	slightly	slightly	strongly

thoughts rather than on what my listener might be thinking.	agree	agree	disagree	disagree
16. I prefer practical jokes to verbal humour.	strongly agree	slightly agree	slightly disagree	strongly disagree
17. I live life for today rather than the future.	strongly agree	slightly agree	slightly disagree	strongly disagree
18. When I was a child, I enjoyed cutting up worms to see what would happen.	strongly agree	slightly agree	slightly disagree	strongly disagree
19. I can pick up quickly if someone says one thing but means another.	strongly agree	slightly agree	slightly disagree	strongly disagree
20. I tend to have very strong opinions about morality.	strongly agree	slightly agree	slightly disagree	strongly disagree
21. It is hard for me to see why some things upset people so much.	strongly agree	slightly agree	slightly disagree	strongly disagree
22. I find it easy to put myself in somebody else's shoes.	strongly agree	slightly agree	slightly disagree	strongly disagree
23. I think that good manners are the most important thing a parent can teach their child.	strongly agree	slightly agree	slightly disagree	strongly disagree
24. I like to do things on the spur of the moment.	strongly agree	slightly agree	slightly disagree	strongly disagree
25. I am good at predicting how someone will feel.	strongly agree	slightly agree	slightly disagree	strongly disagree
26. I am quick to spot when someone in a group is feeling awkward or uncomfortable.	strongly agree	slightly agree	slightly disagree	strongly disagree
27. If I say something that someone else is offended by, I think that that's their problem, not mine.	strongly agree	slightly agree	slightly disagree	strongly disagree
28. If anyone asked me if I liked their haircut, I would reply truthfully, even if I didn't like it.	strongly agree	slightly agree	slightly disagree	strongly disagree
29. I can't always see why someone should have felt offended by a remark.	strongly agree	slightly agree	slightly disagree	strongly disagree

30. People often tell me that I am very unpredictable.	strongly agree	slightly agree	slightly disagree	strongly disagree
31. I enjoy being the centre of attention at any social gathering.	strongly agree	slightly agree	slightly disagree	strongly disagree
32. Seeing people cry doesn't really upset me.	strongly agree	slightly agree	slightly disagree	strongly disagree
33. I enjoy having discussions about politics.	strongly agree	slightly agree	slightly disagree	strongly disagree
34. I am very blunt, which some people take to be rudeness, even though this is unintentional.	strongly agree	slightly agree	slightly disagree	strongly disagree
35. I don't tend to find social situations confusing.	strongly agree	slightly agree	slightly disagree	strongly disagree
36. Other people tell me I am good at understanding how they are feeling and what they are thinking.	strongly agree	slightly agree	slightly disagree	strongly disagree
37. When I talk to people, I tend to talk about their experiences rather than my own.	strongly agree	slightly agree	slightly disagree	strongly disagree
38. It upsets me to see an animal in pain.	strongly agree	slightly agree	slightly disagree	strongly disagree
39. I am able to make decisions without being influenced by people's feelings.	strongly agree	slightly agree	slightly disagree	strongly disagree
40. I can't relax until I have done everything I had planned to do that day.	strongly agree	slightly agree	slightly disagree	strongly disagree
41. I can easily tell if someone else is interested or bored with what I am saying.	strongly agree	slightly agree	slightly disagree	strongly disagree
42. I get upset if I see people suffering on news programmes.	strongly agree	slightly agree	slightly disagree	strongly disagree
43. Friends usually talk to me about their problems as they say that I am very understanding.	strongly agree	slightly agree	slightly disagree	strongly disagree

44. I can sense if I am intruding, even if the other person doesn't tell me.	strongly agree	slightly agree	slightly disagree	strongly disagree
45. I often start new hobbies but quickly become bored with them and move on to something else.	strongly agree	slightly agree	slightly disagree	strongly disagree
46. People sometimes tell me that I have gone too far with teasing.	strongly agree	slightly agree	slightly disagree	strongly disagree
47. I would be too nervous to go on a big rollercoaster.	strongly agree	slightly agree	slightly disagree	strongly disagree
48. Other people often say that I am insensitive, though I don't always see why.	strongly agree	slightly agree	slightly disagree	strongly disagree
49. If I see a stranger in a group, I think that it is up to them to make an effort to join in.	strongly agree	slightly agree	slightly disagree	strongly disagree
50. I usually stay emotionally detached when watching a film.	strongly agree	slightly agree	slightly disagree	strongly disagree
51. I like to be very organised in day to day life and often make lists of the chores I have to do.	strongly agree	slightly agree	slightly disagree	strongly disagree
52. I can tune into how someone else feels rapidly and intuitively.	strongly agree	slightly agree	slightly disagree	strongly disagree
53. I don't like to take risks.	strongly agree	slightly agree	slightly disagree	strongly disagree
54. I can easily work out what another person might want to talk about.	strongly agree	slightly agree	slightly disagree	strongly disagree
55. I can tell if someone is masking their true emotion.	strongly agree	slightly agree	slightly disagree	strongly disagree
56. Before making a decision I always weigh up the pros and cons.	strongly agree	slightly agree	slightly disagree	strongly disagree
57. I don't consciously work out the rules of social situations.	strongly agree	slightly agree	slightly disagree	strongly disagree
58. I am good at predicting what someone will do.	strongly	slightly	slightly	strongly

	agree	agree	disagree	disagree
59. I tend to get emotionally involved with a friend's problems.	strongly agree	slightly agree	slightly disagree	strongly disagree
60. I can usually appreciate the other person's viewpoint, even if I don't agree with it.	strongly agree	slightly agree	slightly disagree	strongly disagree

Thank you for filling this questionnaire in.

© MRC-SBC/SJW Feb 1999

Appendix B

Cambridge Friendship Questionnaire

Please complete the following background information about yourself and then turn over to fill out the rest of the questionnaire.

Name:.....Sex:.....

Date of birth:..... Today's date:.....

Occupation (please give most recent if not currently working):.....
.....

How old were you when you left school?.....

Do you have a degree? YES ☐ NO ☐

Who else lives in your home? (e.g. partner, mother, flatmate, husband, stepson): .....
.....
.....
.....

This questionnaire has 35 questions. Please answer every question.

For each of the following questions, tick the box next to the statement which most applies to you.

1. a I have one or two particular best friends. ☐
   b I have several friends who I would call best friends. ☐
   c I don't have anybody who I would call a best friend. ☐

2. a The most important thing about a friendship is having somebody to confide in. ☐
   b The most important thing about a friendship is having somebody to have fun with. ☐

3. a If I had to pick, I would rather have a friend who enjoys doing the same things as me than a friend who feels the same way about life as I do. ☐
   b If I had to pick, I would rather have a friend who feels the same way about life as I do, than a friend who enjoys doing the same things as me. ☐

4. a I like to be close to people. ☐
   b I like to keep my distance from people. ☐

5. a When I talk with friends on the phone, it is usually to make arrangements rather than to chat. ☐
   b When I talk with friends on the phone, it is usually to chat rather than to make arrangements. ☐

6. a I tend to think of an activity I want to do and then find somebody to do it with. ☐
   b I tend to arrange to meet somebody and then think of something to do. ☐

7. a I prefer meeting a friend for a specific activity, e.g. going to the cinema, playing golf. ☐
   b I prefer meeting a friend for a chat, e.g. at a pub, at a café. ☐

8. a If I moved to a new area, I would put more effort into staying in touch with old friends than making new friends. ☐
   b If I moved to a new area, I would put more effort into making new friends than staying in touch with old friends. ☐

9. a My friends value me more as someone who is a support to them than as someone to have fun with. ☐
   b My friends value me more as someone to have fun with than as someone who is a support to them. ☐

10. a If a friend had a problem, I would be better at discussing their feelings about the problem than coming up with practical solutions. ☐
    b If a friend had a problem, I would be better at coming up with practical solutions than discussing their feelings about the problem. ☐

11. a If a friend was having personal problems, I would wait for them to contact me as I wouldn't want to interfere. ☐
    b If a friend was having personal problems, I would contact them to discuss the problem. ☐

12. a When I have a personal problem, I feel that it is better to work it out on my own. ☐
    b When I have a personal problem, I feel that it is better to share it with a friend. ☐
    c When I have a personal problem, I feel that it is better to try and forget about it. ☐

13. a If I have to say something critical to a friend, I think it's best to broach the subject gently. ☐
    b If I have to say something critical to a friend, I think it's best to just come right out and say it. ☐

14. If I fell out with a good friend and I thought that I hadn't done anything wrong, I would

a do whatever it takes to repair the relationship. ☐

b be willing to make the first move, as long as they reciprocated. ☐

c be willing to sort out the problem, if they made the first move. ☐

d not feel able to be their close friend anymore. ☐

15. My ideal working space would be

a in an office on my own, without any visitors during the day. ☐

b in an office on my own, with an occasional visitor during the day. ☐

c in an office with one or two others. ☐

d in an open plan office. ☐

For the next set of questions, please tick the box to indicate your answer.

16. How easy do you find discussing your feelings with your friends?

Very easy ☐ Quite easy ☐ Not very easy ☐

Quite difficult ☐ Very difficult ☐

17. How easy would you find it to discuss your feelings with a stranger?

Very easy ☐ Quite easy ☐ Not very easy ☐

Quite difficult ☐ Very difficult ☐

18. In terms of personality, how similar to your friends do you tend to be?

Very similar ☐ Quite similar ☐

Not very similar ☐ Very dissimilar ☐

19. In terms of interests, how similar to your friends do you tend to be?

Very similar ☐ Quite similar ☐

Not very similar ☐ Very dissimilar ☐

20. How important is it to you what your friends think of you?

Of no importance ☐ Of little importance ☐ Fairly important ☐

Very important ☐ Of upmost importance ☐

21. How important is it to you what strangers think of you?

Of no importance ☐ Of little importance ☐ Fairly important ☐

Very important ☐ Of upmost importance ☐

22. How easy do you find it to admit to your friends when you're wrong?

Very easy ☐ Quite easy ☐ Not very easy ☐

Quite difficult ☐ Very difficult ☐

23. How easy to do you find it to tell a friend about your weaknesses and failures?

Very easy ☐ Quite easy ☐ Not very easy ☐

Quite difficult ☐ Very difficult ☐

24. How easy do you find it to tell a friend about your achievements and successes?

Very easy ☐ Quite easy ☐ Not very easy ☐

Quite difficult ☐ Very difficult ☐

25. How interested are you in the everyday details (e.g. their relationships, family, what's currently going on in their lives) of your close friends' lives?

Completely disinterested ☐ Not very interested ☐

Quite interested ☐ Very interested ☐

26. How interested are you in the everyday details (e.g. their relationships, family, what's currently going on in their lives) of your casual friends' lives?

Completely disinterested ☐ Not very interested ☐

Quite interested ☐ Very interested ☐

27. When you are in a group, e.g. at work, school, church, parent group etc., how important is it for you to know the "gossip" e.g. who dislikes who, who's had a relationship with who, secrets.

Of no importance ☐ Of little importance ☐ Fairly important ☐
Very important ☐ Of great importance ☐

28. Do you work harder at your career than at maintaining your relationships with friends?

Yes ☐ No ☐ Equal ☐

29. How often do you make plans to meet with friends?

Once or twice a year ☐
Once every 2 or 3 months ☐
Once a month ☐
Once every couple of weeks ☐
Once or twice a week ☐
3 or 4 times a week ☐
More than any of the above ☐

30. How would you prefer to keep in touch with friends?

(Please put: 1 in the box next to your most preferred method
2 in the box next to your second preference
3 in the box next to your third preference)

Face to face contact ☐
Email/letters ☐
Telephone calls ☐

31. How easy to do you find it to make new friends?

Very easy ☐	Quite easy ☐	Not very easy ☐
Quite difficult ☐	Very difficult ☐	

32. What would be the minimum social contact you would need to get through a day?

No contact – I don't get lonely	☐
Just being near to people, even if I am not talking to them	☐
A casual chat, e.g., with a shop assistant or hairdresser	☐
A chat with a friend	☐
Two or three chats with friends during the day	☐
More than any of the above	☐

33. What would be the minimum social contact you would need to get through a week?

None – I don't get lonely	☐
Being around people, even if I wasn't talking to them	☐
Casual chats, e.g. with a shop assistant or hairdresser	☐
One chat with a friend	☐
Two or three chats during the week with friends	☐
One chat every day with a friend	☐
Two or three chats every day with a friend	☐
More than any of the above	☐

34. When talking with friends, what proportion of your time do you spend talking about the following:

(*Please put: 1 in the box next to the topic that you talk most about,*
2 in the box next to the topic you talk next most about, etc, through to
7 in the box next to the topic you talk least about.
Use each number only once i.e. there should be no ties.)

Politics and current affairs	☐
Hobbies and interests (eg. sport, TV, music, cinema, fashion, holidays, gardening, DIY etc.)	☐
Personal matters (e.g. life choice decisions, arguments, feelings)	☐
Work	☐
Family and friends	☐
The weather	☐
What you've been doing since last time you spoke	☐

35. At social occasions, when you meet someone for the first time, how likely are you to talk about the following.

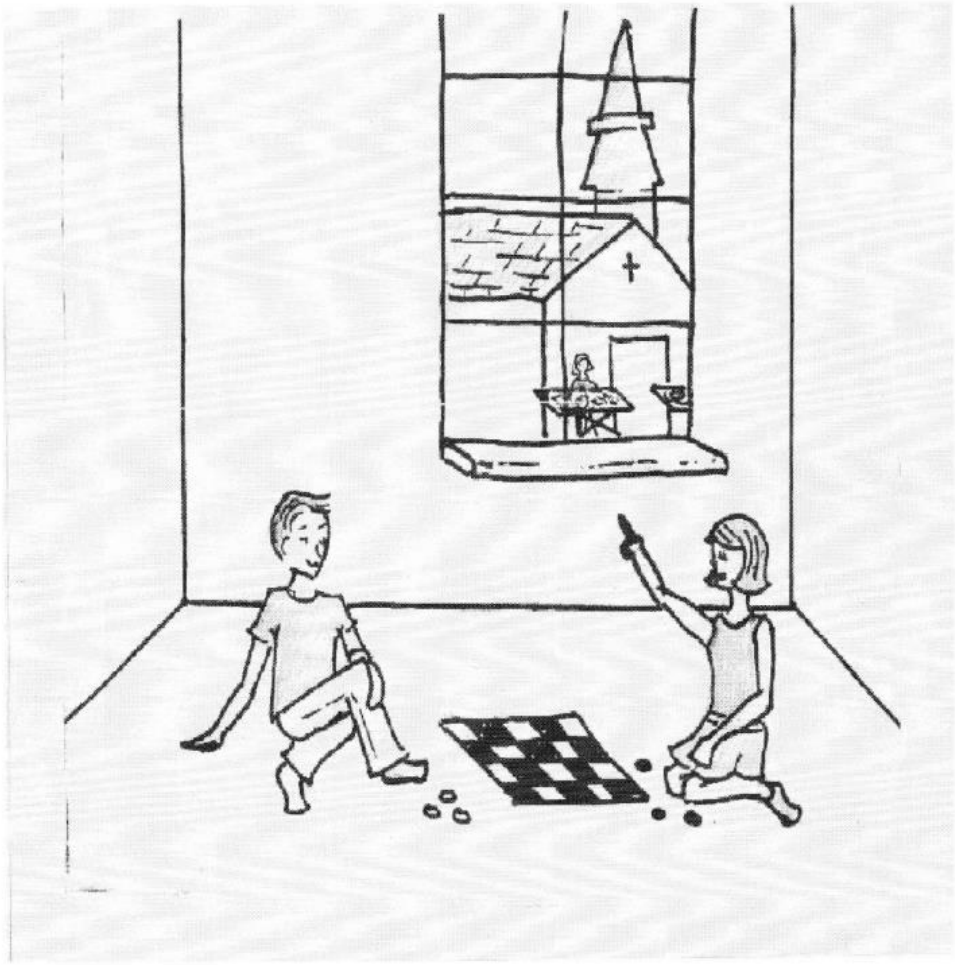
(Please put: 1 in the box next to the topic that you talk most about,
2 in the box next to the topic you talk next most about, etc, through to
7 in the box next to the topic you talk least about.
Use each number only once i.e. there should be no ties.)

Politics and current affairs	☐
Hobbies and interests (e.g. sport, TV, music, cinema, fashion, holidays, gardening, DIY etc.)	☐
Personal matters (e.g. life choice decisions, arguments, feelings)	☐
Work	☐
Family and friends	☐
The weather	☐
What you've been doing recently	☐

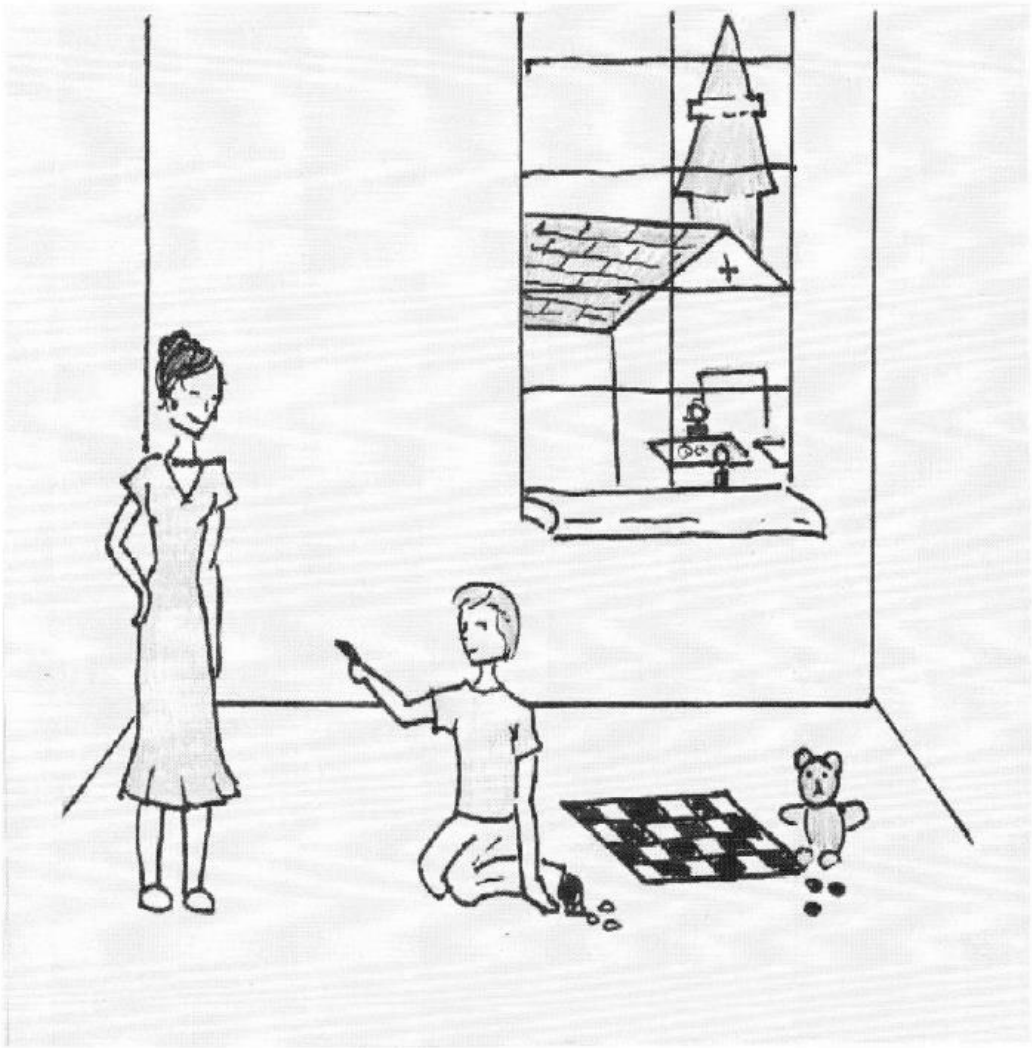
Thank you for completing this questionnaire

©SBC/SJW MRC 2000

Appendix C

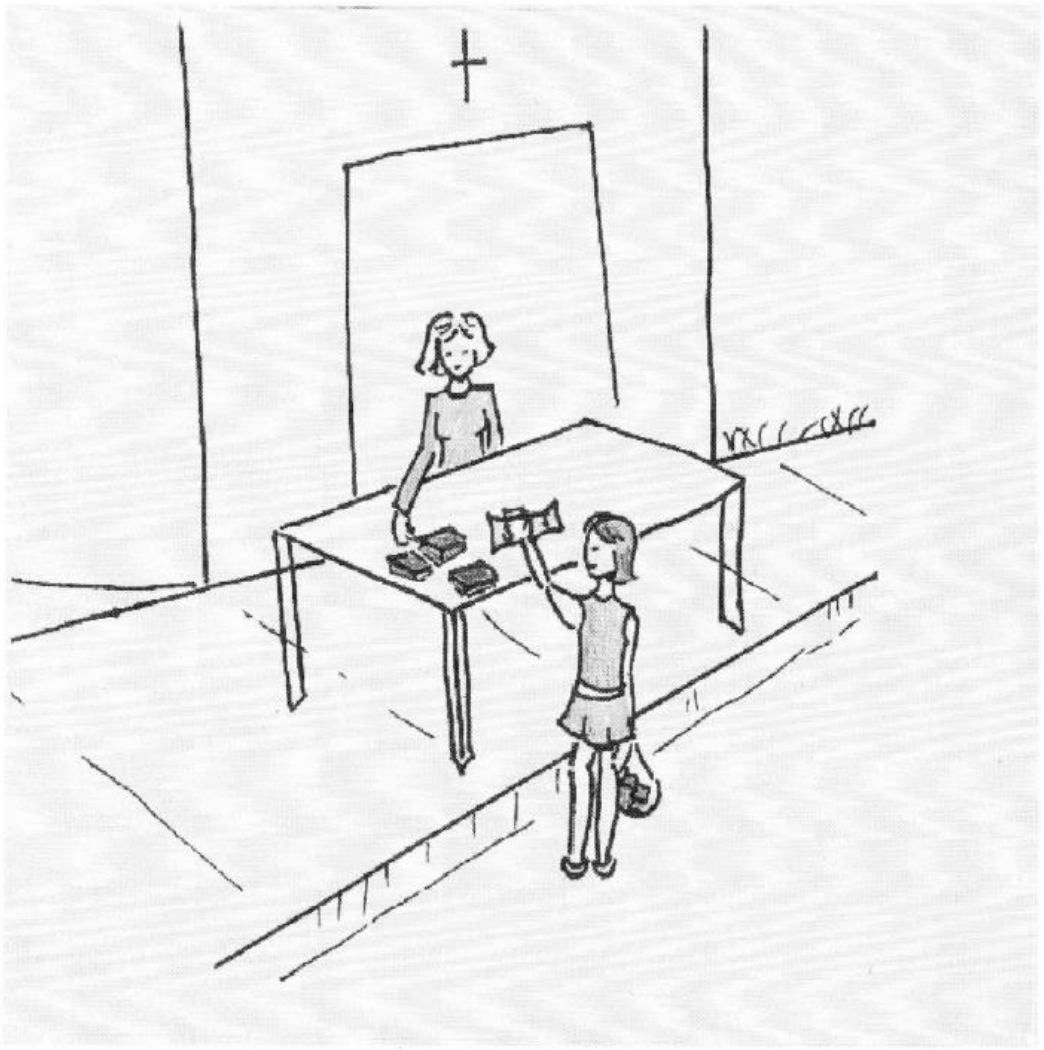


Sam and Maria are playing together. They look outside and see that the church is having a bake sale. Maria tells Sam: “I am going to buy chocolate chip cookies for us there”, and she walks away.



Mom comes home and she tells Sam that she just drove past the bake sale.
"Are they selling chocolate chip cookies?" Sam asks.
"No", mum says, "they are only selling pumpkin pie."
"Maria will now probably get pumpkin pie at the bake sale", Sam says.

Does Maria know they are selling pumpkin pie at the bake sale?



Maria has arrived at the bake sale. “I would like to buy chocolate chip cookies”, she says. “All we have left are brownies”, says the lady behind the stall. Since Maria also likes brownies, she decides to get some brownies.

Does Sam know that Maria bought some brownies?

Q1FB1

What does Sam think they are selling at the bake sale?

Why does he think that?

On her way back, Maria meets the mailman. She tells the mailman: “I have just bought some brownies. I am going to share them with my brother Sam. It is a surprise”. “That is nice of you”, says the mailman. Then he asks Maria: “What does Sam think they are selling at the bake sale?”

QFB2

What does Maria tell the mailman?

Why does she say that?

Q2FB1

What does Sam think they are selling at the bake sale?

Why does he think that?

Remember: How True: **N** - Not True **L** - Little True **A** - A Lot True **V** - Very True

How Important: **n** - not important **i** - important **c** - critical

1.	I ask for information when I need it.	N L A V n i c		**11.**	I show others how I feel.	N L A V n i c
2.	I pay attention when others present their ideas.	N L A V n i c		**12.**	I do what the teacher asks me to do.	N L A V n i c
3.	I try to forgive others when they say "sorry."	N L A V n i c		**13.**	I try to make others feel better.	N L A V n i c
4.	I'm careful when I use things that aren't mine.	N L A V n i c		**14.**	I do my part in a group.	N L A V n i c
5.	I stand up for others when they are not treated well.	N L A V n i c		**15.**	I let people know when there's a problem.	N L A V n i c
6.	I say "please" when I ask for things.	N L A V n i c		**16.**	I look at people when I talk to them.	N L A V n i c
7.	I feel bad when others are sad.	N L A V n i c		**17.**	I help my friends when they are having a problem.	N L A V n i c
8.	I get along with other children/adolescents.	N L A V n i c		**18.**	I make friends easily.	N L A V n i c
9.	I ignore others who act up in class.	N L A V n i c		**19.**	I do my work without bothering others.	N L A V n i c
10.	I take turns when I talk with others.	N L A V n i c		**20.**	I am polite when I speak to others.	N L A V n i c

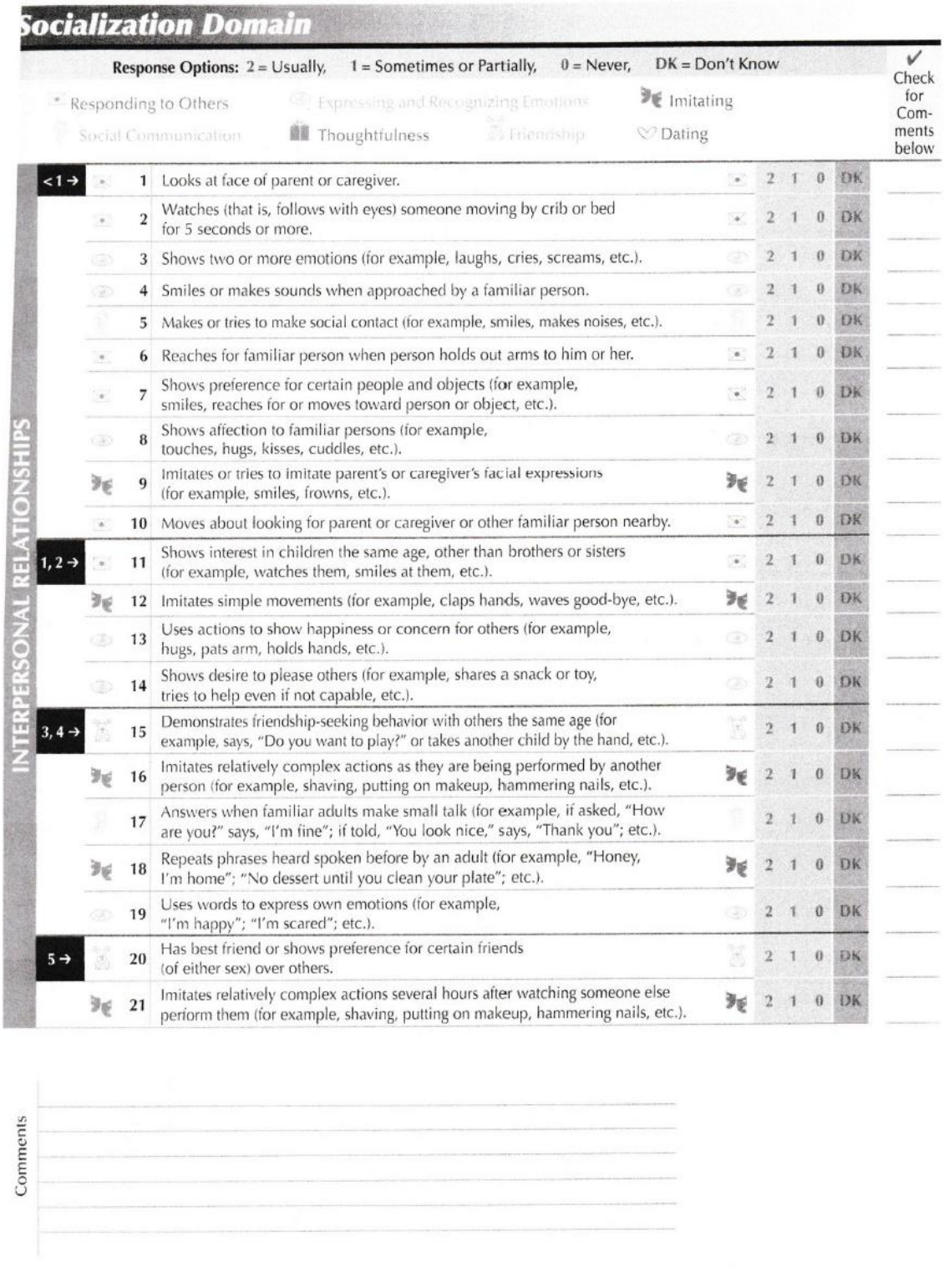
Please mark every item.

(Ages 13–18)
Hand-Scoring Form

Social Skills

21. I stay calm when I am teased.	N	L	A	V	**31.** I try to find a good way to end a disagreement.	N	L	A	V	**41.** I stay calm when others bother me.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
22. I follow school rules.	N	L	A	V	**32.** I pay attention when the teacher talks to the class.	N	L	A	V	**42.** I work well with my classmates.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
23. I ask others to do things with me.	N	L	A	V	**33.** I play games with others.	N	L	A	V	**43.** I try to make new friends.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
24. I am well-behaved.	N	L	A	V	**34.** I do my homework on time.	N	L	A	V	**44.** I tell people when I have made a mistake.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
25. I say nice things about myself without bragging.	N	L	A	V	**35.** I tell others when I'm not treated well.	N	L	A	V	**45.** I ask for help when I need it.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
26. I stay calm when people point out my mistakes.	N	L	A	V	**36.** I stay calm when dealing with problems.	N	L	A	V	**46.** I stay calm when I disagree with others.	N	L	A	V
	n	i	c			n	i	c			n	i	c	
27. I try to think about how others feel.	N	L	A	V	**37.** I am nice to others when they are feeling bad.	N	L	A	V					
	n	i	c			n	i	c						
28. I meet and greet new people on my own.	N	L	A	V	**38.** I ask to join others when they are doing things I like.	N	L	A	V					
	n	i	c			n	i	c						
29. I do the right thing without being told.	N	L	A	V	**39.** I keep my promises.	N	L	A	V					
	n	i	c			n	i	c						
30. I smile or wave at people when I see them.	N	L	A	V	**40.** I say "thank you" when someone helps me.	N	L	A	V					
	n	i	c			n	i	c						

Appendix E



Socialization Domain

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never, DK = Don't Know

Responding to Others · Expressing and Recognizing Emotions · Imitating
Social Communication · Thoughtfulness · Friendship · Dating

				✓ Check for Comments below
INTERPERSONAL RELATIONSHIPS				
<1 →	1	Looks at face of parent or caregiver.	2 1 0 DK	
	2	Watches (that is, follows with eyes) someone moving by crib or bed for 5 seconds or more.	2 1 0 DK	
	3	Shows two or more emotions (for example, laughs, cries, screams, etc.).	2 1 0 DK	
	4	Smiles or makes sounds when approached by a familiar person.	2 1 0 DK	
	5	Makes or tries to make social contact (for example, smiles, makes noises, etc.).	2 1 0 DK	
	6	Reaches for familiar person when person holds out arms to him or her.	2 1 0 DK	
	7	Shows preference for certain people and objects (for example, smiles, reaches for or moves toward person or object, etc.).	2 1 0 DK	
	8	Shows affection to familiar persons (for example, touches, hugs, kisses, cuddles, etc.).	2 1 0 DK	
	9	Imitates or tries to imitate parent's or caregiver's facial expressions (for example, smiles, frowns, etc.).	2 1 0 DK	
	10	Moves about looking for parent or caregiver or other familiar person nearby.	2 1 0 DK	
1, 2 →	11	Shows interest in children the same age, other than brothers or sisters (for example, watches them, smiles at them, etc.).	2 1 0 DK	
	12	Imitates simple movements (for example, claps hands, waves good-bye, etc.).	2 1 0 DK	
	13	Uses actions to show happiness or concern for others (for example, hugs, pats arm, holds hands, etc.).	2 1 0 DK	
	14	Shows desire to please others (for example, shares a snack or toy, tries to help even if not capable, etc.).	2 1 0 DK	
3, 4 →	15	Demonstrates friendship-seeking behavior with others the same age (for example, says, "Do you want to play?" or takes another child by the hand, etc.).	2 1 0 DK	
	16	Imitates relatively complex actions as they are being performed by another person (for example, shaving, putting on makeup, hammering nails, etc.).	2 1 0 DK	
	17	Answers when familiar adults make small talk (for example, if asked, "How are you?" says, "I'm fine"; if told, "You look nice," says, "Thank you"; etc.).	2 1 0 DK	
	18	Repeats phrases heard spoken before by an adult (for example, "Honey, I'm home"; "No dessert until you clean your plate"; etc.).	2 1 0 DK	
	19	Uses words to express own emotions (for example, "I'm happy"; "I'm scared"; etc.).	2 1 0 DK	
5 →	20	Has best friend or shows preference for certain friends (of either sex) over others.	2 1 0 DK	
	21	Imitates relatively complex actions several hours after watching someone else perform them (for example, shaving, putting on makeup, hammering nails, etc.).	2 1 0 DK	

Comments

Socialization Domain, continued

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never, DK = Don't Know

Responding to Others | Expressing and Recognizing Emotions | Imitating
Social Communication | Thoughtfulness | Friendship | Dating

								✓ Check for Comments below
INTERPERSONAL RELATIONSHIPS, continued		22	Uses words to express happiness or concern for others (for example, says, "Yeah! You won"; "Are you all right?"; etc.).	2	1	0	DK	
		23	Acts when another person needs a helping hand (for example, holds door open, picks up dropped items, etc.).	2	1	0	DK	
	6–8 →	24	Recognizes the likes and dislikes of others (for example, says, "Chow likes soccer"; "Susie doesn't eat pizza"; etc.).	2	1	0	DK	
		25	Shows same level of emotion as others around him or her (for example, does not downplay or overdramatize a situation, etc.).	2	1	0	DK	
		26	Keeps comfortable distance between self and others in social situations (for example, does not get too close to another person when talking, etc.).	2	1	0	DK	
		27	Talks with others about shared interests (for example, sports, TV shows, summer plans, etc.).	2	1	0	DK	
	9+ →	28	Starts small talk when meets people he or she knows (for example, says, "How are you?"; "What's up?"; etc.).	2	1	0	DK	
		29	Meets with friends regularly.	2	1	0	DK	
		30	Chooses not to say embarrassing or mean things or ask rude questions in public.	2	1	0	DK	
		31	Places reasonable demands on friendship (for example, does not expect to be a person's only friend or to have the friend always available, etc.).	2	1	0	DK	
		32	Understands that others do not know his or her thoughts unless he or she says them.	2	1	0	DK	
		33	Is careful when talking about personal things.	2	1	0	DK	
		34	Cooperates with others to plan or be part of an activity (for example, a birthday party, sports event, etc.).	2	1	0	DK	
		35	Demonstrates understanding of hints or indirect cues in conversation (for example, knows that yawns may mean, "I'm bored," or a quick change of subject may mean, "I don't want to talk about that"; etc.).	2	1	0	DK	
		36	Starts conversations by talking about things that interest others (for example, says, "Tyrone tells me you like computers"; etc.).	2	1	0	DK	
		37	Goes on group dates.	2	1	0	DK	
		38	Goes on single dates.	2	1	0	DK	

Comments

Item Before Basal ____ × 2 = ☐
Basal Item Through Ceiling Item:
DK and/or Missing Total* + ☐
Sum of 2s and 1s + ☐
Interpersonal Relationships Raw Score = ☐ SUM

*If the total of DK and/or Missing is greater than 2, do not score subdomain.

Socialization Domain, continued

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never, DK = Don't Know

Playing | Sharing and Cooperating | Going Places with Friends | Playing Games | Recognizing Social Cues

				✓ Check for Comments below
PLAY AND LEISURE TIME				
<1 →	1	Responds when parent or caregiver is playful (for example, smiles, laughs, claps hands, etc.).	2 1 0 DK	
	2	Shows interest in where he or she is (for example, looks or moves around, touches objects or people, etc.).	2 1 0 DK	
	3	Plays simple interaction games with others (for example, peekaboo, patty-cake, etc.).	2 1 0 DK	
1, 2 →	4	Plays near another child, each doing different things.	2 1 0 DK	
	5	Chooses to play with other children (for example, does not stay on the edge of a group or avoid others).	2 1 0 DK	
	6	Plays cooperatively with one or more children for up to 5 minutes.	2 1 0 DK	
	7	Plays cooperatively with more than one child for more than 5 minutes.	2 1 0 DK	
	8	Continues playing with another child with little fussing when parent or caregiver leaves.	2 1 0 DK	
3 →	9	Shares toys or possessions when asked.	2 1 0 DK	
	10	Plays with others with minimal supervision.	2 1 0 DK	
	11	Uses common household objects or other objects for make-believe activities (for example, pretends a block is a car, a box is a house, etc.).	2 1 0 DK	
	12	Protects self by moving away from those who destroy things or cause injury (for example, those who bite, hit, throw things, pull hair, etc.).	2 1 0 DK	
4 →	13	Plays simple make-believe activities with others (for example, plays dress-up, pretends to be superheroes, etc.).	2 1 0 DK	
	14	Seeks out others for play or companionship (for example, invites others home, goes to another's home, plays with others on the playground, etc.).	2 1 0 DK	
	15	Takes turns when asked while playing games or sports.	2 1 0 DK	
	16	Plays informal, outdoor group games (for example, tag, jump rope, catch, etc.).	2 1 0 DK	
	17	Shares toys or possessions without being asked.	2 1 0 DK	
5, 6 →	18	Follows rules in simple games (relay races, spelling bees, electronic games, etc.).	2 1 0 DK	
	19	Takes turns without being asked.	2 1 0 DK	
	20	Plays simple card or board game based only on chance (for example, Go Fish, Crazy Eights, Sorry™, etc.).	2 1 0 DK	
7–12 →	21	Goes places with friends during the day with adult supervision (for example, to a shopping mall, park, community center, etc.).	2 1 0 DK	
	22	Asks permission before using objects belonging to or being used by another.	2 1 0 DK	

Comments

Socialization Domain, continued

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never, DK = Don't Know

Playing · Sharing and Cooperating · Going Places with Friends · Playing Games · Recognizing Social Cues

PLAY AND LEISURE TIME, continued

								✔ Check for Comments below
	23	Refrains from entering group when nonverbal cues indicate that he or she is not welcome.	2	1	0	DK		
	24	Plays simple games that require keeping score (for example, kickball, pickup basketball, etc.).	2	1	0	DK		
13+ →	25	Shows good sportsmanship (that is, follows rules, is not overly aggressive, congratulates other team on winning, and does not get mad when losing).	2	1	0	DK		
	26	Plays more than one board, card, or electronic game requiring skill and decision making (for example, Monopoly™, Cribbage, etc.).	2	1	0	DK		
	27	Goes places with friends in evening with adult supervision (for example, to a concert, lecture, sporting event, movie, etc.).	2	1	0	DK		
	28	Follows rules in complex games or sports (for example, football, soccer, volleyball, etc.).	2	1	0	DK		
	29	Goes places with friends during the day without adult supervision (for example, to a shopping mall, park, community center, etc.).	2	1	0	DK		
	30	Plans fun activities with more than two things to be arranged (for example, a trip to a beach or park that requires planning transportation, food, recreational items, etc.).	2	1	0	DK		
	31	Goes places with friends in evening without adult supervision (for example, to a concert, lecture, sporting event, movie, etc.).	2	1	0	DK		

Comments

Item Before Basal ____ × 2 = ☐

Basal Item Through Ceiling Item:

DK and/or Missing Total* + ☐

Sum of 2s and 1s + ☐

Play and Leisure Time Raw Score = ☐ SUM

*If the total of DK and/or Missing is greater than 2, do not score subdomain.

Manners · Apologizing · Responsibility · Appropriate Social Caution · Transitions · Controlling Impulses · Keeping Secrets

COPING SKILLS

1–4 →	1	Changes easily from one at-home activity to another.	2	1	0	DK		
	2	Says "thank you" when given something.	2	1	0	DK		
	3	Changes behavior depending on how well he or she knows another person (for example, acts differently with family member than with stranger, etc.).	2	1	0	DK		
	4	Chews with mouth closed.	2	1	0	DK		
5–7 →	5	Says "please" when asking for something.	2	1	0	DK		
	6	Ends conversations appropriately (for example, says, "Good-bye"; "See you later"; etc.).	2	1	0	DK		
	7	Cleans or wipes face and hands during and/or after meals.	2	1	0	DK		
	8	Responds appropriately to reasonable changes in routine (for example, refrains from complaining, etc.).	2	1	0	DK		

Socialization Domain, continued

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never, DK = Don't Know

Manners | Apologizing | Responsibility | Appropriate Social Caution | Transitions | Controlling Impulses | Keeping Secrets

COPING SKILLS, continued

								✔ Check for Comments below
8 →	9	Says that he or she is sorry for unintended mistakes (for example, bumping into someone, etc.).		2	1	0	DK	
	10	Chooses not to taunt, tease, or bully.		2	1	0	DK	
	11	Acts appropriately when introduced to strangers (for example, nods, smiles, shakes hands, greets them, etc.).		2	1	0	DK	
	12	Changes voice level depending on location or situation (for example, in a library, during a movie or play, etc.).		2	1	0	DK	
	13	Says he or she is sorry after hurting another's feelings.		2	1	0	DK	
	14	Refrains from talking with food in mouth.		2	1	0	DK	
	15	Talks with others without interrupting or being rude.		2	1	0	DK	
9–12 →	16	Accepts helpful suggestions or solutions from others.		2	1	0	DK	
	17	Controls anger or hurt feelings when plans change for reason(s) that cannot be helped (for example, bad weather, car trouble, etc.).		2	1	0	DK	
	18	Keeps secrets or confidences for longer than one day.		2	1	0	DK	
	19	Says he or she is sorry after making unintentional mistakes or errors in judgment (for example, when unintentionally leaving someone out of a game, etc.).		2	1	0	DK	
	20	Shows understanding that gentle teasing with family and friends can be a form of humor or affection.		2	1	0	DK	
13+ →	21	Tells parent or caregiver about his or her plans (for example, what time he or she is leaving and returning, where he or she is going, etc.).		2	1	0	DK	
	22	Chooses to avoid dangerous or risky activities (for example, jumping off high places, picking up a hitchhiker, driving recklessly, etc.).		2	1	0	DK	
	23	Controls anger or hurt feelings when he or she does not get his or her way (for example, when not allowed to watch television or attend a party; when suggestion is rejected by friend or supervisor; etc.).		2	1	0	DK	
	24	Follows through with arrangements (for example, if promises to meet someone, meets that person; etc.).		2	1	0	DK	
	25	Stops or stays away from relationships or situations that are hurtful or dangerous (for example, being bullied or made fun of, being taken advantage of sexually or financially, etc.).		2	1	0	DK	
	26	Controls anger or hurt feelings due to constructive criticism (for example, correction of misbehavior, discussion of test score or grade, performance review, etc.).		2	1	0	DK	
	27	Keeps secrets or confidences for as long as needed.		2	1	0	DK	
	28	Thinks about what could happen before making decisions (for example, refrains from acting impulsively, thinks about important information, etc.).		2	1	0	DK	
	29	Is aware of potential danger and uses caution when encountering risky social situations (for example, binge drinking parties, Internet chat rooms, personal ads, etc.).		2	1	0	DK	
	30	Shows respect for co-workers (for example, does not distract or interrupt others who are working, is on time for meetings, etc.).		2	1	0	DK	

Comments

Item Before Basal ____ × 2 = ☐

Basal Item Through Ceiling Item:

DK and/or Missing Total* + ☐

Sum of 2s and 1s + ☐

Coping Skills Raw Score = ☐ SUM

*If the total of DK and/or Missing is greater than 2, do not score subdomain.

Appendix F

Socialization Domain

Response Options: **2** = Usually, **1** = Sometimes or Partially, **0** = Never

Interpersonal Relationships Subdomain

						✓ if Est.	Circle "?" If You Have a Question
Start Ages 3+	1	Shows interest in students the same age (for example, watches them, smiles at them, etc.). (11)	2	1	0	☐	?
	2	Makes or tries to make social contact (for example, smiles, waves, talks, etc.). (5)	2	1	0	☐	?
	3	Verbalizes relationships of familiar people to self (for example, says, "That's my teacher"; etc.).	2	1	0	☐	?
	4	Demonstrates friendship-seeking behavior with others the same age (for example, says, "Do you want to play?" or takes another student by the hand, etc.). (15)	2	1	0	☐	?
	5	Answers when familiar adults make small talk (for example, if asked "How are you?" says, "I'm fine"; if told, "You did a good job," says, "Thank you"; etc.). (17)	2	1	0	☐	?
	6	Uses words to express own emotions (for example, says, "I'm happy"; "I'm scared"; etc.). (19)	2	1	0	☐	?
	7	Recognizes happiness, sadness, fear, and anger in others (for example, says, "You look sad"; "Don't be mad"; etc.). *Scoring Tip:* Mark a "2" if the student recognizes all 4 emotions; mark a "1" if the student recognizes 2 or 3 emotions; mark a "0" if the student recognizes 0 or 1 emotion.	2	1	0	☐	?
	8	Uses words to express happiness or concern for others (for example, says, "Yea, you won!"; "Are you all right?"; etc.). (22)	2	1	0	☐	?
	9	Recognizes the likes and dislikes of others (for example, says, "Chow likes soccer"; "Susie doesn't eat pizza"; etc.). (24)	2	1	0	☐	?
	10	Has best friend or shows preference for certain friends (of either gender) over others. (20) *Scoring Tip:* Mark a "2" if the student either has a best friend or shows preference for certain friends.	2	1	0	☐	?
	11	Acts when another person needs a helping hand (for example, holds door open, picks up dropped items, etc.). (23)	2	1	0	☐	?
	12	Talks with others about shared interests (for example, sports, TV shows, summer plans, etc.). (27)	2	1	0	☐	?
	13	Shows the same level of emotion as others around him or her (for example, does not downplay or overdramatize a situation, etc.). (25)	2	1	0	☐	?
	14	Keeps comfortable distance between self and others in social situations (for example, does not get too close to another person when talking, etc.). (26)	2	1	0	☐	?
	15	Chooses not to say embarrassing or mean things or ask rude questions in public. (30) *Scoring Tip:* Mark a "0" if the student is nonverbal.	2	1	0	☐	?
	16	Identifies people by characteristics other than by name (for example, by physical characteristics, job, location, relationship to others, etc.).	2	1	0	☐	?
	17	Participates in class discussions without monopolizing.	2	1	0	☐	?
	18	Cooperates with others to plan or be part of a group assignment or activity. (34)	2	1	0	☐	?
	19	Starts small talk when meets people he or she knows (for example, says, "How are you?"; "What's up?"; etc.). (28)	2	1	0	☐	?
	20	Understands that others do not know what he or she is thinking unless he or she tells them. (32)	2	1	0	☐	?
	21	Demonstrates understanding of hints or indirect cues in conversation (for example, knows that yawns may mean "I'm bored"; an abrupt change of subject may mean "I don't want to talk about that"; etc.). (35)	2	1	0	☐	?
	22	Discusses personal issues discreetly. (33)	2	1	0	☐	?
	23	Initiates conversations on topics of particular interest to others (for example, says, "Carlos tells me you like computers"; etc.). (36)	2	1	0	☐	?

Comments or Observations: _____

Socialization Domain, continued

Response Options: 2 = Usually, 1 = Sometimes or Partially, 0 = Never

Play and Leisure Time Subdomain						✓ if Est.	Circle "?" If You Have a Question
Start Ages 3+	1	Plays simple interaction games with others (for example, peekaboo, patty-cake, etc.). (3)	2	1	0	☐	?
	2	Shows preference for certain people and objects (for example, smiles, reaches for or moves toward person or object, etc.). (7) Interpersonal	2	1	0	☐	?
	3	Plays cooperatively with one or more students for up to 5 minutes. (6)	2	1	0	☐	?
	4	Plays cooperatively with more than one student for more than 5 minutes. (7)	2	1	0	☐	?
	5	Plays with others with minimal supervision. (10)	2	1	0	☐	?
	6	Shares toys or possessions when asked. (9)	2	1	0	☐	?
	7	Takes turns when asked while playing games or sports. (15)	2	1	0	☐	?
	8	Uses common household objects or other objects for make-believe activities (for example, pretends a block is a car, a box is a house, etc.). (11)	2	1	0	☐	?
	9	Protects self by moving away from those who destroy things or cause injury (for example, those who bite, hit, throw things, pull hair, etc.). (12)	2	1	0	☐	?
	10	Seeks out others for play or companionship at school (for example, asks someone to be his or her partner for an activity, plays on the playground with others, etc.). (14)	2	1	0	☐	?
	11	Follows rules in simple games (for example, relay races, spelling bees, electronic games, etc.). (18) Play and Leisure Time	2	1	0	☐	?
	12	Shares toys or possessions without being asked. (17)	2	1	0	☐	?
	13	Takes turns without being asked. (19)	2	1	0	☐	?
	14	Asks permission before using objects that belong to or are being used by another. (22)	2	1	0	☐	?
	15	Engages with others in elaborate make-believe activities involving more than one role (for example, plays "school" or "dress-up," or pretends to be a TV or movie character, etc.).	2	1	0	☐	?
	16	Shows good sportsmanship (that is, follows rules, is not overly aggressive, congratulates other team on winning, and does not get mad when losing). (25)	2	1	0	☐	?
	17	Refrains from entering group when nonverbal cues indicate that he or she is not welcome. (23)	2	1	0	☐	?
	18	Plays simple games that require keeping score (tick-tack-toe, kickball, card games, etc.). (24)	2	1	0	☐	?

Comments or Observations: _____

_____

Socialization Domain, continued

Response Options: **2** = Usually, **1** = Sometimes or Partially, **0** = Never

Coping Skills Subdomain						✓ if Est.	Circle "?" If You Have a Question
Start Ages 3+	1	Cooperates with requests made by teacher or other school personnel.	2	1	0	☐	?
	2	Shows respect for teachers and other school staff.	2	1	0	☐	?
	3	Changes easily from one activity to another. (1)	2	1	0	☐	?
	4	Ends conversations appropriately (for example, says, "Good-bye"; "See you later"; etc.). (6)	2	1	0	☐	?
	5	Responds appropriately to reasonable changes in school routine (for example, refrains from complaining, etc.). (8)	2	1	0	☐	?
	6	Says "thank you" when given something. (2)	2	1	0	☐	?
	7	Says "please" when asking for something. (5)	2	1	0	☐	?
	8	Says that he or she is sorry for unintended mistakes (for example, bumping into someone, etc.). (9)	2	1	0	☐	?
	9	Chooses not to taunt, tease, or bully. (10) Scoring Tip: Mark a "0" if the student is nonverbal.	2	1	0	☐	?
	10	Changes behavior depending on how well he or she knows another person (for example, acts differently with a new classmate than with a good friend, etc.). (3)	2	1	0	☐	?
	11	Copies or imitates appropriate behavior of others when unsure of "correct" action (that is, in a novel situation, watches others to determine appropriate behavior).	2	1	0	☐	?
	12	Controls anger or hurt feelings when plans change for reasons that can't be helped (for example, a field trip postponed due to bad weather or transportation problem, etc.). (17)	2	1	0	☐	?
	13	Returns borrowed items (for example, money or other possessions borrowed from friends, library books, etc.).	2	1	0	☐	?
	14	Accepts helpful suggestions or solutions from others. (16)	2	1	0	☐	?
	15	Changes voice level depending on location or situation (for example, in a library, during independent work time, during a school assembly or play, etc.). (12)	2	1	0	☐	?
	16	Talks with others without interrupting them or being rude. (15)	2	1	0	☐	?
	17	Controls anger or hurt feelings when he or she does not get his or her way (for example, when not allowed to talk with a classmate; when a suggestion is rejected by a friend or teacher; etc.). (23)	2	1	0	☐	?
	18	Accepts mild teasing without getting upset. (20)	2	1	0	☐	?
	19	Thinks about what could happen before making decisions (for example, refrains from acting impulsively, thinks about important information, etc.). (28)	2	1	0	☐	?

Comments or Observations: _____

_____

Appendix G

Introduction

A. introducing myself
B. providing the purpose of the research
C. explaining why their opinions are so important
D. outlining the structure of the interview (i.e. length of the interview, ability to stop participating in the interview at any time, discuss that the interview will be recorded but that all recordings and documentation will be destroyed at the end of the study)

Social Experiences

1. Tell me about your social experiences.
2. Do you have a best friend? Tell me about them.
3. Tell me about experiences with other friends.
4. Tell me about your experiences with your siblings. What do you do with them?
5. Tell me about your experiences with your parents. What do you do with them?
6. Is there a special teacher in your life? Tell me about him/her.

Characteristics of social success

*Prior to these questions, provide participants with both verbal and written definition of social success.

1. Do you think you are socially successful?
2. What do you think you say or do that makes you believe this?
3. Do you think others would agree with this belief? Why or why not?
4. What do you pay attention to when interacting with others (e.g. gestures, faces, words, etc.)? Have you always paid attention to this?

Contributions to social success

1. Have you ever been involved in a social skill program?
2. Has your parent ever taught you how to act in social situations?
3. Have your teachers ever suggested how you might interact with your peers at school?

Appendix H

Western Education

WESTERN UNIVERSITY
FACULTY OF EDUCATION
USE OF HUMAN SUBJECTS - ETHICS APPROVAL NOTICE

Review Number:	1209-1
Principal Investigator:	Alan Edmunds
Student Name:	Monica Caldeira
Title:	*Is Social Success Achievable in Individuals with Autistic Disorder?*
Expiry Date:	December 31, 2013
Type:	Ph.D. Thesis
Ethics Approval Date:	October 10, 2012.
Revision #:	
Documents Reviewed & Approved:	Western Protocol, Letters of Information & Consent

This is to notify you that the Faculty of Education Sub-Research Ethics Board (REB), which operates under the authority of the Western University Research Ethics Board for Non-Medical Research Involving Human Subjects, according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario has granted approval to the above named research study on the date noted above. The approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the REB's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the study or information/consent documents may be initiated without prior written approval from the REB, except for minor administrative aspects. Participants must receive a copy of the signed information/consent documentation. Investigators must promptly report to the Chair of the Faculty Sub-REB any adverse or unexpected experiences or events that are both serious and unexpected, and any new information which may adversely affect the safety of the subjects or the conduct of the study. In the event that any changes require a change in the information/consent documentation and/or recruitment advertisement, newly revised documents must be submitted to the Sub-REB for approval.

for Dr. Alan Edmunds (Chair)

2012-2013 Faculty of Education Sub-Research Ethics Board

Dr. Alan Edmunds	**Faculty of Education (Chair)**
Dr. John Barnett	**Faculty of Education**
Dr. Farahnaz Faez	**Faculty of Education**
Dr. Wayne Martino	**Faculty of Education**
Dr. George Gadanidis	**Faculty of Education**
Dr. Elizabeth Nowicki	**Faculty of Education**
Dr. Julie Byrd Clark	**Faculty of Education**
Dr. Kari Veblen	**Faculty of Music**
Dr. Jason Brown	**Faculty of Education**
Dr. Susan Rodger	**Faculty of Education**
	Faculty of Education, Associate Dean, Research ***(ex officio)***
Dr. Shelley Taylor	**Faculty of Education, Western Non-Medical Research Ethics Board** ***(ex officio)***
Dr. Ruth Wright	**Faculty of Music, Western Non-Medical Research Ethics Board** ***(ex officio)***
Dr. Kevin Watson	**Faculty of Music, Western Non-Medical Research Ethics Board** ***(ex officio)***

Appendix I

Western Education

Participants needed for a research study

Is social success achievable in individuals with autistic disorder?

Adolescents with high-functioning autism spectrum disorders (ASD) are invited to participate in a study that aims to determine the social success of the individual with autistic disorder both at home and at school and to determine what factors may be influencing this ability in each setting.

The study involves three 60 minute sessions, each of which will take place at a location and time most convenient to you. During these sessions, participants will be asked to complete social skill assessments. Participants may then be asked to participate in a fourth session which involves an interview that would take approximately 75 minutes to complete.

The parent or legal guardian of the participant as well as a teacher of the participant will also be asked to complete a social skills assessment pertaining to the participant that would take approximately 25 minutes to complete. The parent or legal guardian and the teacher may then be asked to participate in an interview on separate days that would take approximately 75 minutes each to complete.

We are seeking adolescents who:
1. have a diagnosis of high-functioning autism or asperger syndrome
2. are male or female
3. are enrolled in a high school in Ontario
4. speak English as their primary language

For more information, please contact:

Monica Caldeira, MEd
PhD Candidate
email address
phone number

Dr. Alan Edmunds
Associate Professor
email address
phone number

This study has been reviewed and received ethics clearance through Western University's Research Ethics Board (review # 1209-1 Edmunds/Caldeira)

Appendix J

Dear {Principal Name},

My name is Monica Caldeira and I am a Ph.D. candidate at Western University in London, ON. I received ethics clearance several months ago to conduct my dissertation study within the Simcoe County District School Board and you may have been contacted by Sandra Sangster regarding this clearance.

I have recently obtained permission from the parents of {Adolescent's Name} to participate in my study, and to contact you in regards to inviting {Adolescent's Name} teacher to participate in this study. {Parent's Name} indicated that perhaps the person who could speak best to {Adolescent's Name} social experiences at school is {SERT's Name}.

Therefore, I would like to invite {SERT's Name}, or any other teacher who feels they can best speak to {Adolescent's Name} social skill abilities in the place of {SERT's Name}, to participate in my study. I am attaching to this email a Letter of Information outlining the procedure of my study. I certainly understand the pressures your teachers must be facing with the end of school year fast approaching, and would like to emphasize that I am happy to accommodate any day/time that will suit their schedules, including weekends or summer months.

Could you kindly advise at your earliest opportunity if I may count on your school's participation in this study in regards to {Adolescent's Name}?

Thank you kindly for your consideration,
Monica Caldeira

Appendix K

Is social success achievable in individuals with autistic disorder?

LETTER OF INFORMATION

Why you are here
I want to tell you about a study that I am doing that looks at what makes social situations at home and at school easy or hard for people with Autistic Disorder. I think you could give me useful information by talking about what your experiences are and your parent has given me permission to talk to you about this.

What will happen to you?
If you want to be in the study, a few things will happen:

1. You will be asked to complete some tests (using a computer and pencil and paper) about your friendships, emotions, and social skills. This will happen on three separate days and at a time convenient to you. On day 1, you will be asked to complete one test that will take approximately 30 minutes to complete. On day 2, you will be asked to complete two additional tests that will take a total of approximately 45 minutes to complete. On day 3, you will be asked to complete two more tests that will take a total of approximately 45 minutes to complete.
2. You will be asked to participate in an interview where we will talk about what your social experiences are like and what you think makes being in social situations easy or hard. This will happen on a fourth day and at a time convenient to you. This interview would take approximately 75 minutes to complete and would be video recorded.
3. Your parent and teacher will be asked to complete a test and participate in an interview about what they think your social experiences are like.

Will there be any homework?
No, there will not be any homework and there will not be any reports/grades sent home.

Will anyone know what you tell me?
No. Everything you tell me will be between us. Feel free to be as honest as you can about what you think about your social experiences and what works or does not work for you.

What if you have questions?
You can ask any questions, now or later. You can also ask your parent(s) if you are unsure about something.

Do you have to be in the study?
No, you do not have to be in the study. If you do not want to be in the study, just say so. No one will be mad at you if you decide not to do this. Even if you say yes now, you can change your mind later. It is always up to you!

Appendix L

Is social success achievable in individuals with autistic disorder?

Monica Caldeira, Ph.D. Candidate
Faculty of Education, Western University

Consent Form

I was given a Letter of Information, have had the study explained to me, and I agree that I will participate in the study. All of my questions have been answered and I know who to talk to if I have any more questions in the future.

Name of Student (please print):

Signature of Student: Date:

Appendix M

Is social success achievable in individuals with autistic disorder?

LETTER OF INFORMATION

Introduction
My name is Monica Caldeira and I am a Ph.D. candidate at the Faculty of Education at Western University. I am currently conducting research into whether individuals with autistic disorder are socially successful and would like to invite you and your child to participate in this study.

Purpose of the study
The aims of this study are to determine the social success of the individual with autistic disorder both at home and at school and to determine what factors may be influencing this ability in each setting.

If you agree to participate
If you agree to your child's participation in this study your child will be asked to complete four social skill assessments across three days. On day 1, your child will be asked to complete one assessment that will take approximately 60 minutes to complete. On day 2, your child will be asked to complete an additional assessment that will take approximately 45 minutes to complete. On day 3, your child will be asked to complete two additional assessments that will take a total of 55 minutes to complete. Your child may then be asked to participate in an interview on day 4. The purpose of the interview is to discuss which factors they believe either contribute to or hinder their social success. This interview would take approximately 75 minutes to complete and would be video recorded. All information will be obtained at a time and location most convenient for your child.

If you agree to participate in this study you will be asked to complete a social skills assessment pertaining to your child. This will take approximately 25 minutes to complete. On a subsequent day you may be asked to participate in an interview where we will discuss which factors you believe either contribute to or hinder the social success of your child. This interview would take approximately 75 minutes to complete and would be video recorded. All information will be obtained at a time and location most convenient for you.

If you agree to your child's participation in this study, your child's teacher will also be asked to complete the social skills assessment pertaining to your child. Similarly, your child's teacher may be asked to participate in an interview to discuss the factors they believe either contribute to or hinder the social success of your child.

Confidentiality
The information collected will be used for research purposes only, and neither your name nor information which could identify you will be used in any publication or presentation of the study results. All information collected for the study will be kept confidential. Pseudonyms will be used instead of real names so as not to disclose anyone's identity. The data will be kept confidential by storing it in a locked cabinet and all data will be destroyed when the analyses are completed.

Risks & Benefits
There are no known risks to participating in this study.

Voluntary Participation
Participation in this study is voluntary. You and/or your son/daughter may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your child's academic status.

Questions
If you have any questions about the conduct of this study or your rights as a research participant you may contact the Office of Research Ethics, Western University at ***-***-**** or email. If you have any questions about this study, please contact either Monica Caldeira at ***-***-**** or email, or Dr. Alan Edmunds, my dissertation supervisor, at ***-***-**** ext. ***** or email.

This letter is yours to keep for future reference.

Appendix N

Is social success achievable in individuals with autistic disorder?

Monica Caldeira, Ph.D. Candidate
Faculty of Education, Western University

Consent Form

I have read the Letter of Information, have had the nature of the study explained to me, and I agree that I and my child will participate in the study. All questions have been answered to my satisfaction.

Name of Student (please print):

Name of Parent/Guardian (please print):

Signature of Parent/Guardian: Date:

Appendix O

Western Education

Is social success achievable in individuals with autistic disorder?

LETTER OF INFORMATION

Introduction
My name is Monica Caldeira and I am a Ph.D. candidate at the Faculty of Education at Western University. I am currently conducting research into whether individuals with autistic disorder are socially successful and would like to invite you to participate in this study.

Purpose of the study
The aims of this study are to determine the social success of the individual with autistic disorder both at home and at school and to determine what factors may be influencing this ability in each setting.

If you agree to participate
If you agree to participate in this study you will be asked to complete a social skills assessment pertaining to your student. This will take approximately 25 minutes to complete. On a subsequent day you may be asked to participate in an interview where we will discuss which factors you believe either contribute to or hinder the social success of the student. This interview would take approximately 75 minutes to complete and would be video recorded. All information will be obtained at a time and location most convenient for you. Please note that your student and his/her parent have provided their consent for you to be interviewed and to complete the social skills assessment.

Confidentiality
The information collected will be used for research purposes only, and neither your name nor information which could identify you will be used in any publication or presentation of the study results. All information collected for the study will be kept confidential. Pseudonyms will be used instead of real names so as not to disclose anyone's identity. The data will be kept confidential by storing it in a locked cabinet and all data will be destroyed when the analyses are completed.

Risks & Benefits
There are no known risks to participating in this study.

Voluntary Participation
Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your employment status.

Questions

If you have any questions about the conduct of this study or your rights as a research participant you may contact the Office of Research Ethics, Western University at ***-***-**** or email. If you have any questions about this study, please contact either Monica Caldeira at ***-***-**** or email, or Dr. Alan Edmunds, my dissertation supervisor, at ***-***-**** ext. ***** or email.

This letter is yours to keep for future reference.

Appendix P

Is social success achievable in individuals with autistic disorder?

Monica Caldeira, Ph.D. Candidate
Faculty of Education, Western University

Consent Form

I have read the Letter of Information, have had the nature of the study explained to me, and I agree that I will participate in the study. All questions have been answered to my satisfaction.

Name of Student (please print):

Name of Teacher (please print):

Signature of Teacher: Date:

Appendix Q

CODES

DETERMINING SOCIAL SUCCESS:

a) Importance of Social Success: Any reference made by anyone pertaining to why it is important for the adolescent to be socially successful

b) Perceived Social Success: Responses to 'Are you socially successful?' and 'Would others agree with this?' **Note:** Any perception of an adolescent's social success outside of these questions should be coded as social contributor or hindrance, as applicable

c) Social Contributor: Any instance where action, ability, behaviour, interest or a lack thereof by the adolescent (could) positively impact a social interaction or positively influence the adolescent's social success

d) Social Cues: Any social cue that adolescent is attending to, including responses to 'What are you paying attention to when interacting?'

e) Social Enjoyment: Any reference to the adolescent (a) experiencing enjoyment when interacting socially, (b) reacting positively in a social interaction, or (c) positively describing a social interaction/experience

f) Social Hindrance: Any instance where action, ability, behaviour, interest or a lack thereof by the adolescent (could) negatively impact a social interaction or positively influence the adolescent's social success

FAMILY:

g) Parent – Contributor: Any positive social relationship or interaction between parent and adolescent or anything that a parent has done to assist their child in being socially successful

h) Parent – Hindrance: Any negative social relationship or interaction between parent and adolescent or anything that a parent has done that has not aided their child's social success

i) Sibling – Contributor: Any positive social relationship or interaction between sibling and adolescent or anything that a sibling has done to assist the adolescent in being socially successful

j) Sibling – Hindrance: Any negative social relationship or interaction between sibling and adolescent or anything that a sibling has done that has not aided the adolescent's social success

FRIENDS:

k) Access to Friends: Any reference to periods of time or locations that adolescent is provided with opportunity to engage with friend(s) and how (e.g. email, phone, text, etc.)

l) Diagnosis of Friends: Any reference to the social abilities of the adolescent's friends (i.e. autism vs. typically developed)

m) Existence of Friendship: Any confirmation that acknowledges the adolescent has a friendship

n) Friend – Contributor: Any positive social relationship or interaction between friend and adolescent or anything that a friend has done to assist the adolescent in being socially successful

o) Friend – Hindrance: Any negative social relationship or interaction between friend and adolescent or anything that a friend has done that has not aided the adolescent's social success

p) Length of Friendship: Any reference to the amount of time the adolescent has been friends with peers his own age

OTHER PEER RELATIONS:

q) Bullying: Any reference to the individual experiencing bullying

r) Interest in Opposite Sex: Any reference (positive or negative) to the adolescent having an interest in a romantic relationship

SCHOOL:

s) Teacher – Contributor: Any positive social relationship or interaction between teacher and adolescent or anything that a teacher has done to assist the adolescent in being socially successful

t) Teacher – Hindrance: Any negative social relationship or interaction between teacher and adolescent or anything that a teacher has done that has not aided the adolescent's social success

SOCIAL PROGRAM:

u) Social Program – Contributor: Any positive social relationship(s)/skill(s) resulting from involvement in a social skill program

v) Social Program – Hindrance: Any social drawbacks associated with social skill programs

Curriculum Vitae

Name: Monica Caldeira-Kulbakas

Post-secondary Education and Degrees:

University of Waterloo
Waterloo, Ontario, Canada
2000-2006 B.A. (Psychology)

The University of Western Ontario
London, Ontario, Canada
2007-2009 M.Ed. (Educational Psychology/Special Education)

The University of Western Ontario
London, Ontario, Canada
2010-2016 Ph.D. (Applied Psychology)

Honours and Awards:

Province of Ontario Graduate Scholarship
2011-2012, 2013-2014

Graduate Thesis Research Award
The University of Western Ontario
2012-2013

Related Work Experience

Instructor Therapist
Shining Through Centre for Children with Autism
Woodbridge, Ontario, Canada
2007

Instructor, Faculty of Education
The University of Western Ontario
London, Ontario, Canada
2011-2013

Teaching Assistant
The University of Western Ontario
London, Ontario, Canada
2012-2014

Publications:

Caldeira, M., & Edmunds, A. (2012) Inconsistencies in autism-specific emotion interventions: Cause for concern. *Exceptionality Education International, 22*, 17-36.