THE DESCRIPTIONS AND ACTIVITIES OF FRIENDSHIP IN ADOLESCENTS WITH AUTISM SPECTRUM DISORDERS: EXAMINING WHAT ADOLESCENTS SAY

By

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ABSTRACT

Autism spectrum disorders (ASD) are social communication disorders often categorized by impaired social interaction (American Psychiatric Association, 2013). While the nature and severity of these symptoms vary widely across individuals, most individuals with ASD have difficulties with social relationships, including building and maintaining friendships (Carter, Davis, Klin, & Volkmar, 2005; Kuo, Orsmond, Cohn, & Coster, 2011). Such impairments in childhood have been associated with long-term struggles including academic and occupational underachievement, and mood and anxiety problems later in development (Tantam, 2003). Friendship in adolescents with ASD has not been widely studied (Bauminger, et al., 2008). Research examining friendships in adolescents with ASD, especially the interpretation of friendship from the point of view of the individual with ASD, is needed in order to advance our understanding of the concept, role and importance of friendship within this population of individuals. The current study aimed to present research related to the perception of friendship that adolescents with ASD have, as well as how these perceptions relate to the existing research on typically developing adolescents' view of friendship in order to better understand and explain friendship in this population. This study indicates that to a large degree, adolescents with ASD describe friendship using common themes outlined in the existing literature. The data further indicated that adolescents with ASD experience peer relationships differently than their typically developing peers, particularly surrounding victimization and bullying. There did not appear to be significant differences in perceptions or experiences of friendship based on participant functioning characteristics including FSIQ and SRS scores. The results of this study highlight the importance of developing interventions and curriculum that address the true needs and wants of this population, such as protection from victimization.

Chapter One

LITERATURE REVIEW

Introduction

Autism spectrum disorders (ASD) are social communication disorders categorized by three major symptom types: impaired social interaction, problems with verbal and nonverbal communication, and unusual or severely limited activities and interests (American Psychiatric Association (APA), 2013). While the nature and severity of these symptoms vary widely across individuals, most individuals with ASD have difficulties with social relationships, including building and maintaining friendships (Carter, Davis, Klin, & Volkmar, 2005; Kuo, Orsmond, Cohn, & Coster, 2011). These difficulties have been associated with long-term struggles including academic and occupational underachievement (Howlin & Goode, 1998), and mood and anxiety problems later in development (Tantam, 2003). They have also been shown to put students at risk for victimization (Kloosterman, Kelley, Craig, Parker, & Javier, 2013; Malecki & Demaray, 2004). Knowing this, it is important to better understand friendships in adolescents with ASD. This is an understudied area and more research is needed to address the perceptions of friendships in this population (Bauminger et al., 2008). The purpose of this literature review is to examine what is known about friendships in typically developing adolescents, in adolescents with ASD, and the gaps that are in the literature surrounding the ASD population and friendship.

Autism Spectrum Disorders

Autism spectrum disorders (ASD) are social communication disorders categorized by three major symptom types: impaired social interaction, problems with verbal and nonverbal communication, and unusual or severely limited activities and interests (APA, 2013). These symptoms must appear early, however, they are not always noticeable until social demands

exceed an individual's skill set (Tantam, 2003). Symptoms can often be masked in later life by using learned skills (APA, 2013), but the disorder is pervasive and the symptoms are present throughout the lifespan, they are not "outgrown." Furthermore, social skill impairment and distress may increase as children approach adolescence because their social environment becomes more complex and they may become more aware of their social difficulties (Tantam, 2003). As social deficits are a core feature of ASD, they are a major source of impairment regardless of cognitive or language ability. These social deficits can significantly impact an individual's social functioning (Carter, et al., 2005), particularly their ability to make friends. However, except for the understanding that friendship is less common for individuals with ASD, little is known about the nature of these relationships. Research in the area of friendships among individuals with ASD is very limited (Bauminger, 2003; Bauminger, et al., 2008). It is important to note however, that the lack of research in this area does not indicate a lack of interest in friendships among adolescents with ASD (Bauminger, 2003), nor does it show a lack of participants who would be interested in participating in this type of research. At this time, about 1 in 68 children will be identified as having an ASD (Centers for Disease Control and Prevention, CDC, 2014). With prevalence this high, it is even more important that researchers and clinicians work to better understand the difficulties these individuals face and design effective intervention and treatment services to address their needs. The bottom line is that more research is needed on the characteristics, behaviors, qualities, perceptions, and development and maintenance of friendships in adolescents with ASD. To better understand the need in this area of research we will first start with what we know about typical adolescent friendships in terms of definitions and its development.

The Nature of Adolescent Relationships

The areas of adolescent and peer relationships have a wide body of research that is both multifaceted and complex (Brown, 2004). Throughout adolescence there are a variety of types and levels of peer relationships, each with research examining its effects on development, behavior, and outcomes. This research has led to different schools of thought on the importance of peers in adolescence, but regardless of these differing views, it is known that these relationships, irrespective of type or level, are significant. Due to the scope of this paper, the vast body of research examining the different types of adolescent relationships is not covered in its entirety. The current paper focuses on non-romantic peer relationships, and more specifically, friendship in adolescence.

Friendship is a universal concept and the word friend appears in most children's vocabularies by age four with the idea of differentiated levels of friendships (i.e. best friends) appearing in middle childhood (Bukowski et al., 1996). There is evidence to suggest that the idea or preference for friends, and a feeling of concern and attachment to these other children, could begin in children perhaps as young as two years of age (Dunn, 2004). However, at this young age, the true idea and understanding of friendship is not necessarily present. As children reach adolescence, however, friendships become increasingly important as the desire for closeness and peer acceptance increases (Ojanen, Grönroos, & Salmivalli, 2005). In adolescence there is also a shift from the majority of friendships occurring between same gendered peers to an increase of other-sex friendships (Hand & Furman, 2009). The following sections of this paper seek to further clarify friendship in adolescence, the importance of friendship, and how has been studied.

Friendship: Models, Dimensions, and Clarifications

Models of friendship development. There are several different theories and models that work to explain friendship and its development. One of the more common frameworks used to conceptualize friendship is the social relationship approach (Hinde, 1979). When viewing friendship through the social relationship approach, it is believed that children construct a model of relationships and friendships through multiple interactions and experiences overtime. They then apply this personal experience model to their various subsequent relationships. Through this lens, individuals' actions in relationships are based on their own previous experiences and the outcomes they expect (Hinde, 1979).

Similar to the social relationship approach, social learning theory (Bandura, 1977) emphasizes how learned behaviors influence relationships. Social learning theorists, however, stress the importance of adults in children's environments, particularly in the actions they model. Social learning theory suggests that merely observing a behavior can change an individual's actions (Bandura, 1977). Therefore, when examining friendships through the social learning theory lens, it is believed that adult actions such as modeling and scaffolding support how a child develops important interpersonal and social cognitive skills required for peer relationships and friendships (Miller, 2002). The idea is that a child who has observed the reinforcing value of friendship via adult models and has support to engage in and display the appropriate social skills has a higher likelihood of experiencing successful friendships (Miller, 2002).

Social exchange theory, or the idea that individuals in relationships strive to maximize rewards and minimize costs (Thibaut & Kelley, 1959), is one of the most prominent frameworks for examining close relationships. Through the social exchange theory lens, an individual's need to maximize benefits in a relationship is the driving force behind their actions and behaviors. An

individual's perception of possible rewards of the relationship also influences their decision of whether to engage in the relationship in the first place. Traditionally, this theory has been solely used to study adult relationships (Graziano, 1984; Safilios-Rothschild, 1976). However, in more recent years it is being given new life through its application to child and adolescent relationships and friendships (Hand & Furman, 2009). In one study, a social exchange framework was used to examine the features of adolescents' non-romantic other-sex friendships compared to same-sex friendships and romantic relationships (Hand & Furman, 2009). Data for this study was gathered through open-ended interview questions related to each of the relationship types. Interviewers asked the adolescents what they saw as advantages and disadvantages of each relationship type, as well as had them complete a rating of the quality of their relationships in each area. The adolescents' responses were then examined to see what themes emerged as the major costs and benefits associated with each. They found that perspective taking, learning about the other sex, and meeting the other sex were the main rewards of other- sex friendships, while confusion about the nature of the relationship was the major cost (Hand & Furman, 2009). Intimacy, support, and companionship were the major rewards for both same-sex friendships and romantic relationships. Jealousy was a major cost associated with same-sex relationships and a limited amount of autonomy was associated with romantic relationships (Hand & Furman, 2009). Regardless of the relationship type, the quality of the relationship reported by the adolescents was often greater when there were more rewards associated with the relationship versus costs.

Friendship dimensions. While there are many theories that seek to explain friendship, it is important to note that there is a long-standing history of debate over what constitutes a "friendship" (Dunn, 2004). Friendship, at least in today's American society, is not

"institutionalized" (Adams, Blieszner, & DeVries, 2000, p. 117), meaning perceptions and definitions of it vary greatly. Because of this, Adams et al., (2000) report that it is often dealt with in three ways:

> "Most researchers who study various aspects of friendship structure and process use one of three approaches to dealing with this definitional variation. They either ignore the complexity, bemoan it because when they compare people's friendships they are inappropriately comparing different entities, or eliminate it by instructing the people they interview to use a limited definition in discussing specific relationships" (Adams et al., 2000, p. 117).

In order to take the third approach mentioned above, assigning a specific definition to friendship, researchers have studied and proposed lists of the individual qualities, or dimensions, of friendship (Berndt, 1996; Hartup 1996). These individual dimensions are used to create specific definitions of friendship to be used in research and practice. While in theory the list of dimensions could be infinite given the great variability in perceptions and experiences of friendship, there are some common dimensions of friendship that are found throughout the literature. These include, similarity, proximity, transcending context, companionship, reciprocity, intimacy, support, trust, loyalty, conflict management, and stability. To further examine the dimensions mentioned above, please see Table 1.

Table 1

Dimensions of Friendship

Dimension	Description	Sources
Similarity	Individuals having common interests, values, and personality traits	Berndt, 1989; De Vries, Dustan, & Wiebe, 1994; Patterson, Bettini, and Nussbaum, 1993; Sullivan 1953
Proximity	Actual distance of the friendship, meaning how often they are within a short distance such as being neighbors, classmates, or the like or how frequently they are in physical contact or presence of the individual	Berndt, 1989; De Vries, Dustan, & Wiebe, 1994
Transcending Context	The friendship is present in and across multiple settings	Berndt, 1989; Dunn, 2004
Companionship	The notion of having someone to be comfortable and spend time with; someone you are compatible with	Barry, Madsen, Nelson, Carroll, & Badger, 2009; Berndt, 1992; Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; De Vries, Dustan, & Wiebe, 1994; Mendelson & Aboud, 1999
Reciprocity	Reciprocity, as mentioned above, is the idea that both parties involved have positive feelings towards each other and choose to be friends	Berndt, 1989; Dunn, 2004
Intimacy	Intimacy refers to a close, familiar, and warm relationship	Barry, Madsen, Nelson, Carroll, & Badger, 2009; Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; Mendelson & Aboud, 1999; Sullivan, 1953
Support	Support is the idea that the friendship allows for a sense of care and understanding throughout	Berndt, 1989; Mendelson & Aboud, 1999

	experiences	
Trust	Trust is the construct that one can be counted on to be honest and true consistently and continuously	Berndt, 1989; De Vries, Dustan, & Wiebe, 1994; Sullivan, 1953
Loyalty	Loyalty refers to the idea that an individual will be devoted and committed despite the situation	Berndt, 1989; Mendelson & Aboud, 1999
Conflict Management	Conflict management is the idea that the individuals approach and resolve conflicts in a similar manner	Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; Laursen, 2001
Stability	The friendship persists overtime and it not a fleeting or "come and go" relationship	Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; De Vries, Dustan, & Wiebe, 1994; Mendelson & Aboud, 1999

As demonstrated in the table above, there are many different dimensions that can be used to create working definitions of friendship. However, regardless of the definition used by researchers, it is agreed that friendship is a significant social experience for children and adolescents (Asher, Parker, & Walker, 1996), and that studying friendship can have many important implications (Dunn, 2004). Because this proposed study seeks to explain the importance of generating a better picture of what friendship means for adolescents with ASD, a formal working definition will not be created until later in this review. However, for clarification for the reader, friendship throughout this paper refers to a close, reciprocal relationship that satisfies a number of specified social needs such as non-romantic companionship, intimacy, and affection (Bauminger et al., 2008; Berndt, 1989; Weiss, 1974).

Clarifications. It is important to distinguish between friendship and peer acceptance. While peer acceptance is important, the benefits vary between the two and the two terms are

merely related, not interchangeable (Bukowski & Hoza, 1989). A major difference between the two lies in the idea of reciprocity (Bukowski & Hoza, 1989; Dunn, 2004). An individual may be liked or accepted by his or her peers, however, that relationship is unilateral, whereas friendship involves a mutual and bilateral relationship. In fact, a primary consideration for the existence of a friendship is reciprocated positive feelings from both parties involved (Brown, 2004; Bukowski & Hoza, 1989; Hartup, 1996). This distinction can be illustrated by the differences in behaviors between friends and those who are just peers. It has been documented that children talk, smile, and laugh more with those who are considered friends than non-friends (Erdley, Nangle, Newman, & Carpenter, 2001). More cooperation and greater task completion is also seen among friends compared to non-friends. Another important piece to friendship is that it is voluntary (Dunn, 2004). Friendships are relationships that people choose to be in. Often people choose to be friends with those who are similar to them and who have desirable characteristics such as being nice or kind (Hartup, 1996).

This distinction is important to make as research suggests that compared to typically developing adolescents, those with autism are less likely to state a complete definition of friendship that includes multiple dimensions recognized in the literature (Bauminger & Kasari, 2000). Adolescents with ASD are more likely to describe a friend as someone with whom they are comfortable around and who shares similar interests (Carrington, Templeton, & Papinczak, 2003). Some would call this an incomplete definition as it only includes basic dimensions of friendship acknowledged in the literature. This view is often supported by research where parents reported friendships of their adolescents that were lacking in reciprocity and stability, which may not represent true friendships (Orsmond et al., 2004), especially given the importance of reciprocity in friendship (Bukowski & Hoza, 1989; Hartup, 1996). However, as will be discussed

further below, a major limitation to these studies about friendships in adolescents with ASD is that often the adolescents themselves are not asked to discuss their friendships and parent perceptions have provided all of the information that was analyzed (Bauminger & Kasari, 2000; Bauminger & Shulman, 2003; Carrington et al., 2003).

Importance of Friendship

Friendship as a whole serves several broad functions (Bukowski, 2001). Friendships are important scaffolds to an individual discovering their self-worth, allow for a sense of protection, promote skill acquisition and development, and help to set expectations for behaviors (Bukowski, 2001).

It has been established that friendship allows for the opportunity for children to first experience a sense of self-validation (Sullivan, 1953). This experience is often due to an awareness of the positive regard a friend holds for them, and allows them to perceive their self-worth. Furthermore, friendships illustrate for a child that someone can accept them even if they may think or act different than a friend on occasion, which serves as an acknowledgment of self-worth as well (Jones, Vaterlaus, Jackson, & Morrill, 2014). Friendships increase self-awareness and self-esteem (Ladd & Kochenderfer, 1996), have been linked to less depressive symptoms in early adolescence (Kornienko & Santos, 2014), and are likely to be forerunners to subsequent relationships (Parker & Gottman, 1989). While building self-worth is incredibly important in childhood, its benefits in adolescence are also noteworthy. For adolescents, relationships, especially those relationships with peers, are the most significant factor associated with their quality of life, but also help lead to a positive self-image (Helseth & Misvaer, 2010). It has been shown that satisfactory interpersonal relationships, particularly those with parents and friends, are conducive to a positive outcome throughout the lifespan (Corsano, Majorano, &

Champretavy, 2006). This is particularly true for individuals in adolescence as this period is a difficult stage, often characterized by significant change. Friendship has been identified as playing a large role in this process (McEwan, Espie, Metcalfe, Brodie, & Wilson, 2004), especially because during this time friends begin to provide companionship that used to be provided by parents (Sullivan 1953) and there is typically a drastic increase in the amount of time adolescents spend with peers (Brown, 2004)

Friendship as a protective factor. Friendship also plays a role as a protective factor in childhood and adolescence (Bukowski, 2001). Peer relationships can be powerful tools to help youth overcome obstacles and deal with stress (Aikins, Bierman, & Parker, 2005; Bukowski, 2001; Sullivan, 1953). Some studies suggest that youth who come from families with significant stressors have the same positive outcomes as children from optimal families, if they have developed close friendships (Gauze, Bukowski, Aquan-Asee, & Sippola, 1996). It has also been established that a strong social network and good peer relationships are protective factors from victimization, such as bullying (Kloosterman et al., 2013; Malecki & Demaray, 2004). Furthermore, when bullying does occur it has been reported that more than 55 percent of bullying situations stop when a peer intervenes (Holmquist, 2012).

Friendship and influences on development. Friendships have been found to influence learning and development as well (Bukowski, 2001; Ojanen, Sijtsema, Hawley, & Little, 2010). Peer interactions, particularly those between friends, help youth learn to talk openly and challenge each other's thoughts and ideas (Hartup, 1996). These interactions are conducive to more cognitive and social-cognitive growth than interactions with non-friends. Peer relationships can also influence each stage in the processing of social situations. A close peer friendship may be a motivating factor for a child to embark on more complex social information processing such

as being able to take into consideration a friend's point of view in an argument (Lemerise & Arsenio, 2000).

Friendship and skill development. Fundamental prosocial behaviors, such as mutual caring, emotional support, empathy, liking, intimacy, and sharing can be practiced through friendship (Bauminger & Shulman, 2003). In this way, friendship helps to teach youth about behavior expectations. In fact, some studies show that early friendships in typically developing children start as coordinated play and as children grow these relationships are mechanisms for understanding behavioral norms and expectations (Parker & Gottman, 1989). Thus, friendship requires social skills; but, at the same time, the experience of friendship helps in developing these skills. This is thought to be a factor in why children who have friends are more socially competent than children who do not, and why these same children exhibit more desirable characteristics such as cooperativeness, altruism, and good perspective taking (Bukowski, Newcomb, Hartup, 1996). However, it is hard to decipher if these qualities and skills are the product of friendships, or if these qualities are present and therefore allow good friendships to occur.

Difficulties of friendships in ASD

As previously mentioned, it is known that adolescents with ASD struggle to make friends. Kanner conveyed the notion that individuals with ASD do not have friends because they want to be alone (Kanner, 1943), however, this is not a widely accepted interpretation today. Instead, the lack of friendships for children with ASD are often viewed as stemming from skill deficits and a lack of opportunities and time with peers. These areas are discussed in the following sections.

Misperceptions of solitude. Long-held misconceptions that individuals with ASD prefer

to be alone (Kanner, 1943) have led to the assumption that social isolation does not bother individuals with ASD. Furthermore, difficulties with social communication, perspective taking, and a lack of initiation with peers often lead to individuals with ASD being perceived as aloof, rude, or disinterested in those around them (Bissonette, 2015). However, these misconceptions have been shown to be untrue (Bauminger & Kasari, 2000; Bauminger & Shulman, 2003). While socialization in this population may be difficult, as described above, individuals with ASD do want to fit in and have friends, and a lack of these relationships causes distress (Bauminger & Kasari, 2000). In fact, one study showed that children with autism experienced loneliness more intensely and frequently than typically developing children (Bauminger & Kasari, 2000). This helps to illustrate that loneliness and the desire for solitude are very different things. Solitude is viewed as an individual deliberately choosing to be alone, such as choosing to play by him or herself. Solitude is associated with a pleasant, positive, and sometimes even desirable situation. Loneliness, on the other hand, can be considered an undesirable feeling associated with negative affect and negative impact (Margalit, 1994). This distinction is important to keep in mind when considering the importance of studying friendships in adolescents with ASD. The idea that these adolescents want friends but do not have them suggests that they lack the skills to initiate or maintain friendships, which is sometimes known as social competence.

Lack of skills. While friendship is a wonderful source of practice for social skill development, it also requires a certain skill set. For example, friendships require the ability to compromise, the capacity to understand and consider another person's perspective, emotional regulation capabilities, and efficient strategies for conflict resolution (Asher, et al., 1996). Because it is known that individuals with ASD struggle in many of these skill areas, it is not surprising that these social relationships are difficult for individuals with ASD to form. These

difficulties in relational skills are often viewed as a lack of social competence. Social competence, while often used interchangeably with the term social skills, is a broad construct that involves a set of desirable skills needed to navigate our social world effectively (Bissonette, 2015; Rose-Kransor, 1997). Social competence does not have one consistent definition throughout the literature (Wilkerson, Perzigian, & Schurr, 2014). However, it is often viewed as the didactic nature of social interactions involving cognitions, behaviors, and emotions (Merrell, 2008), that allow one to respond appropriately to social requests and meet the expectations of social norms (Wilkerson et al., 2014). Social competence has also been seen as, "an innate social awareness...even when we are not aware of it, we are adjusting our personal presentation and behavior to match what is expected in a particular situation" (Bissonette, 2015, p. 23). Individuals with ASD often struggle with this innate social awareness, and have marked difficulty adhering to societal norms and expectations for behavior.

Social competence has far reaching implications beyond friendship. It has been shown that a student's social competence has an impact on his or her academic achievement (Wilkerson et al., 2014). In two seminal studies, the behaviors that are characterized as skills needed for social competence were found to be more predictive of some academic achievements than tests of cognitive ability (Feldhusen, Thurston, & Benning, 1970; Lambert, 1972). This may be due to many factors, but it stands to reason that students who are socially competent benefit from more positive peer engagement in the classroom, meaning they would benefit more from the many strategies involving peer-mediation in the classroom (Wilkerson et al., 2014).

Limited time spent with peers. Friendship does appear to be an advantageous social framework for the development of social skills in high-functioning individuals with autism (Bauminger & Shulman, 2003). This may be because having a peer friendship allows for the

opportunity to engage in one-on-one social experiences, which overtime, allows the individual to learn the friend's interests and practice social activities, feelings, and skills such as cooperation, social initiation, play skills, taking another person's perspective, and sharing. However, adolescents with ASD spend only a small portion of their whole day with their peers (14%), and the majority of their time with adults (Kuo et al., 2011). Often times these adults include parents and paid professionals (Orsmond and Kuo, 2011), which means their time for interacting with peers is very limited. Coupled with the social deficits and limited opportunities for practice with peers for students with ASD, these individuals are often not able to benefit from the practice of friendships, and spend a lot of time alone or with adults.

Effects of limited friendships in ASD

Adolescents with ASD struggle to build friendships, which has detrimental effects on their well-being (Carter, et al., 2005). Evidence suggests that social skill deficits in youth with ASD contribute to long-term struggles including academic and occupational underachievement (Howlin & Goode, 1998), as well as mood and anxiety problems later in development (Tantam, 2003). Research has shown that youth with ASD are much more likely to be bullied than their typically developing peers (Cappadocia et al., 2012; Humphrey & Symes, 2011). Like others with special needs, youth with ASD are more likely to be singled out because they are seen as "different," however, their difficulties in social interaction make them even more vulnerable. As mentioned previously, a strong social network and good peer relationships are protective factors from victimization, such as bullying (Kloosterman et al., 2013; Malecki & Demaray, 2004). However, due to their social difficulties and limited numbers of friendships, youth with ASD likely do not benefit from the protective factor of supportive peers (Kloosterman et al., 2013). Furthermore, the friendships that they do have are often not of the same quality as friendships

typically developing peers have, frequently lacking in closeness and supportiveness (Baron-Cohen & Wheelwright, 2003). The difficulties with communication also place youth with ASD at increased risk for victimization as it often hinders their ability to successfully engage with peers (Cappadocia et al., 2012).

The social skill difficulties seen in those with ASD, which lead to limited friendships, have effects that can be seen across the lifespan more so than other areas of the disability. While ASD is a lifelong disorder, there is evidence that core symptoms of the disorder decrease over time. In fact, it has been seen that individuals with ASD can experience a marked improvement in their ASD related symptoms and traits such as their use of communication, as they age (Schall & McDonough, 2010). These improvements, however, are less apparent in the areas of interpreting social information and participating in reciprocal social interactions (Farley et al., 2009). One study found that young adults with ASD are unlikely to have friends their own age or who share their interests (Howlin, Mawhood, & Rutter, 2000). Many of the adults in their sample reported having no friends at all with whom they shared activities or spent time with on a regular basis.

Friendships in adolescents with ASD

Making and keeping friends. The trajectory of friendship development, characteristics of friendships and maintenance can vary, especially when comparing typically developing adolescents to those with ASD. Friendships for typically developing youth frequently start as early as Kindergarten and tend to be of longer standing than friendships adolescents with ASD report (Bauminger & Shulman, 2003). Friendships themselves can develop through multiple avenues including schools, local neighborhoods, within families, due to parents' friends, and social outings such as vacations (Adler & Adler, 1998). While some friendships among

adolescents with ASD develop in the avenues listed above, their friendships often only involve making friends at school or due to relationships between the parents of the two adolescents (Bauminger & Shulman, 2003). Typically developing adolescents often seek out friends who are similar to them in personality and interests, who attend their school, and who display desirable qualities such as kindness and acceptance. While close proximity (such as being in the same class) and shared interests are key reasons for friendship formation in those with ASD as well, it is often seen that adolescents with ASD are more likely to choose another child with special needs as a friend than typically developing peers (Bauminger & Shulman, 2003). However, friendships in adolescents with ASD rarely form spontaneously, and active support from parents and teachers is needed to facilitate the inception of these relationships (Bauminger & Shulman, 2003).

It is also important to note that after friendships are formed, they must be maintained (Newcomb & Bagwell, 1995). Oftentimes friendships are maintained spontaneously through mutual satisfaction with the other person, sharing of interests and spending time together. In adolescents with ASD, however, it appears that parents play a significant role in the maintenance of their children's friendships (Bauminger & Shulman, 2003; Orsmond & Kou, 2011). In fact, in one study it was shown that each mother of a child with autism emphasized that their own support in the maintenance of their children's friendship was crucial, whereas only half of the mothers of typically developing children thought so (Bauminger & Shulman, 2003).

Activities of friendships in ASD. It has been seen that the activities that typically developing adolescents and those with ASD choose to engage in differ (Bauminger & Shulman, 2003). Activities commonly engaged in by typically developing adolescents include overtly social activities such as playing football or soccer, going out to places such as the movies or

mall, or socializing in groups at get-togethers such as bonfires. In contrast, activities that adolescents with ASD often engage in are more independent and structured such as board games, watching television or movies, or playing on the computer. In some ways, these activities are seen as less social activities as there is little reciprocal social interaction involved while watching television (Bauminger & Kasari, 2000). It has also been seen that many adolescents with ASD who have friends, do not get together with these friends on a regular basis, nor do they talk to them via telephone, email, text messaging, or through social media (Liptak, Kennedy, & Dosa, 2011).

How friendship is studied: Current practice and gaps

To learn about friendships, investigators rely on child and adolescent self-report (Brown, 2004), parent report, and observations (Bukowski et al., 1996). The focus of these methods has typically been on pairs of children and sociometric techniques are often used (Erdley, et al., 2001). Within these studies, dimensions, or characteristics of friendship are often studied, but often only typically developing children or adolescents are included in the sample. Friendships among youth with disabilities, however, are often compared to and assessed by the results of these studies. This is a problem because there is some evidence to suggest that these friendships may look different. There have been studies that have examined the peer interactions and friendships of children with ASD through observations (Bauminger et al., 2008; Bauminger & Kasari, 2000). These studies focused on the behaviors, skills, and interactions exhibited by the child with ASD in the presence of peers and friends. While this is valuable information to have, observation by itself does not give insight into how one perceives or describes friendship. If an adolescent with ASD conceptualizes friendship in a different way than a typically developing

adolescent, it stands to reason that they may have different expectations for this relationship and exhibit different behaviors (Patterson & Smith, 2010).

Matheson, Olsen, & Weisner (2007) were one of the first to examine the concepts and experiences of friendship from the point of view of adolescents with developmental disabilities. Utilizing an interview approach, they asked adolescents if they had friends, who their friends were, and asked them to describe what a friend is. While many of the mainstream characteristics of friendship reported in the research literature, including similarity, proximity, transcending context, companionship, reciprocity, intimacy, support, trust, loyalty, conflict management, and stability (Barry, et al., 2009; Berndt, 1989; Berndt, 1996; Bigelow, 1977; Dunn, 2004; Kuo et al., 2011; Weiss, 1974), were mentioned by at least some adolescents, the most common theme was the idea of companionship. Companionship in this group included responses about being able to engage in activities that both adolescents enjoyed (i.e. "*We color and eat lunch together"*), having peers to be with who shared similarities with them (i.e. "*He acts a little weird sometimes, just like me!"*), and who were available on a long-term basis (i.e. *"He's been in my class since kindergarten"*). Furthermore, many of the adolescents mentioned concepts that did not necessarily fit with the mainstream definitions of friendship. For example, sheer proximity and being in a group together was often mentioned as a kind of friendship, which by itself has not part of the general notion of friendship (Matheson et al., 2007). However, it was noted that the definitions of a friend were often shaped by their disabilities and contexts. One example of this was the situation where one young man mentioned a friend who he knew from going to the park through his day program. Through observation it was seen that these individuals did not actually interact much at the park, but did engage in individual activities in close proximity of each other on a regular basis. While the description by the adolescent and interactions observed did not fit

the general notion of friendship that is interactive and reciprocal, it was clear that the sheer proximity was enough for this individual to consider this peer a friend. This situation showed that the adolescents' self-reports were accurate descriptions of what their daily lives looked like and that what they listed as qualities of friends were the qualities of friends that were satisfying to them (Matheson et al., 2007).

The study by Matheson et al. illustrates the importance of better understanding the perceptions of friendship in adolescents who are not typically included in the samples of friendship research, such as those with developmental disabilities or ASD. It helps to illustrate that perhaps the perceptions and experiences of adolescents vary greatly based on certain characteristics and circumstances, warranting research specific to the population of adolescents with ASD. While the Matheson et al., study gave great insights, the sample did not allow for much generalization to adolescents with ASD as the majority of participants were included based on a general diagnosis of developmental delay and not ASD specifically. It also means that in the absence of more research, friendships of adolescents with ASD are still subject to comparisons of the friendship domains derived from research of typically developing adolescents. As mentioned above, researchers often assign a specific definition of friendship to their studies in order to make comparisons across individual participants (Adams, Blieszner, & DeVries, 2000). However, without including individuals with autism in these samples, we are unable to appropriately assign a definition to their relationships, let alone state that the dimensions of friendship derived from research on different populations are appropriate.

Moreover, these dimensions are said to be an indicator of a "good friendship", however, little research has been conducted describing the perception of friendship and social experiences of adolescents with ASD. There has been even less qualitative research incorporating children's

own words regarding what friendship is to them (Carrington et al., 2003). Typically in studies of friendship in adolescents with ASD, parents do the reporting (Bauminger & Shulman, 2003). While it is very rich data to gather, a parent is not always with their child and therefore mothers cannot always account for all of their child's day accurately. Furthermore, the parent report does not provide information on how people with ASD understand the complex construct of friendship. Limited numbers of research studies have been published relating to how individuals with ASD describe their friendships (Bauminger & Kasari, 2000; Bauminger & Shulman, 2003; Carrington et al., 2003), resulting in a clear gap in the research. How individuals with ASD conceptualize friendship is just not well understood (Patterson & Smith, 2010).

Limited evidence exists to support that adolescents with ASD experience "true, meaningful" friendships or that they fully understand the concept of friendship. However, because there is research stating that this population does in fact have friends (Daniel & Billingsley, 2010), it is important to address how we are studying friendships in typically developing populations and how this translates to the population of adolescents with ASD. Researchers are just beginning to establish how this population describes friendship (Bauminger & Kasari, 2000; Daniel & Billingsley, 2010), as well as conduct research that better describes participation in social activities for adolescents with ASD (Shattuck, Orsmond, Wagner, & Cooper, 2011). There is a paucity of research on how this population conceptualizes and understands the construct of friendship (Bauminger & Shulman, 2003). Because of this lack of understanding, it is difficult to state whether adolescents with ASD do or do not experience meaningful friendship. This is particularly true when research supports that an individual's perceptions of their friendships is crucial to how friendship is viewed by them. It is argued that

perceptions of a relationship are more important than the observed quality of the relationship (Burr, Leigh, Day, & Constantine, 1979).

Summary

It is understood that friendship is a significant social experience for adolescents (Asher, Parker, & Walker, 1996) that satisfies a number of specific social needs such as companionship, intimacy, and affection (Berndt, 1989; Weiss, 1974). Throughout development, and in particular during adolescence, friendships are important to growth and well-being (Ojanen et al., 2010). However, due to difficulties in obtaining and maintaining friends, many adolescents with ASD do not benefit from the positive effects of friendship. Evidence suggests that social skill deficits in youth with ASD contribute to long-term struggles including academic and occupational underachievement (Howlin & Goode, 1998), and mood and anxiety problems later in development (Tantam, 2003). However, except for the understanding that friendship is rare in ASD, little is known about the nature of these relationships, (Bauminger, et al., 2008), as well as how youth with ASD define, describe, cultivate, and understand friendship. This is a truly neglected area of research in autism. Extremely little is known about friendship perceptions, development, or how to support its development in adolescents with ASD.

Statement of the Problem

Current methods for studying friendships lend themselves to gaps in research regarding the description (Shattuck et al., 2011) and perceptions (Bauminger & Kasari, 2000; Daniel & Billingsley, 2010) of friendships in adolescents with ASD. While some studies report a lack of friendship or of quality friendships (Bauminger & Kasari, 2000; Orsmond et al., 2004) others report that friends do exist and that perceptions of friendships are the most important indicator of quality (Burr et al., 1979).

There are significant gaps in research and knowledge regarding the perception of friendships for adolescents with ASD, which requires additional research to better understand this population and their views on friendship. Friendship is important for all adolescents and given its role in adjustment and well-being, there is a need to examine the gaps and support adolescents with ASD in their endeavors to have friends (Ojanen et al., 2010). A first step towards supporting friendships among adolescents with ASD, is to understand the characteristics of friends that are valued, as well as how adolescents with ASD define, describe, and cultivate friendship. Research addressing these areas is greatly needed to inform our understanding of friendship for adolescents with ASD.

Research Questions. Specific research questions to consider include;

Research Question #1

- When interviewed, what are the terms adolescents with ASD use to describe what friends and friendships are? What terms, or dimensions, emerge as major themes for this population? How do these terms and dimensions compare to the terms established by research on friendships with typically developing individuals?

Research Question #2

- What are the major themes that emerge when adolescents with ASD are asked how a friend is different from someone they just go to school with?

Research Question #3

- When asked about their friends, how many of the adolescents will report having at least 1 friend? Are these friends the same or of opposite gender?

Research Question #4

- For adolescents with ASD who report having a friend:

- How many of them spent time with or contacted these friends outside of school in the past week?
- What activities did they report engaging in with these friends outside of school?
- How did they get to know this friend and how long have they been friends?

Research Question #5

- Is there a relationship between (a) participants' descriptions and perceptions of friendship, (b) the number of dimensions reported, (c) the frequency with which they engage with these friends, and (d) the length of the friendships reported, relative to participant functioning characteristics such as SRS and IQ scores?

Chapter Two

METHODS

The data from this study comes from a larger study that examined the effects of a pyschoeducational group intervention on families of adolescents with autism. The study, as well as the group curriculum, was titled *Transitioning Together* (TT; Principal Investigator Dr. Leann Smith, PhD). This research was supported by a grant from Autism Speaks (Grant #7523; Smith, PI), as well as the Waisman Center (P30 HD03352, M.Mailick, PI).

The major aims of the TT study were to determine if a multi-family pyschoeducational group intervention was successful at reducing family stress and student behavior problems and at improving the quality of life for adolescents with autism and their families (Smith, Greenberg, & Mailick, 2014). TT involved two stages of intervention; two individual-family joining sessions (e.g., families and research staff joined together for discussion and clarification of family goals) and eight multifamily group sessions. Two data collection interviews (pre and post) were also held with parents and adolescents independently in order to gather assessment data. These interviews were approximately three months apart and will be referred to as Time 1 and Time 2 Interviews throughout the remainder of this paper. The study used a waitlist control design, where families who were eligible to participate, had provided informed consent, and had completed Time 1 Interviews, were randomly assigned to either the experimental group condition or a waitlist control condition. The experimental group began the 8-week intervention promptly, and then completed Time 2 Interviews. The waitlist control condition group completed Time 1 Interviews, waited 8 weeks, participated in Time 2 Interviews, but then also received the 8-week intervention curriculum. There was no additional data collected after the completion of the intervention for the waitlist group (e.g., no second post-assessment or “Time 3 Interviews”).

The author of the current study served as a project assistant and conducted some of the group intervention sessions as well as Time 1 and Time 2 interviews. The Institutional Review Board (IRB) at the University of Wisconsin, Madison, approved this study and its aims (Protocol #2013-0016). Participants, both adolescents and adults, gave assent or consent both verbally and in writing before the onset of assessment and intervention. See Appendices A and B for IRB approved consent and assent form documents.

Transitioning Together Protocol

Telephone screening. In order to determine if participants met the inclusion criteria of the TT study, telephone screenings were completed. These took place prior to initial joining sessions before participants made visits to the Waisman Center. During the screening, the study inclusion criteria were assessed through several interview questions and rating scales. A complete example of the screening protocol can be seen in Appendix C.

Inclusion criteria. Inclusion criteria for participation in the study was based on several requirements for the adolescent participants. All students had to: (1) be between the ages of 14 to 17, (2) live at home with a parent or legal guardian, (3) be currently enrolled in school, (4) spend at least 50% of that school time in the general education classroom, (5) be verbally fluent which was defined as being able to use sentences with two or more clauses, (6) meet a scoring criteria of 14 or more on the Social Communication Questionnaire (SQC; Rutter, Baily, & Lord, 2003), (7) have received an independent diagnosis of autism, Asperger Disorder, or PDD-NOS from a medical, psychological, or educational professional, and (8) have an intelligence quotient (IQ) of 70 or above. Participants also had to commit to the 8 weekly group sessions in order to be admitted into the study. All screening information, other than the IQ score, which was gathered during the Time 1 Interviews, was obtained via the telephone screenings.

Joining sessions. Joining sessions took place at the Waisman Center in Madison, Wisconsin. These sessions served the purpose of allowing the families to meet with the intervention staff prior to the start of groups, which helped develop rapport and allowed for the clarification of family goals. These visits also allowed the participants to become acclimated to the Waisman Center, as the 8 weekly intervention sessions would take place there. The information generated from these sessions was not included in the current study; therefore limited discussion will be presented.

Time 1 and time 2 interviews. Time 1 and Time 2 Interviews, which were held at the Waisman Center, were the main method of data collection for the adolescent participants in TT. During these interviews, multiple measures were completed with both the adults and the adolescent participants independently. For the purpose of this study, only the adolescent participant measures are discussed in detail as they provided the data that was analyzed. Furthermore, as the control participants did not complete intervention before Time 2 Interviews, only Time 1 Interview data was included in the analysis. See Table 4 for a layout of all of the measures completed during Time 1 and Time 2 Interviews and what was included in the current study.

Time 1 interview protocol. Time 1 Interviews were held with families after informed consent was obtained, but prior to the start of the 8-week multi-family group intervention. The parents were interviewed in one room while the adolescent was interviewed concurrently in another room, independently. If permission had been given, the interviews were audio recorded for later transcription and data analysis. Of the 45 participants, 38 agreed to be audio recorded. Adolescents were told that they could skip any questions that made them uncomfortable, or ask to take a break or withdraw from the interview at any time if they wished. The measures that

were completed during this interview can be seen in Table 2. Appendix D lists the Time 1 Interview measures used.

Group sessions. After completion of the joining sessions, families attended eight weekly group sessions. The experimental group began the sessions as soon as possible, but the control group waited for 8 weeks before beginning intervention. The group sessions included a weekly parent group (adults only) which involved education on various topics related to ASD and included guided practice with problem solving for individual family members. An outline of topics by weekly session are included in Table 3.

Table 3

Topic by Week for TT Parent Group

Weeks	Topic
Week #1	Autism in Adulthood
Week #2	Transition Planning
Week #3	Problem Solving
Week #4	Family Topics
Week #5	Addressing Risks to Adults Independence
Week #6	Community Involvement
Week #7	Risks to Health
Week #8	Legal Issues

While the parents met, an adolescent social group ran concurrently in a different room. The PI, as well as various graduate students, facilitated parent sessions. Graduate students facilitated adolescent sessions also. During these sessions, adolescents with ASD participated in learning activities including social problem solving, sharing interests, goal setting, conversation skills, party planning, as well as playing games with peers. While some weeks' topics shifted based on scheduling and participants' needs, the general structure of the groups remained consistent. A general outline of weekly topics for the adolescent group, as well as a basic

description of the weekly goals is included in Table 4. Weekly group sessions were approximately 1.5 hours each.

Table 4

Topic by Week for TT Adolescent Group

Week	Topic	Goals
Week #1	Sharing Interests	Practice asking questions of others/Establish structure and ground rules
Week #2	Goal Setting	Create a goal and outline steps, reference ecomap if needed
Week #3	Flex Week	Topic based on student needs and interests
Week #4	Social Thinking	Understand and practice thinking socially
Week #5	Coping Thoughts	Discuss ways to handle stressful situations
Week #6	Friendship	Understand and practice aspects of conversation/ friendship
Week #7	Planning a Party	Learns steps for planning a party and prepare to implement next week
Week #8	Party/Graduation	Execute party plan and give graduation certificates.

Participants

Transitioning Together participants. Participants for TT were recruited through a variety of means including local autism groups, clinics, fliers, and participant registries. The inclusion requirements, stated previously, intentionally resulted in a rather homogenous sample. It was believed that by creating homogenous groups, the weekly intervention groups could be better tailored to the needs of the participants, resulting in larger gains and a more focused curriculum (Smith et al., 2014).

Participants in the TT study included 41 adolescents with ASD and their parents, which

included either their mother, father, or both. The adolescents were between the ages of 14-17 with a mean age of 15.44 years (SD= 1.03). The average intelligence quotient for the sample was 100.01 (SD=16.85) and the average Vineland Adaptive Behavior Score was 69.96 (SD=9.61). Of all adolescent participants, 52.3% had a co-occurring diagnosis of anxiety and the majority were taking at least one medication (75.8%). In this sample, the majority of adolescents were White (87.8%) and male (70%). Over three quarters of parents had a college degree and most were working part or full time (76.9%). Randomization was completed using a coin toss method. Therefore, due to chance, the initial randomization procedures after Time 1 Interviews resulted in slightly different sized groups, with the intervention condition having 19 dyads, and the control group having 25. However, after Time 1 data was collected, three families (2 intervention, 1 control) exited the study. One of these withdrawals was due to family relocation, one due to an unanticipated change in family schedule, and one due to significant family illness. Futhermore, another intervention family became homeless over the course of the study, making follow-up difficult. These circumstances resulted in an intervention sample of 16 adolescent participants, and a waitlist control sample of 25 adolescent participants. After randomization, there were no statistically significant differences between the two groups in terms of adolescent age, ethnicity, mental health diagnoses, or medication use or in terms of parental education or employment status. However, the waitlist control group had significantly lower IQ scores than the intervention group (control group IQ M= 94.20, SD= 15.90; experimental group IQ M=109.38, SD= 14.25; F=9.61, p=.004).

Additional Requirements for Proposed Dissertation Study Participants. The adolescents with ASD who participated in the TT study comprise the pool from which participants were drawn for the current study. It should be noted that all participants in the larger TT sample,

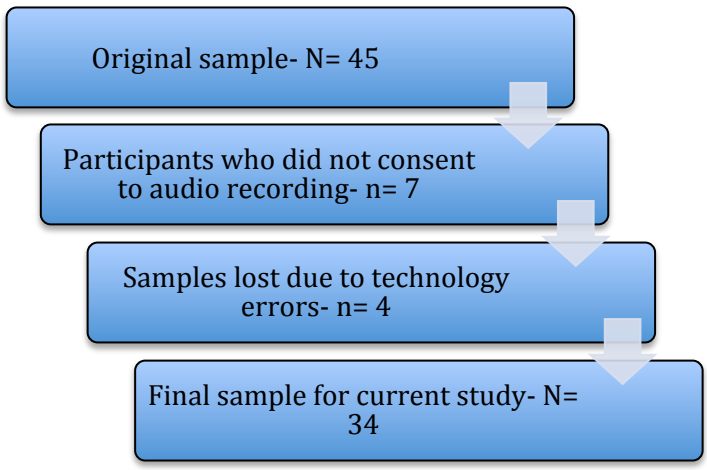
regardless of condition, were considered for inclusion into the current study. Because the data used in the current study was gathered prior to the designation of intervention or control condition for TT, there was no need to separate them out by condition. In addition to the original eligibility criteria, each participant's individual interview had to have had interview data that was recorded in its entirety in order to allow for verbatim transcription. The reason for adding this criterion was twofold. First, all participants had the option of consenting to audio recorded during data collection. As some chose not be to audio recorded, not all participants' Time 1 Interviews could be transcribed verbatim. Second, some audio-recorded data were lost to technology errors, again not allowing for verbatim transcription.

While parents were participants in the original TT study, they were not considered participants for the current dissertation study. Parents in the study did provide data for the adolescents in terms of screening criteria and rating scales, (see Table 2 for more information) however, this data describes the adolescents and is not a direct measure of the parent participants in any way. Data supplied by the parents was used for demographic purposes, as well as to examine differences between the severity of autism symptoms and the adolescents' perceptions of friendship.

Participant flow. Figure 1 depicts the participant flow for the current study. As mentioned above, there were 41 parent-adolescent dyads in the final sample of the TT study. However, there were originally 45 dyads enrolled in the study that consented to Time 1 data collection. Because these individuals consented to and participated in the Time 1 data collection, which was completed before any intervention or services had taken place, they were included in the current study. Of the 45 participants, 7 did not consent to audio recording. Of the 38 with audio-recorded

Time 1 interviews, four were lost to technology errors (e.g. audio recorder malfunction, user error, etc.). This results in a final sample of 34 adolescents.

Figure 1: Participant Flow



It should also be noted that some adolescents did not consent to be quoted in publications and analysis. While these participants' data was examined, analyzed, and included in certain totals, their responses were not individually shared in full or in part in the results section. Of the final sample (N= 34), two of these adolescents did not consent to having their responses quoted.

Participant Demographics for Proposed Study. In this study, the average age of participants was 15.52 years (*SD*= .98), and the majority were male (76%) and white (88%). The average intelligence quotient was 98.94 *(SD*= 16.70).

Measures

The primary source of data for this study came from the interviews conducted with individual adolescents with ASD during Time 1 Interviews. Information from a semi-structured interview as well as questions from the Autism Diagnostic Observation Schedule- Second Edition (ADOS-2; Lord et al., 2012) were analyzed. To date, very few studies examine perceptions and experiences of friendship from the point of view of the adolescent with ASD.

This study addresses this gap by utilizing self-report measures and getting a clearer picture of how adolescents with ASD experience and describe friendship, as well as the type and frequency of activities they engage in with these friends.

In the original TT study, several measures were used in order to determine if participants met inclusion criteria as well as to gather pre and post data in a number of areas. For the purpose of this study, the measures used for inclusion and for the adolescent participants will be discussed and are listed in Table 2.

Table 2

Overview of Assessments used for Screening and Pre and Post Assessment

Assessment or Information	Screening	Time 1 Interviews (Pre Assessment)	Time 2 Interviews (Post Assessment)
Diagnostic Information	**X**		
Verbal Ability	**X**		
50% time in Regular Education	**X**		
SCQ-Lifetime	**X**		
Commit to 8 weekly sessions	**X**		
SRS		**O**	
ADOS-2		**O**	
WASI-II		**O**	
Friends and Activities questions		**O**	**X**
Adulthood goals		**X**	
Program evaluation			**X**

**Cells with Os show data that was used in the current study analysis*
**All screening data, other than the WASI-II Assessment, was provided by parent report via the telephone screenings*
**All Pre-Assessment data, other than the SRS, was collected via interviews and formal administrations of measures to adolescents during the Time 1 Interviews. The SRS was completed by the parents at this time.*
**See Appendix D for Time 1 Interview materials*

As seen in Table 2, screening information gathered via telephone interviews from the parent included clarification of the student living at home and their status in the regular education classroom, the student's verbal ability, and a commitment to 8 weekly intervention sessions. Parents were asked to provide proof of a medical and/or educational diagnosis of an autism spectrum disorder through either medical records and/or Individualized Education Program (IEP) records. To support this diagnosis and help keep the sample homogeneous in terms of functioning, the parent also completed the Social Communication Questionnaire (SQC; Rutter, Baily, & Lord, 2003). The SCQ is a parent questionnaire that offers a way to briefly screen for autism spectrum disorders. Parents in this study completed the Lifetime version, which examines the child's entire developmental history. The results offer valuable information on the child's body movements, use of language or gestures, and style of interacting, and a screening for ASD. Using a total score of 15 or higher for differentiating ASD from other diagnoses, sensitivity of .85 and specificity of .75 are reported (Naglieri & Chambers, 2009). This measure does not provide an in-depth, detailed diagnosis, so other measures were used during the pre-intervention phase in order to get a more complete picture of each of the adolescent participants.

One of these measures, which was used for comparative analysis, is the Social Responsiveness Scale (SRS; Constantino & Gruber, 2005; SRS). The SRS is a parent rating scale that is used to measure the severity of autism symptoms in terms of social impairment, communication, and reciprocal social behavior. On the SRS, a total T-score of 76 or higher is

considered severe and strongly associated with a clinical diagnosis of an autism spectrum disorder. The SRS has been found to have sensitivity of .85 and specificity of .75 when discriminating those individuals with ASD from those with other psychiatric disorders (Naglieri & Chambers, 2009). Good internal consistency was also reported (.93–.97; Naglieri & Chambers, 2009).

During Time 1 Interviews, several pre-assessments were completed with each individual adolescent to assess their level of functioning. The Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2; Lord, Rutter, DiLavore, Risi, Gotham, & Bishop, 2012), was used by research staff during the first joining session to assess the level of functioning of participating adolescents with ASD. While not all interviewers were trained to achieve adequate reliability for all ADOS-2 scores to be valid, the individual questions about friendship and friendship experience were included in this study's analysis. The ADOS-2 is a standardized observation and behavior coding system that allows for the assessment and diagnosis of autism spectrum disorders. The ADOS-2 contains five assessment modules (Toddler, Modules 1-4). Each module offers standard activities designed to elicit behaviors that are directly relevant to the diagnosis of ASD (i.e. Social Affect and Restricted and Repetitive Behavior) at different developmental levels and chronological ages (Lord et al., 2012). Modules are chosen for administration based the individual's expressive language skills and chronological age, and the appropriateness of assessment materials for the individual's maturity level. The ADOS-2 is widely used in clinical and research settings and is considered the "gold standard" for observational assessment measures for ASD (Kanne, Randolph, & Farmer, 2008). Modules 1-3 have internal consistency ranging from .87-.92 for the Social Affect (SA) domain, and .51-.66 for the Restrictive and Repetitive Behaviors (RRB) domain. Module 4 has an internal consistency of .85 for SA and .47 for RRB. The overall test-

retest reliability for the modules and domains range from .64 to .88. Sensitivity for the modules ranges from .60-.95 and specificity ranges from .75-1.0 (McCrimmon & Rostad, 2014). For this study, Module 3, suitable for verbally fluent children and young adults or Module 4, for verbally fluent older adolescents and adults, were used.

To assess the adolescents' level of cognitive functioning, the two-subtest form (FSIQ-2) of the Wechsler Abbreviated Scale of Intelligence, 2nd Edition (WASI-II; Wechsler, 2011) was administered. The WASI-II is a brief intelligence test designed for individuals from 6 to 90 years of age. It is considered an appropriate estimate of cognitive functioning when the administration of a full battery is not feasible or necessary, such as when conducting a research study. In the two-test form, FSIQ-2, the subtests of Vocabulary and Matrix Reasoning are administered. The test-retest reliability for the FSIQ-2 is .90 and the content validity coefficient is .94 (Irby & Floyd, 2013).

The Friends and Activities questionnaire is a semi-structured interview protocol that was created for the Transitioning Together study. It allowed the researchers to examine adolescents' self-reports of their friendships in terms of who the friends were, what they did together, and how they knew each other. A copy is included in Appendix D within the Time 1 Interview materials.

Measures for the proposed study. While all the screening information was considered and reported on in this study, only certain items from the interview questions is discussed. The questions of interest focus on friendships in terms of presence of friendships, perceptions of friendship and time use among friends. A list of the interview questions that were examined, as well as their origins are included in Appendix E. As mentioned previously, information gathered from the SRS and WASI-II were used for comparative analysis.

Data Analysis

Procedures. The data for all participants from Time 1 interviews was compiled and organized so that both qualitative and quantitative analysis could be completed throughout. Responses from the interviews were transcribed verbatim and entered into a web-based, platform independent software program, called Dedoose (Dedoose Version *7.0.23*, 2017).

Certain information from the interview protocol (e.g. frequency and type of activities, gender of friends, number of friends reported, etc.) was organized and recorded quantitatively to allow for additional data analysis. For example, adolescents were asked how often they got together with friends outside of school in the last week, as well as how often they texted, talked to, or interacted online with these friends. These responses were organized and analyzed qualitatively for themes, but also coded for 1= Yes and 2= No in order for quantitative analyzes to be run. Another source of quantitative data came from SRS and IQ (WASI) scores that were used for comparative analysis throughout.

Qualitative analysis. The main method of data analysis for this study was qualitative analysis. Because the goal of this study was not to draw inferences, show casual relationships, or illustrate a cause and effect relationship (Sandelowski, 2000) but to gain insight into the phenomenon of friendship perception and experiences in adolescents with ASD, qualitative analysis was selected as the best fit for the data. Furthermore, research on self-report of friendship in adolescents with ASD is an understudied area and qualitative research is particularly useful for obtaining insights into experiences and the meaning attached to these experiences for specific groups (Leech & Onwuegbuzie, 2007). Qualitative analysis is a way to gain a holistic view of a situation or phenomenon from data (Miles, Huberman, & Saldana,

2014), which in this case is needed in order to better understand how adolescents with ASD describe and perceive friendships.

Due to the exploratory nature of the study and the data that was available, the analysis for the current study did not adhere to one specific theory or method of qualitative analysis. Rather, a more generalized method of analysis, which incorporated multiple theoretical models, was used.

The methodology of Phenomenography, which seeks to focus on the experience of a phenomenon rather than on the phenomenon itself, was used as a guiding methodology in this study. In Phenomenography, the aim is to investigate the differing ways in which people experience, perceive, apprehend, understand, and conceptualize various phenomena (Uljens,1996). A phenomenographic analysis seeks a "*description, analysis, and understanding of ... experiences*" (Marton, 1981, p. 180). The goal is not to come up with a singular explanation of a phenomenon, but to recognize the variation within it. In the current study, the idea was not to determine one way in which adolescents with ASD view friendship, but to better understand how they experience and perceive it in their own lives. Phenomenographic methods are most commonly used in educational research and have an empirical rather than a theoretical basis (Ashworth & Lucas, 2000). Within this framework, the researcher is to take a purposeful sample of the population in question, ensuring there is appropriate variation related to the research questions. Information is then gathered in semi-structured interviews, with focused questions related to and including the main research questions (Marton & Booth, 1997). Analysis then involves reading, annotating, highlighting, selecting quotes, and concept-mapping. Throughout analysis the researcher focuses on examining the referential aspects (i.e. what is being experienced and what it means delineated by categories) and structural aspects (i.e. how the

phenomenon is being experienced in the moment and while describing it) of participants' responses and descriptions. The existing literature on phenomenographic approaches emphasize the importance of quotations in analysis as they exemplify the experiences that participants have had (Ashworth & Lucas, 2000). Throughout primary analysis, many categories may emerge and will become linked and combined over time as is appropriate. There is no limit to categories, but they are to be qualitatively distinctive (Marton and Booth, 1997). Due to the nature of the research questions as well as the fact that this study was a secondary data analysis, a true phenomenographic approach was not deemed appropriate. However, phenomenography provided a guideline for how the data was reviewed, organized, and analyzed.

Analysis in the current study involved multiple cycles of coding, while examining data both deductively and inductively. Information was then displayed in tables and matrices, and conclusions drawn from those results. Finally, tables with dimensions and quotations from each category were created to display results. Miles and colleagues (2014) outlined this as a three-step process that involves "data condensation, data display, and drawing and verifying conclusions" (Miles et al., 2014; p. 12). In Miles and colleagues' work, the data condensation phase involves reviewing a data set, such as interview transcripts, and simplifying it into meaningful pieces throughout analysis (Miles et al., 2014). This is often done through repeated examination of data so that summaries, and then codes and themes, can be generated. In their model, this process involves two coding cycles: First cycle (i.e. the codes initially assigned to chunks of data); and Second Cycle coding (i.e. working with the First Cycle codes themselves; Saldaña, 2013). The current study did not fully follow Miles and colleagues' model, but did use it as a guide for analysis as multiple cycles of data examination were used.

In the current study's first step of data analysis, transcripts were read in their entirety by this author in a deductive manner, meaning no pre-determined codes were applied to the data and the examiner oriented herself to the data sample itself. Examining the transcripts in a deductive manner allowed for a holistic view of the data to be developed and for preliminary themes to emerge from the interview data based on the actual responses, versus predetermined qualities of friendship. When data was collected, adolescents were asked to explain their friendships in open-ended prompts, allowing them to describe their experiences of friendships in whatever manner they wished. The data analysis sought to continue with this same approach in order to allow for rich and encompassing results and discussion.

After an initial read through, the transcriptions were examined again by this author, this time being separated out into each individual question being asked. They were read again to begin separating them into groups with similar responses (i.e. same or similar verbiage, etc.), or categories of description. This was done twice, two weeks apart, in order to give a measure of accuracy and consistency from this author. The level of consistency was measured to be 96.1% between the first and second set of groupings. These grouped responses were then reviewed to determine the major theme underlying each group. A "title" or category name was given to each group in order to delineate them.

These groups, or categories, were compared to the dimensions of friendship outlined in the literature base to determine what overlap existed versus novel dimensions. These groups then became the categories, or codes, with which the interview transcripts were reviewed again through a more inductive methodology. The codes established were used to examine the transcripts a final time with the examiner pulling out specific responses and placing them in the appropriate matrices category. This was done to provide a final total for each dimension as well

as to begin concept-mapping in order to search for evidence to support the development of conclusions. It should be noted, that while codes were established during the second step of analysis, they were subject to revision as the examiner became more familiar with the data set. As matrices were created it was noted that some categories included specific words, which indicated a group of their own such as, trust. However, some responses or quotes did not include specific words, but had to be interpreted and grouped in to the appropriate category. For example, there was some commonality between responses included in proximity and companionship. The matrices showed that the responses were similar, and could quite possibly be grouped together. However, there was a delineating factor within the existing body of literature on these dimensions, which was physical space. In the end, it was determined that if a participant's response specifically included a delineation of space (i.e. sit near them, see them at school, etc.) then this would fall in to the category of "proximity." However, if the participant's response simply discussed spending time with the individual, it was included in "companionship." These specific delineations were determined for each dimension as necessary while completing the matrices and tables. Through a variety of matrices and summary tables the examiner was able to highlight variables and information important to the research questions and conclusions were drawn. This multi-step process outlined above was used for the data from each of the interview questions from the ADOS-2 protocol as outlined in Appendix E.

Throughout this entire process a coding journal which contained jottings and memoing, was used to document thoughts, insights, and connections in the data. Emerson, Fretz, & Shaw refer to jotting as an "analytic sticky note" that allows you to attach a reflection or thought to a certain chunk of data (2011). These jottings often capture a researcher's momentary thoughts as they progress through data analysis (Miles et al., 2014). Memoing on the other hand, is a bit

more extensive. A memo is a narrative that reflects the researcher's thinking process at that point in time (Miles et al., 2014). Memos seek to tie pieces of data together in order to show main ideas and themes emerging from the data. The examiner used the coding journal as a way to track reflections, responses, and main ideas that were then incorporated in to data analysis and the drawing of conclusions. This coding journal was also used when considering limitations of this study as well as future directions.

Quantitative analysis. While qualitative analysis was the primary method of analysis, pieces of the data were also analyzed in a quantitative manner to produce concrete answers and descriptive statistics from the data.

Descriptive statistics including frequency, mean, mode, and standard deviations were calculated in relation to variables such as FSIQ, SRS scores, gender, and race. In terms of friendship dimensions and themes, all of the major themes derived from the interview data are reported. Descriptive statistics for each dimension were calculated and reported through frequencies and percentages. This same process was used to determine the percentage of adolescents who reported seeing friends, talking to them on the phone, etc. over the past week, the percentage who reported other-gender and same-gender friends, for the types of activities they reported engaging in with these friends, and for how they had met and how long they had known this friend.

Another area that was examined was how responses across interviews correlated with IQ and SRS scores. Because these variables are continuous variables, the correlation was deemed the most appropriate method to use. The IQ and SRS scores were compared to the number of dimensions endorsed by participants and the length of friendships reported. Scatterplots were

created to visually examine whether or not a potential relationship existed. If appropriate, correlations were run in relation to each of these variables and IQ and SRS scores.

In order to examine IQ and SRS scores in relation to each individual dimension and with the frequency of interactions with peers, a Two-Sample Wilcoxon Ranked-Sum Test (Wilcoxon) was run for each dimension and frequency of interaction with peers in relation to both IQ and SRS scores. While IQ and SRS scores were part of the inclusion criteria for the study, it was found that they were not normally distributed as is seen in the histograms in the next chapter (Figures 2 and 3). The Wilcoxon Ranked-Sum Test does not assume a normal distribution. It is a nonparametric equivalent used to replace the two-sample t test. The Wilcoxon test is based on the Wilcoxon sum rank statistic *W*, which is the sum of the ranks of one of the samples. This means that the test compares two distributions to assess whether one has systematically larger values than the other. In this case the goal was to determine whether the IQ or SRS scores were statistically significantly different between participants who endorsed a specific dimension and those who did not.

This test was also chosen as the variables were not all continuous. Each dimension was labeled as either 1 = Yes or 2= No depending on whether or not that dimension was endorsed. The same is true for spending time with friends. Participants were not asked to give a number of times they hang out with friends weekly. They were asked whether or not they spent time with their friend(s) outside of school in the past week as well as whether or not they had ever spent time with a friend outside of school. Again, these responses were labeled as 1= Yes and 2= No. The Wilcoxon was used to examine each dimension of friendship as deemed appropriate. The small sample size (N=34) resulted in some dimensions being endorsed by only a couple of

participants. It was determined that the Wilcoxon would not be used on any dimensions that had less than 5 participants endorsing it as there would not be enough power.

Within SPSS there is not an option to complete a Wilcoxon specifically, but it is run as a Mann-Whitney U test, which is equivalent and automatically outputs the Wilcoxon Rank-Sum Test statistic. Finally, when running these tests in SPSS, the exact probability option was used because the total sample size was less than 60 (N=34), which provides an exact P value rather than a P value based on Asymptotic, or normal distribution theory, approaches. A two-tailed test with significance at $p < .05$, was completed as the goal was to determine whether there was a statistically significant difference between the two groups and there were no predictions made based on existing research prior to running the tests.

Chapter 3
RESULTS

The purpose of the current chapter is to describe the results of this research study. The five research questions are restated below and the results for each of the questions, as determined using the methods described in the previous chapter, are explained.

Question One

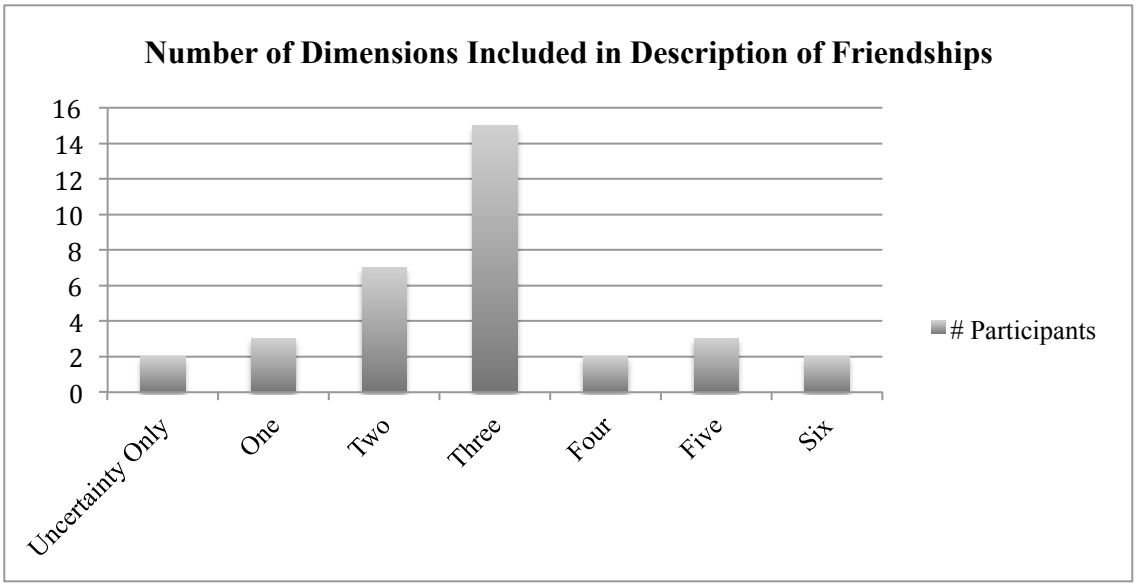
When interviewed, what are the terms adolescents with ASD use to describe what friends and friendships are? What terms, or dimensions, emerge as major themes for this population? How do these terms and dimensions compare to the terms established by research on friendships with typically developing individuals?

Analysis revealed a total of 12 individual dimensions that were established through participant's responses, as well as a category of "uncertainty" for a total of 13 distinct categories in which responses fell. Of the 13 categories, 10 of them aligned with the original 11 dimensions outlined in the existing body of research, which were discussed previously and can be found in Table 1. The themes of similarity, proximity, transcending context, companionship, reciprocity, intimacy, support, trust, loyalty, and conflict management were present in one or more participant's description of friendship. The theme of stability, or the idea that friendships persist over time, was not included in any of the participants' responses. Two additional themes that emerged within this population were absence of negativity and safety. The final category of "uncertainty," is not being considered as a dimension of friendship, but was included as a response category due to multiple adolescents expressing uncertainty over what friendship means to them.

Graph 1 shows the break down of the number of dimensions included in each individual's responses. In the majority of cases (85%), participants included 2 or more dimensions in their

description of friendships. The mean number of dimensions was 2.91, with nearly half of the participants (44.1%) endorsing at least three separate dimensions. The range of dimensions included was 0 to 6, with 0 indicating a participant whose only response indicated uncertainty in what a friendship is or meant to them.

Graph 1: Graphic Depiction of Dimension Frequency



In terms of each dimension, Graph 2 below gives a visual representation of the frequency with which each dimension appeared within a participant's response. The most frequently endorsed dimension was that of companionship, which 52.9% of participants included in their description of what friendship meant to them. The least endorsed dimensions included both Transcending Context and Conflict Management which were each endorsed one time (2.9% each) across participants. Each individual category will be discussed further below.

Graph 2: Graphic Depiction of Friendship Dimensions Endorsed

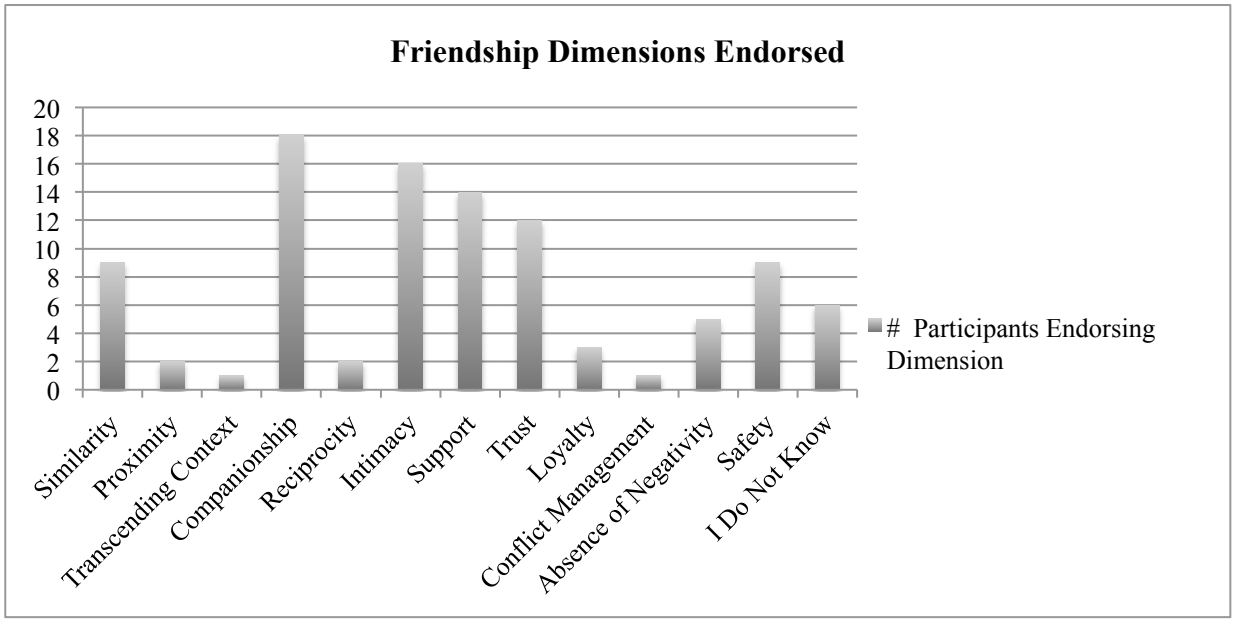


Table 5 gives a break down of the frequency and percentage of each category endorsed by participants. It also includes samples from the transcribed interviews that were analyzed and included in each dimension during analysis. Each dimension will be discussed in the order they are found in the table.

Table 5 Dimensions of Friendship and Examples

Dimension	Frequency of Response	Percentage Of Participants	Examples from Analysis
Similarity	9	26.5	*"Well to be friends you should be interested in the same things"* *"To me, friends should be a lot like you. Like they would dress the same, enjoy the same stuff, and probably like to play video games with me because that's what I like"* *"Um...well they agree on the same things as you, and have stuff in common with you"* *"Sharing common interests and*

			stuff"
Proximity	2	5.9	*"I mean, I see them every day at school...I sit by her in two classes"* *"I see him every day that we have school"*
Transcending Context	1	2.9	*"They are willing to see you outside of school, not just in school"*
Companionship	18	52.9	*"They spend time with you, like they do it voluntarily"* *"...someone to talk to and spend time with"* *"We sit together at lunch some days, it's nice to have someone to talk to"* *"You don't have to go to special places to be a friend, you just need to see them sometimes. Like spend time together, that's always nice to have"* *"They spend time with you, like do projects with you at school and stuff"* *"You spend time together and just hang out"* *"Have a good time together when you spend time together"* *"You spend time together and have fun together...you enjoy being around them"* *"You spend time together and just do stuff together"*

Reciprocity	2	5.9	*"You need them, they need you"*
Intimacy	16	47.1	*"They know me and appreciate me"* *"...someone who I can for the most part be myself with"* *"I liked one of my friends, but she explained that she just liked me as a friend and gave me a kiss on the cheek when she told me. It was probably the nicest thing anybody could give me. And now we are still friends and she is still kind to me, so I guess a friend is someone you can feel close to"* *"They care about you a little...more than other people do"* *"What it means to be a friend is like accept people for who they are and be close to them"* *"You are able to be yourself and also you can have things only you two understand, like you can say, "Remember that time at the Kalahari?...and they'll know exactly what you're talking about because you are close and have those memories together"* *"A friend understands you in a way others do not"* *"They care about me and do not want anything to happen to me"* *"Generally for me, it's when I know I'm liked...liked for me"*
Support	14	41.2	*"They are there for you and stuff"*

			"Somebody who's there, who will have your back and support you if you're going through rough times or celebrate when you're...you're going through like good things" *"Someone who will look out for you if there's a problem...be there and stuff"* *"If they have my back in situations, both good and bad, both, they are a friend"* *"A friend is someone you can rely on and they are there for you...you know?"*
Trust	12	35.3	*"...someone you can trust"* *"Being truthful and honest..."* *"You can trust them not to hurt you and keep your secrets"* *"They don't lie behind my back"* *"A friend is someone you can trust and can count on them to be honest and you can tell them things...private things, like a secret and know it's safe with them"* *"They are trustworthy, won't gossip about me, and stuff"*
Loyalty	3	8.8	*"A friend is loyal to you"* *"A friend....a friend is loyal to you, sort of like family, but they choose to be loyal because they are a friend"*
Conflict	1	2.9	*"Friends can agree to disagree in*

Management			*fights and stuff"*
Absence of Negativity	5	14.7	*"Well they shouldn't steal from you. I had a situation where I thought someone was my friend but it turns out that he was conning me to get money. I did not see it. But now I know friends should not steal from you...that's my definition of a friend"* *"Well, being a friend is not being like a total jerk to me"* *"Doesn't well...doesn't bully you as much"* *"They don't backstab or steal from you...that has happened to me...so friends would not do that"* *"A friend is a lot nicer. People can be really mean, people are mean...like not all the time, but a lot of the time. But a friend is nice and not mean to you"*
Safety	9	26.5	*"Friends are going to be the ones who defend you against other people, like people who are mean to you"* *"Stand up for you when you're being harassed"* *"Well you stand up to bullies when you are someone's friend. My friends try to do that for me"*
Uncertain	6	17.6	*"Hell if I know"* *"I have no idea...I really don't"* *"I really don't know...it's hard to say*

for sure"

"Ya know, I don't know, that's a hard question"

"I don't know. I don't have close friends"

The dimension of similarity was included in 9 participants' responses. In the literature, similarity was associated with individuals having common interests, values, and personality traits (Berndt, 1989; De Vries, Dustan, & Wiebe, 1994; Patterson, Bettini, and Nussbaum, 1993; Sullivan 1953). In the current analysis, the responses very closely aligned with the definitions outlined in the literature. Participants endorsed the idea that friends would have some form of commonality with them, which would designate them as friends. They stated that friends were similar to them in their thoughts, hobbies, and even appearance or dress, and would agree on the same things indicating that similar values were included in this dimension of friendship as well.

Proximity was a dimension endorsed twice in the current study. In the existing literature, proximity is defined in terms of the actual distance of the friendship, meaning how often they are within a short distance such as being neighbors, classmates, or the like or how frequently they are in physical contact or presence of the individual. In the current study, only the physical proximity of school was endorsed. This was shown through responses that they saw the individual (friend) daily at school, which was how they delineated them as a friend. It should be noted that there is some commonality between responses included in proximity and companionship, as was discussed in the previous chapter of Methods. However, in their responses if they merely indicated "spending time" versus physically being together, it was coded as companionship and not proximity. This differentiation was made as it was noted that for many individuals, "spending time" together included interacting online which did not

indicate close physical proximity. Therefore, responses about having someone to interact with or spend time together were coded as companionship.

The next dimension, transcending context, is defined in existing literature as the friendship being present in and across multiple settings (Berndt, 1989; Dunn, 2004). In the current study, there was one adolescent whose description of friendship included a delineation of the relationships occurring across contexts. In this case, it was delineation between the relationships being present in and out of school.

Companionship was the most frequently endorsed theme in the current study. This dimension was endorsed by 18 participants, which was 52.9% of the sample. In the existing literature, companionship is the idea of having someone to be comfortable and spend time with; someone you are compatible with (Barry, Madsen, Nelson, Carroll, & Badger, 2009; Berndt, 1992; Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; De Vries, Dustan, & Wiebe, 1994; Mendelson & Aboud, 1999). In the current study, the definition created from participant responses for the companionship dimension very closely aligned with that of existing literature. The responses centered around the idea that a friend is someone to spend time with, provide an interaction, and engage in activities of some kind with. While there was mention of specific activities listed at times, there was an underlying element of simply "being". Multiple adolescents associated the meaning of a friend to be someone to simply talk to and interact with rather than focusing on what they did together. They made statements such as "*it's nice to have someone to talk to*". Unlike the existing definition of companionship, the current study's definition did not include the idea of being comfortable with an individual, as this was included in a separate dimension (intimacy).

Reciprocity, as defined based on existing literature, is the idea that both parties involved have positive feelings towards each other and choose to be friends (Berndt, 1989; Dunn, 2004). In the current study, only one adolescent indicated reciprocity as a component of friendship. By their description, a friend was an individual that needs you and you need them, indicating the relationship was reciprocal. In the existing body of literature, reciprocity is one of the most commonly researched and referenced dimensions of relationships and friendships; however, it was only mentioned once in the current study. This difference is discussed more in the subsequent chapter.

In the existing body of literature, intimacy refers to a close, familiar, and warm relationship (Barry, Madsen, Nelson, Carroll, & Badger, 2009; Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; Mendelson & Aboud, 1999; Sullivan, 1953). In the current study, 47.1% of participants listed intimacy as part of their description of friendship. Similar to the definition outlined in the literature, this study's dimension of friendship included having someone who knows you well, accepts you, and understands you in a way that others do not. There was an underlying theme of "being comfortable" with someone which was included in the intimacy dimension. Participants' responses included the idea of being able to "be yourself" and having special memories or inside jokes with a friend.

Support, based on existing literature, is the idea that the friendship allows for a sense of care and understanding throughout experiences (Berndt, 1989; Mendelson & Aboud, 1999). In the current study, 41.2 % of participants indicated "support" in their descriptions of friendships. In the current study, the actual phrase, "support you" was used, but the larger idea was that a friend will "be there for you" or "have your back" when things are going well or badly.

In the current study, 12 (35.3%) of the participants indicated trust as part of their description of friendship. In the existing literature, trust is the construct that one can be counted on to be honest and true consistently and continuously (Berndt, 1989; De Vries, Dustan, & Wiebe, 1994; Sullivan, 1953). Participants in the current study included the idea that being honest and truthful was an indicator of friendship. They also indicated that friends can be trusted to keep your secrets and not share them with others or gossip about you.

Loyalty refers to the idea that an individual will be devoted and committed regardless of the situation (Berndt, 1989; Mendelson & Aboud, 1999). This dimension was endorsed by 3 participants (8.8%). In the current sample, responses specifically included the word "loyal" but did not include the descriptions "devoted" or "committed."

Conflict management is the idea that the individuals approach and resolve conflicts in a similar manner (Berndt, 1989; Bukowski, Hoza, & Boivin, 1994; Laursen, 2001). This dimension was not endorsed in a manner consistent with the definition outlined in the existing literature, however, one participant did state that, "friends can agree to disagree in fights and stuff."

One of the novel dimensions of friendship that emerged in the current study was "absence of negativity." This dimension was endorsed by 5 participants (14.7%), and included examples of participants being deceived or taken advantage of. Participants told stories of being misled by peers including being asked for money or having things stolen from them. These individuals indicated that a friend by definition was someone who does "not steal from you." Another underlying theme of this dimension was that adolescents perceived a lot of their peers as being mean to them and reported that friends would be "nicer" to them. Sadly, participants did not always indicate that their friends were never mean, but were merely "less mean" than other peers

that would be considered non-friends. It should be noted that responses in this category were compared to other dimensions. For example, one participant indicated that a friend is "nice and not mean to you" which by itself could be considered an indication of the intimacy dimension. However, this statement was part of a larger account that indicated that people are typically mean to the participant and that friends are "nicer". This indicates that based on this adolescent's experience, friendship was an absence of the typical negativity that is characteristic of their peer interactions. Based on the responses in this dimension, the working definition of Absence of Negativity, is that friendships can be categorized by a lack of undesirable and potentially damaging interactions, including a lack of, or more limited, victimization.

Another novel dimension that emerged was that of "safety," which was endorsed by 26.5% of participants. This dimension was characterized by responses indicating that a friend will defend against bullying and harassment rather than engage in those behaviors. Adolescents discussed situations where they were bullied and a friend was there to defend them. Others outlined situations where they were bullied and had wanted a friend to stand up for them. Originally, many of these responses were included in the "support" dimension as responses indicated someone being "there for you." However, upon further analysis, it was determined these responses were unique in nature. Because of this and based on the frequency of these responses, it was determined that safety was a unique dimension to be included in the current study's dimensions of friendship. Based on the current study, the definition for this dimension is the idea that a friend will protect and defend you particularly against bullying and harassment.

The final category, uncertainty, is not considered a dimension of friendship, but is included in the analysis due to 17.6% of participants indicating that they were uncertain of what friendship meant to them. When asked about friendship, several adolescents made statements

indicating that they had a lack of understanding of what friendship meant to them (i.e., *"I really don't know...*") or had an inability to describe it (i.e., *"It's hard to say for sure").* Responses also indicated that participants found this to be a difficult question that they were unable to answer (i.e., *Ya know, I don't know...it's a hard question"*).

Question Two

What are the major themes that emerge when adolescents with ASD are asked how a friend is different from someone they just go to school with?

When adolescents were asked how friends are different from someone they just go to school with, their responses fit into 11 separate categories. Of these 11, 9 categories included descriptions of these differences, one category included responses that indicated uncertainty, and one category that included responses that indicated adolescents were not able to state any differences between the two groups.

Graph 3 shows the frequency with which participants endorsed each category. Uncertainty and Intimacy were the most frequently indicated with 26.5% of participants endorsing these categories. Each category is discussed further below and examples within them are included in Table 6.

Graph 3: Frequency of Responses for Differences between Classmates and Friends

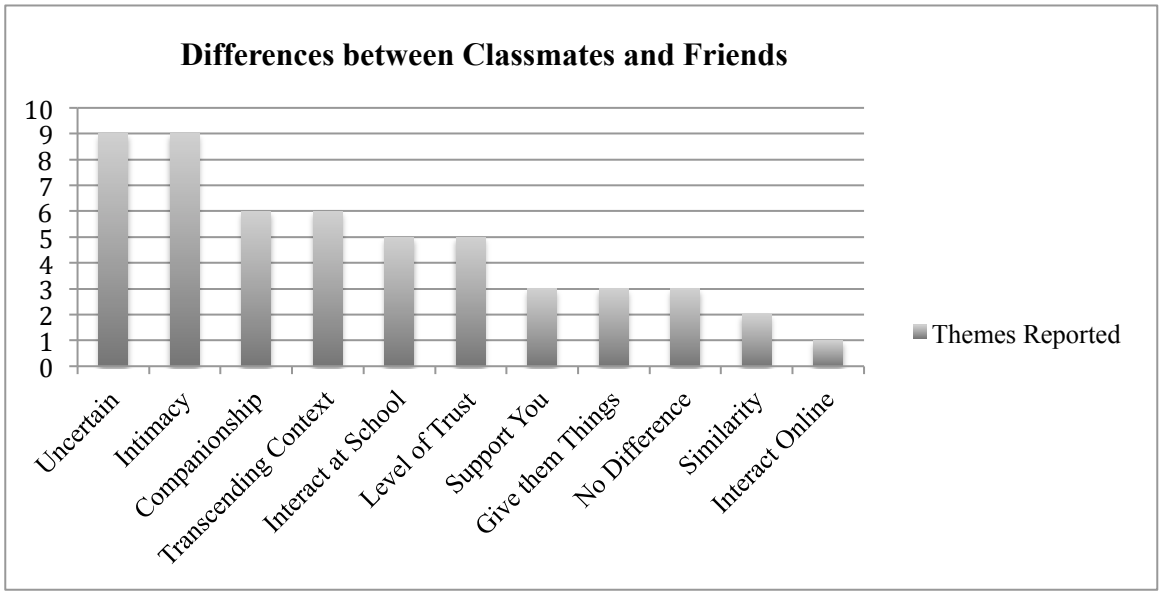


Table 6: Examples of Responses for Differences between Classmates and Friends

Theme	Frequency	Percentage	Examples
Uncertainty	9	26.5	*"I don't know, that's hard to answer"* *"I'm not sure, I'm just not quite sure that much"* *"That's a hard question"* *"Beats me"* *"I actually have no idea...that's a good question though...I don't know if I've ever thought about it really"* *"I'm not sure...I mean I consider everyone my friend...so I guess I do not know"*
Intimacy	9	26.5	*"If they were not my friend, I would not really know them that well. I know more about my friends than the kids I see at school"* *"Well [a classmate] is usually someone that I care less about but I have to deal with because I need to work with them, or get something done. A friend I know better and usually care about"* *"I feel more comfortable around some people than others...and I guess I know them [friends] better"* *"Um, you know them more than just a person you go to school with"*
Companionship	6	17.6	*"Well a friend is a person you usually see a lot and a person you just go to school with, you just happen to meet 'em there...not really like spend extra time with them"*

			"Someone you go to school with would probably just say, "Hey man what's up?" you know stuff like that, but a friend would actually talk to you more than that and spend time with you...like would spend more time around you" *"Friends you are around all the time..."* *"I actually enjoy spending time with friends*
Transcending Context (outside of school)	6	17.6	*"Friends are, you have friends that are voluntarily with you outside of school"* *"Well a friend would hang out with you other places than just school, unless they're busy"* *"Well a classmate you like see in study hall or something and maybe talk to them but don't necessarily hang out with outside of school"* *"You actually do stuff outside of school with them [if they are a friend]"* *"Um, I have acquaintances at school and I basically just talk to them in class, but a true friend I hang with outside of school and I like text them and stuff to meet up"*
Interaction at School	5	17.6	*"Well someone like a friend would help you in class and stuff, but other classmates do not talk to you in class"* *"Someone you go to class with, they just like sit next to you and don't talk to you really very much, but they're there next to you and talk to you some..."* *"Um...a friend will sit by you are lunch. It's hard to find people at lunch who want to sit with you, but a friend will"* *"You just "see" those people at school*

			and don't really spend time with them...friends you would interact with at school" *"Friends actually show interest in you, people at school don't really"*
Level of Trust	5	14.7	*"A friend is someone you want to talk to and share stuff with, like secrets"* *"I trust friends more than classmates"* *"Um, a friend, you can usually tell your deepest secrets to. I know that's kind of corny, but it makes sense because classmates you just say hi to in the hallway and stuff, but would never tell them your secrets...so you can trust a friend more than just a classmate"* *"I guess the main difference is, is that I just don't really share personal information with them. I mean I'll talk to them, but yeah...I don't know if I can trust them or not if they are a classmate. So, I trust friends more"*
Support You	3	8.8	*"A friend is someone you can count on...they support you. I don't know that I could count on [other] students at school"* *"Friends are there for you when things are good or bad...other people maybe not so much"*
Give them Things	3	8.8	*"If they are your friend, you give them whatever they want...like if they ask, you give it to them"* *"When they are your friend, do whatever they ask, or give them what they ask for"*
No Difference	3	8.8	*"I'm not sure it is different"*

			"They are the same..." *"It's not different, I mean when you really think about it, it's not different"*
Similarity	2	5.9	*"Well they have the same interests as you do, like the same hobbies and stuff"* *"They are sort of like you, ya know, similar interests and enjoy the same things"*
Interact Online	1	2.9	*"We meet up online to game if we are friends"*

The first category that emerged was Uncertainty, which was endorsed by 26.5% of participants. This category included statements indicating that the adolescent was unsure or unclear of the differences between a friend and a classmate. Statements in this category included that the idea of friendship was novel to them and they had not yet thought about it, was too difficult a question to answer, or that they were simply unsure (i.e. "Beats me") of differences. This category is somewhat related to, but independent of No Difference, which will be discussed later.

Intimacy is the second category. This category was designated by responses that friends know more about each other and are closer to you than peers you only go to school with. Intimacy was endorsed by 26.5% of participants as well. Participants indicated that they felt more comfortable around friends and care for them more than others. These statements were put into a category labeled intimacy due to similarities between these responses and those included in the friendship dimension of intimacy.

Companionship emerged as a theme of the differences between peers and friends. It was endorsed by 17.6% of participants. In this category, participants indicated that friends, in contrast to other peers, spent time with them and were enjoyable to be around. By their account, peers typically did not interact with them or spend a significant amount of time with them. This category did not specify locations of these interactions and therefore warranted a different category than specifically interacting at school or transcending context, as discussed below.

Transcending context was an additional category that emerged and was endorsed by 17.6% of participants. In this category, adolescents discussed seeing friends outside of school and not just within the school setting. They made a delineation of peers who may or may not spend time with them at school and a friend that does spend time with them outside of school. There was also a minority of adolescents who indicated that this was voluntarily hanging out with each other outside of school.

A category of "interaction at school" was endorsed by 17.6% of participants and was included because multiple adolescents differentiated peers from friends in terms of whether or not they interacted with them at school. Based on these responses, a peer would not talk to them, sit by them in class or lunch, or help them with classwork. A peer could be considered a friend, however, if they helped them in class, sat next to them, or spent time talking to them. While interactions at school could be considered companionship, the responses included in this category specifically delineated interacting versus not interacting in their descriptions.

Trust emerged as a way to differentiate a friend from a peer. A percentage of adolescents (14.7%), indicated that they trust a friend more than a peer, were able to tell friends personal information, and could rely on a friend to keep their secrets.

The next three categories; Support, Give them Things, and No Difference were indicated by 3 participants each (8.8% in each category). Similar to the dimensions of friendship definition, support in this instance indicated that a friend would be "there for you" whether things were good or bad. There was a delineation of peers who could not be counted on to offer support versus friends who could. The "give them things" category included responses indicating that if you consider someone your friend, you give them things or do what they ask. The adolescents who included this in their response indicated that you should do this "all the time" and "do whatever they ask". Three adolescents made statements indicating that in their opinion there was no difference between a friend and someone they go to school with.

Two adolescents indicated that similarity was the differentiation between a peer and a friend. These adolescents stated that their friends have common interests, enjoy the same things as them, and are more "like them" than people they go to school with. Finally, one adolescent indicated that they knew someone was their friend when they meet up online.

Question Three

When asked about their friends, how many of the adolescents report having at least 1 friend? Are these friends of the same or of the opposite gender?

Question three was analyzed from two individual parts of interview data. Adolescents were asked about their friends two separate times in the interview. At first, they were asked an open-ended question, "Do you have some friends? Can you tell me about them?" They were later asked in a more direct manner, "Tell me about your five best male friends" and "Tell me about your five best female friends" and were asked specific questions about these friends (which will be discussed further in Question Four below). During analysis it was noted that while coding responses to the first open-ended question, 94% of adolescents reported having at least one

friend and of that percentage almost exclusively (94%) discussed friends of the same gender only. However, when they were asked later to discuss their 5 best male and female friends, 68% of adolescents that reported at least one friend, reported a friend of the opposite gender. Therefore, the first two parts of this question have been examined twice with the two separate parts of the interview data.

As mentioned above, when asked an open-ended question about their friends, 94% (32 out of 34) of adolescents reported at least one friend. Of those 32 that reported a friend, 30 of them reported friends of the same gender. One adolescent reported having friends of the opposite gender only, and one adolescent reported friends of both genders. Both of these adolescents were females.

When asked directly about their 5 best male friends, 82% (28/34) of adolescents reported having a male friend, with 6 of these adolescents being female. Interestingly enough, the two adolescents who reported having no friends during the open-ended question reported at least one male friend. Six adolescents reported not having a male friend, 2 of which were female and whose responses aligned with their original response that their friends were the same gender only. The remaining 4 of the 6 adolescents were males. They had reported that they had friends of the same gender only, but in this portion of the interview could not list a male friend by name, indicating that they did not have a friend of the same gender.

When asked about female friends, 20 adolescents reported at least one female friend. Again, one individual who previously reported not having any friends, reported having at least 1 female friend in this portion of the interview. Of those that reported a female friend, 6 were female and 14 were male.

Based on the data from these questions, it was determined that 31 out of 34 (91%) adolescents reported at least one friend. Twenty of these individuals reported having a friend of the opposite gender which results in 59% of the sample reporting a friend of the opposite gender.

Therefore, there was a difference in responses between the open-ended and direct interview questions. In the open-ended question, 94% (32/34) of adolescents said yes to having at least one friend, and 94% of those adolescents (30/32) reported a same gender friend, with only one adolescent (3%) reporting an opposite gender friend only, and only 1 adolescent reporting same and opposite gender friends. In directed questions, 31 out of 34 adolescents, 91% total reported at least one friend. Of these 31 adolescents that reported friends, 29% (9/31) reported same gender friends only, 58% (18/31) reported same and opposite genders, and 13% (4/31) reported opposite gender friends only.

Between the two sets of questions, 10 out of 34 adolescents were consistent in their reporting. Meaning, their report of whether they had friends and the gender of those friends matched between the open-ended and direct interview questions. Of these 10 adolescents, 4 were female and 6 were male. This indicates that 50% of the female participants were consistent across questions and 23% of the male participants were consistent. Table 7 shows the differences between responses in the open-ended and directed questions.

Table 7: Percentage of Adolescents Reporting Friendships

Question	Adolescents Reporting Open-Ended	Adolescents Reporting Directed
Reported at least 1 friend	94%	91%
Same Gender Friends Only	88%	26%
Opposite Gender Friends Only	< 3%	12%
Friends of Both Genders	< 3%	53%

**Percentages reflect percentage of 34 participants rounded to the nearest whole percent*

Question Four

For adolescents with ASD who report having a friend:

- How many of them spent time with or contacted these friends outside of school in the past week?
- What activities did they report engaging in with these friends?
- How did they get to know this friend and how long had they been friends?

For this question, data from direct questions about their best male or female friend were used. Therefore, 31 out 34 adolescent's responses were analyzed, as three participants did not list a friend. Because data was available to do this, the responses were analyzed based on male and female friends. As with the second part of question three, only the first friend listed was analyzed for fear of fatigue and perhaps reporting less information for friends 2-5. Table 8 shows a breakdown of responses to the questions for male friends, female friends, and a total. For each category (male, female, and total) the numbers and percentages reflect the number of adolescents who reported that gender of friend.

Table 8: Adolescents Reporting Contact with Friends Outside of School

Question	**Male Friends (28 reported**	**Female Friends (20 reported)**	**Total (31 reported)**
Contacted outside of school	12 (43%)	7 (35%)	17 (55%)
Spent time in past week	5 (18%)	4 (20%)	8 (26%)
Spend time ever	18 (64%)	10 (50%)	25 (81%)

When asked about male friends, 28 of the 34 adolescents reported having a male friend. Of these 28, 12 of them reported that they had contacted this friend outside of school in the past week. This includes calling, texting, and emailing. Only 5 of the adolescents reported spending time with their male friend outside of school in the past week. Eighteen of the adolescents reported that they had spent time with their male friend outside of school at some point, but not in the past week.

When asked about female friends, 20 out of 34 adolescents reported having a female friend. Of these 20, 7 of them reported that they contacted this individual outside of school in the past week, 4 spent time with them outside of school, and 10 had spent time with them outside of school at some point.

When male and female friends were combined, 31 adolescents reported having a friend. Of these 31, 17 had contacted a friend outside of school in the past week, 8 had spent time with them in the past week outside of school, and 25 had spent time with a friend outside of school at some point.

This information shows that the majority of participants (81%) reported spending time with a friend outside of school at some point, however, only a minority (26%) reported spending time with them outside of school in the past week. This indicates that 74% did not physically

interact with a friend outside of school in the past week. Also, 45% did not interact at all with a friend outside of school including texting, calling, or emailing. If you include adolescents who did not report a friend at all, 26% of adolescents in this study reported not ever spending time with a peer they consider a friend outside of school.

Participants in this study were also asked what activities they engaged in with their reported friends. Based on their responses, there were seven individual categories that emerged. Graph 4 below gives a breakdown of the categories and frequencies with which they were endorsed by participants. Table 9 gives examples that are characteristic of each category.

Graph 4 Activities Engaged in with Friends

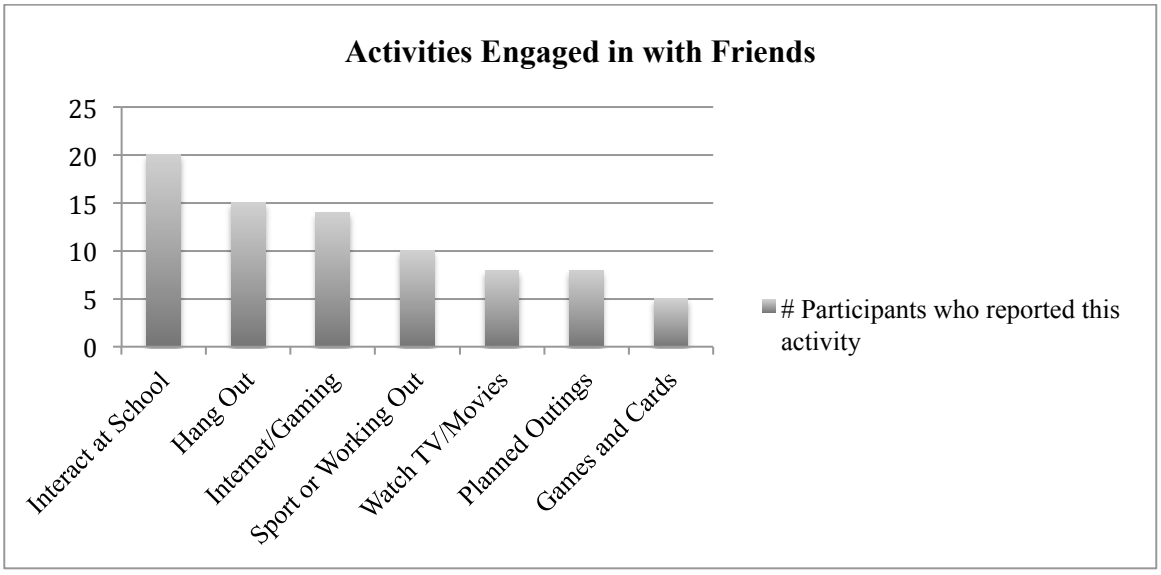


Table 9 Examples of Interactions with Friends

Activity Category	Frequency of Response	Percentage	Examples from Analysis
Interact at School	20	58.8	*"We sit together at lunch"* *"Well we work on projects at school...so I see them in class a lot"* *"Well my friends help me with school. Like they work on projects in like History or Science with me"* *"Um, well he doesn't really, he's not like a come over kind of friend, so I only see him at school"* *"I mostly just see them at school, at home is where I do my own stuff, so I just see them at school"* *"I've got some friends who I eat lunch with. And there's a gaming club at school and we play Magic there"* *"Uh usually I just see them at school, but if there is an event at school I might see them even more there"*
Hang Out	15	44.1	*"We just like to hangout, like spend time together even if we have nothing to do really"* *"We just like to be together and talk"* *"I just go to their house and...I don't know, just hang out I guess? I mean honestly, sometimes we don't really do anything at all"*

			"Honestly, we do a lot of sitting around, talking, and just hanging out"
Internet or Gaming	14	41.2	*"We usually play online at the same time...most of them live far away so that's about all we do"* *"We just play video games mostly, we like that"* *"Usually I play games with a couple guys...there's this one guy that's actually in Japan, but I don't want to say anything more about him"* *"We meet up online and sometimes game, sometimes talk about gaming, or talking about new tips and tricks and stuff like that"*
Sports or Workout together	10	29.4	*"We play basketball or just workout together"* *"We typically like to play sports...like basketball and football"* *"We like to go walking together..."* *"We like to bike together..."*
Watch TV and Movies	8	23.5	*"We watch movies, a lot of movies actually"* *"When we hang out, we like to watch TV"* *"We usually watch movies, or talk about movies we have watched"*

Planned Outing	8	23.5	*"We got to go to the Kalahari for the weekend with our families"* *"We do all kinds of hunting. Dove, pigeons, anything we can"* *"We drive around and go downtown to the shops or to the mall"* *"We like to go do fun things, like laser tag, just regular teenage stuff"*
Games and Cards	5	14.7	*"We usually like to play games together. I like all kinds of games, oh and card games, I am good at those."* *"I like puzzles and board games so that's usually what we do when we are together"*

The most widely referenced activity was interaction at school. Twenty out of 34 (58.8%) adolescents indicated that they saw their friends at school and did things such as sitting together at lunch, working on class projects, or talking in the hallways. The second most prevalent category was "Hang Out" which included reports of adolescents simply spending time together without a designation of specific activity or location. Fifteen adolescents (44.1%), discussed that they like to spend time with their friends regardless of activity, even if they are "doing nothing". Fourteen adolescents (41.2%) indicated that they engaged in Internet gaming or video games with their friends. Responses in this category included adolescents who reported that they played online, had friends who lived far away, and chatting online with people about gaming. Ten

adolescents (29.4%) discussed spending time with their friends playing sports or working out. Activities in this category included basketball, football, biking, and going for walks. Eight adolescents (23.5%) discussed watching movies or television together. Eight adolescents (23.5%) listed planned outings such as hunting, shopping at the mall, laser tag, or water parks. These activities were included in planned outings when adolescents made an explicit comment about setting up the activity. Engaging in board games, puzzles, and cards was also a category, which five adolescents listed. These activities were a separate category than Internet or video games due to adolescents being physically together with their friends to engage in the activity.

The final part of question four examined how adolescent participants met their friends, and the length of time they had known these friends. In terms of where adolescents met friends, there were four separate categories that emerged. The first, and most prevalent was school. The majority, 27 out of 34 participants (79%), listed school as the place where they met their friends. The second category was online, and 9 adolescents indicated that they had met friends online. Only 4 participants indicated that they had met friends through family members or developed friendships through their family's interactions. Of these 4 participants, 2 indicated that their friend was a neighbor and that because their parents were good friends they also became good friends. The other two discussed how their parents had been longtime friends and when they had children, introduced their children. The final category included meeting friends at organized camps or groups. There were 4 adolescents who listed a camp or organized group as the place they had met their friends. The length of time participants reported knowing their friends varied greatly. The length of time was recorded in months. The range was 4 months to 192 months, or 16 years. The mean was 38.57 months, however, the standard deviation for this sample was

38.41, showing great variability in responses. The mode for this data was 36 months, with 9 participants indicating they had known their friends for 3 years.

Question Five

Is there a relationship between (a) participants' descriptions and perceptions of friendship, (b) the number of dimensions reported, (c) the frequency with which they engaged with these friends, and (d) the length of the friendships reported, relative to participant functioning characteristics such as SRS and IQ scores?

To examine the first part of question five, the Wilcoxon Ranked-Sum (Mann-Whitney U) Test was used to address skewed distributions of the FSIQ and SRS scores as evidenced by the Histograms in Figures 2 and.3. As mentioned in the Methods Chapter, only dimensions that had at least 5 participants in each category (i.e. Yes or No) were examined. Table 10 shows the test statistic for each test run as well as the mean rank for each group. For FSIQ, higher scores are associated with higher functioning. For SRS, higher scores are associated with more severe autism symptomology.

Figure 2 Histogram of FSIQ Distribution

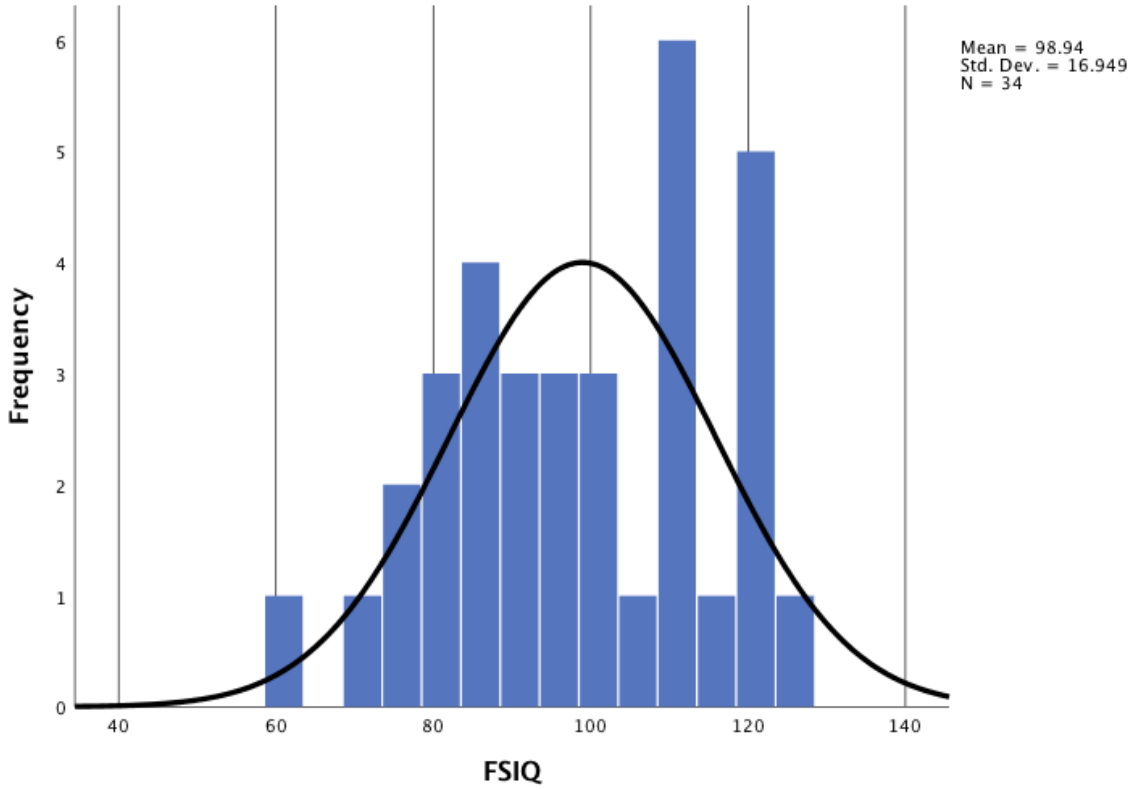


Figure 3 Histogram of SRS Distribution

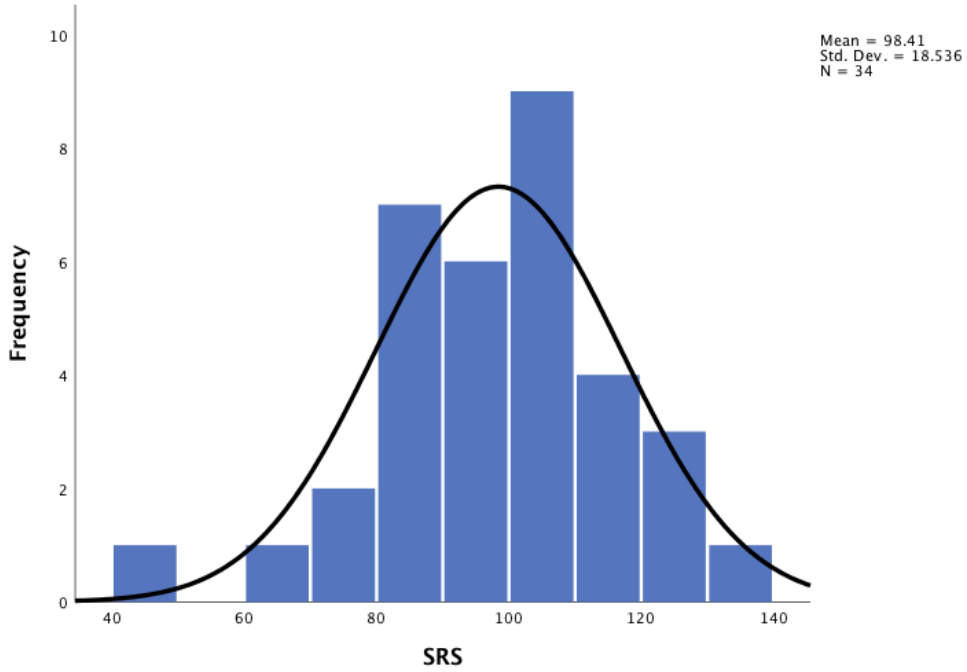


Table 10: Test Statistics for FSIQ and SRS in Relation to Dimensions Endorsed

Dimension	***FSIQ***		***SRS***	
	P value	*Mean Ranks*	*P value*	*Mean Ranks*
Similarity	.097	Yes = 22.22 No = 15.80	.598	Yes = 16.00 No = 18.04
Companionship	.178	Yes = 19.67 No = 15.06	.037*	Yes = 14.14 No = 21.28
Intimacy	.317	Yes = 19.31 No = 15.89	.945	Yes = 17.38 No = 17.61
Support	.059	Yes = 13.64 No = 20.20	.107	Yes = 14.21 No = 19.80
Trust	.256	Yes = 20.13 No = 16.07	.678	Yes = 16.54 No = 18.02
Absence of Negativity	.827	Yes = 16.60 No = 17.66	.108	Yes = 10.90 No = 18.64
Safety	.470	Yes = 19.56 No = 16.76	.390	Yes = 19.94 No = 16.62
IDK	.603	Yes = 15.58 No = 17.91	.082	Yes = 23.92 No = 16.13

**Denotes a significant result*

As the table above shows, the majority of the tests did not result in significant test statistics. In terms of FSIQ, the comparison of the two groups within the Support dimension was approaching significance with a *P* value of .059. In looking through the comparisons of the dimensions in relation to IQ scores, the mean ranks were higher for the "Yes" group for the Similarity, Companionship, Intimacy, Trust, and Safety dimensions. These differences were not statistically significant.

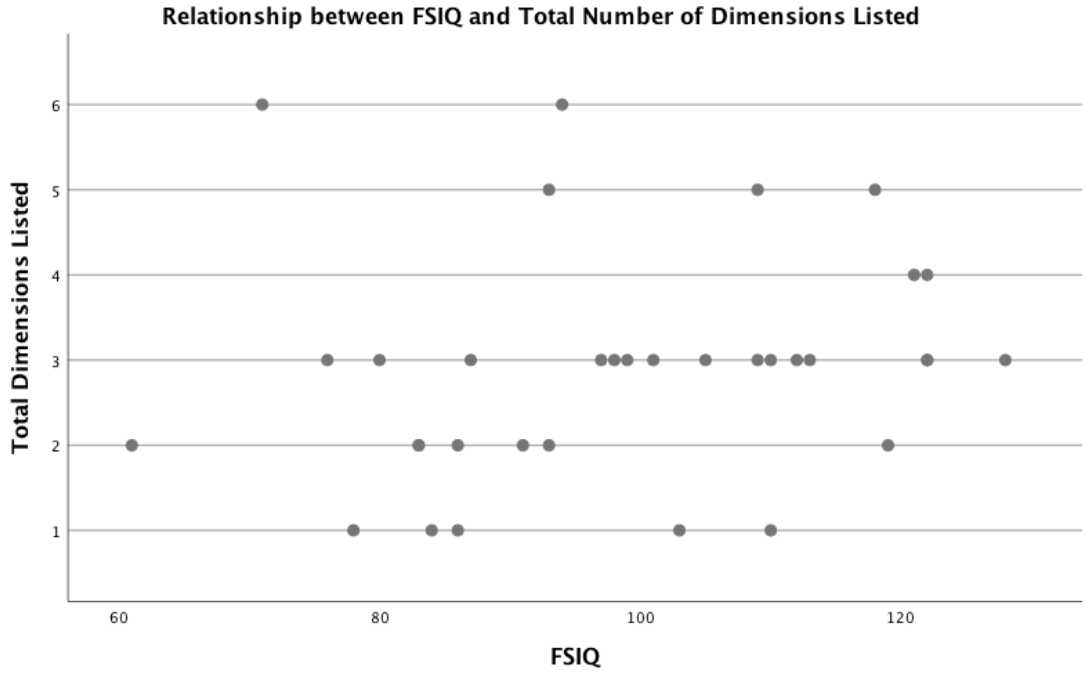
When looking at the results for the SRS group comparisons, only one resulted in a significant difference. This was the Companionship dimension ($p = .037$). In this dimension, the group of participants that endorsed Companionship as an indication of friendship had a mean rank of 14.14 and the group that did not endorse this dimension had a mean rank of 21.28. This means that the median SRS score was lower in the "yes" group, which correlates with less autism symptomology. Other dimensions that resulted in a "yes" group that was lower, but not

statistically significant, include those of Similarity, Intimacy, Support, Trust, and Absence of Negativity.

For the second part of research question five, the relationship between the number of dimensions listed and IQ and SRS scores was examined. Based on this sample, FSIQ scores and the number of friendship dimensions listed have a statistically significant linear relationship ($p < .05$). The direction of the relationship is negative indicating that in this sample as one variable increased, the other decreased. The strength of the association is slightly higher than weak with $r = -.35$. The scatterplot below gives a depiction this relationship.

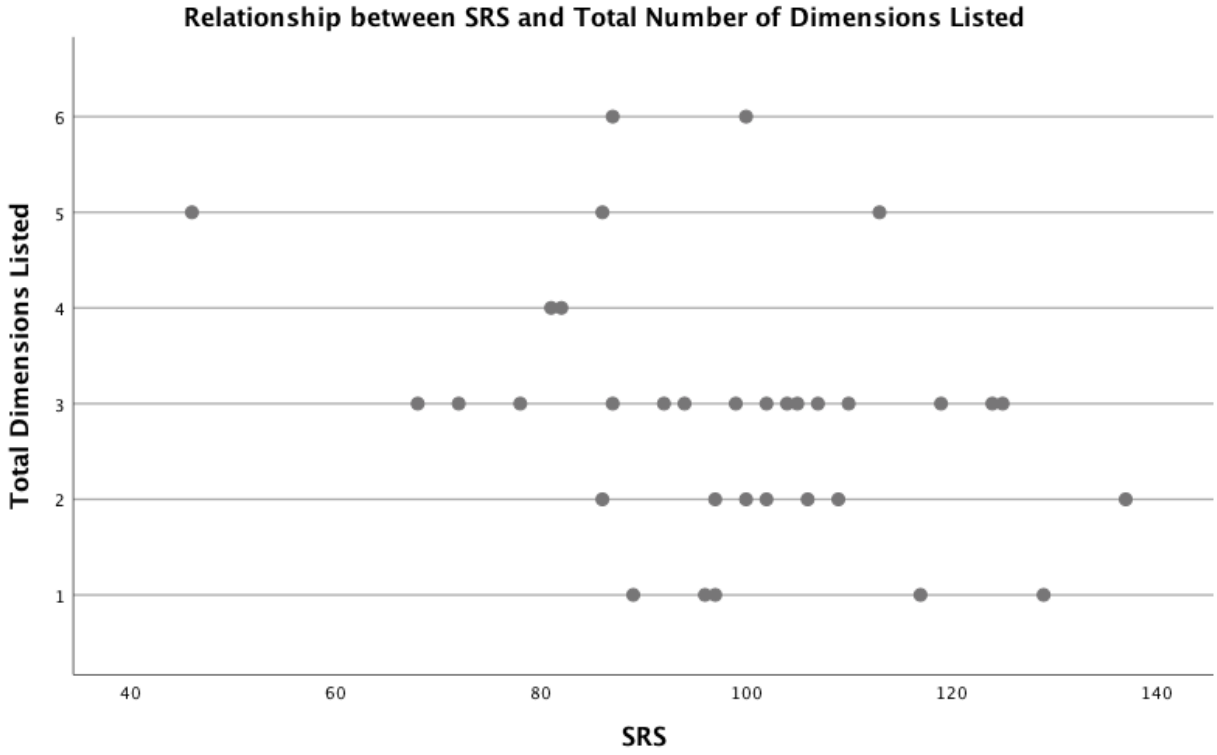
A scatterplot was created for the relationship between SRS scores and the number of dimensions listed. Based on the scatterplot, a significant relationship did not appear to be present. A Pearson correlation test was run and it was determined that there was not a significant relationship present at $p < .05$.

Figure 4: Relationship between FSIQ and Total Number of Dimensions Listed



**This correlation resulted in a significant relationship r = -.35*

Figure 5: Relationship between SRS and Total Number of Dimensions Listed



Part C of question five sought to examine whether there was a relationship between SRS and IQ scores in relation to the amount of time participants spent with friends. When asked about spending time with friends, participants were asked if they had spent time outside of school with female friends in the past week, male friends the past week, female friends ever, or male friends ever. Table 11 shows the results of the Wilcoxon tests for each of these areas.

Table 11: Test Statistics for Engagement with Peers in Relation to FSIQ and SRS scores

Categories	***FSIQ***		***SRS***	
	p value	*Mean Ranks*	*p value*	*Mean Ranks*
Male friend last week	.221	Yes = 18.70 No = 13.59	.568	Yes = 12.50 No = 14.93
Female friend last week	.954	Yes = 10.75 No = 11.06	.748	Yes = 10.00 No = 11.24
Male friend ever	.149	Yes = 16.19 No = 11.45	.212	Yes = 15.97 No = 11.85
Female friend ever	.666	Yes = 11.65	.244	Yes = 9.30

		No = 10.41		No = 12.55

As is seen in the Table 11, none of these tests had significant results. In this sample, participants that reported spending time with male friends in the past week, as well as male or female friends ever, had an overall higher mean rank than individuals than did not, though these differences were not significant. When examining SRS scores, participants that had spent time with a male or female friend in the past week, or a female friend ever had an overall lower mean rank, though these differences were not found to be statistically significant.

Part D of question five examined whether there was a relationship between IQ or SRS scores and the length of time individuals reported knowing their male and/or female friends. Based on this sample, FSIQ scores and the length of time participants reported knowing their best female friends have a statistically significant linear relationship ($p < .05$). The direction of the relationship is positive and indicates that as FSIQ increases so does the length of the friends reported. The strength of the association is slightly higher than weak with $r = .37$. There was not a statistically significant relationship between FSIQ and the length of time participants reported knowing their male friends ($r = -.10$).

Based on this sample, SRS scores and the length of time participants reported knowing their best female friends have a statistically significant linear relationship ($p < .05$). The direction of the relationship is negative indicating that in this sample, as SRS scores decreased, the length of time participants reported knowing their best female friend increased. The strength of the association is weak to moderate with $r = -.39$. There was not a statistically significant relationship between SRS and the length of time participants reported knowing their male friends ($r = .164$).

Chapter 4
Discussion

This chapter discusses the results previously presented and further discusses interpretations of the data. In the current study, over 90% of the participants reported at least one friend, with a variety of dimensions endorsed for what friendship means to them and how they conceptualize a friend or experienced friendship.

Of interest, the themes that emerged to describe friends and friendships aligned almost completely to the dimensions in the existing body of research. While this is surprising given research suggesting that adolescents with ASD struggle with articulating complete dimensions (Bauminger & Shulman, 2003), this study had a sample of adolescents who were verbally fluent and this likely impacted their ability to converse on this topic. Of the 11 dimensions that were included in the previous literature review, 10 emerged in the current study across all respondents. The themes of similarity, proximity, transcending context, companionship, reciprocity, intimacy, support, trust, loyalty, and conflict management were present in one or more participant's description of friendship. The theme of stability, or the idea that friendships persist over time, was not included in any of the participants' responses specifically. However, based on the data collected the mean amount of time that adolescents reported their friendships to have lasted was over three years. In addition, two themes emerged that are not currently present in the existing body of research in relation to friendship, specifically absence of negativity and safety.

In the current study, the majority of participants (85%) included 2 or more dimensions in their description of friendships, with nearly half of the participants (44.1%) endorsing at least three separate dimensions, and a range of 0 to 6 dimensions. The overlap of the dimensions of friendship between the existing body of evidence and the current study suggests that to a degree,

the way that these adolescents understand the concept of friendship is aligned with how neurotypical individuals understand friendship. The majority indicated that friendships are positive experiences that provide a level of companionship and support.

There is also evidence, however, that the understanding and experience of adolescents with ASD differs. It was noted that only two adolescents discussed reciprocity as part of friendship. As discussed previously, reciprocity is one of the cornerstones that has been identified to differentiate friendships from peer acceptance or less intimate social relationships (Bukowski & Hoza, 1989). Friendship, according to existing research, involves a mutual and bilateral relationship with reciprocated positive feelings from both parties involved (Brown, 2004; Bukowski & Hoza, 1989; Hartup, 1996). Based on the adolescents' descriptions of their friendships, reciprocity was not identified as often as other aspects of friendship such as companionship, which over half the adolescents discussed in their responses. Along with companionship, intimacy, support, and trust were the most frequently endorsed themes in this study. These themes, while all independent of each other, include ideas of simply spending time with another, enjoying time with another, and feeling as though you can trust and count on this person. These dimensions indicate a positive and prosocial relationship, but do not include descriptions of these experiences being reciprocal. These findings are consistent with previous research that suggests that compared to typically developing adolescents, those with autism are less likely to state a complete definition of friendship (Bauminger & Kasari, 2000). Adolescents with ASD are more likely to describe a friend as someone with whom they are comfortable around and who shares similar interests (Carrington, Templeton, & Papinczak, 2003) rather than discuss reciprocity and stability (Orsmond et al., 2004). Yet clearly, the dimensions described are

salient, meaningful, and overlap to a large extent with how adolescents without ASD describe friendship.

Existing research indicates there is reason to believe that intellectual functioning and severity of autism symptoms may affect individuals' perception and experience of friendship (Bauminger & Shulman, 2003). However, this study did not find strong evidence to support that idea. There was a weak correlation indicating that as a participant's intelligence quotient increased, the number of friendship dimensions endorsed in their descriptions of friendship actually decreased. There was no relationship found between SRS scores, which gives a measure of autism symptomology and severity, and the number of dimensions listed. In terms of individual dimensions, significant differences were not found in Full Scale IQ or SRS scores between those who endorsed or did not endorse the majority of dimensions. However, in the dimensions of Similarity, Companionship, Intimacy, Trust, and Safety dimensions it was found that individuals who included these dimensions in their description of friendship had slightly higher FSIQ scores than those who did not. When looking at SRS scores, the only dimension that showed a significant difference was that of Companionship. This dimension indicated that the participants that included Companionship in their descriptions of friendship had lower SRS scores, which correlates to less autism symptomology. Again, the majority of dimensions tested showed that the group who endorsed the dimension was associated with a lower SRS score, though these differences were not statistically significant. In considering these results, it is possible that descriptions and perceptions of are not influenced or related to FSIQ or SRS scores. However, it is also possible that there would be more significant relationships if there was greater variation in the sample population's FSIQ and SRS scores. However, participant functioning in these areas was part of the inclusion criteria, so there is most likely less variation

in these scores than in the general population. Therefore, information is incomplete regarding how the severity of ASD symptoms impacts an adolescent with ASD's experience and perception of friendship.

As mentioned previously, two new perceptions of friendship were identified by adolescents with ASD that are not present in the existing friendship research. These were safety and an absence of negativity. It should be noted that while safety and absence of negativity are not specifically included in the dimensions of friendship outlined in the literature, these dimensions are not completely novel to the study of friendship. As previous research indicates, friends often have desirable characteristics such as being nice or kind (Hartup, 1996), and friendship also plays a role as a protective factor from victimization in childhood and adolescence (Bukowski, 2001) as supportive peers are often a deterrent in bullying situations (Holmquist, 2012). In the existing literature, however, peers as a protective factor are considered an effect of friendship and a strong social network (Kloosterman et al., 2013; Malecki & Demaray, 2004), more so than a condition for which it occurs. In the current study, these themes emerged as actual criteria that adolescents used to judge whether or not an individual was a friend. Participants discussed multiple incidents where they had been misled by peers, victimized, or bullied. Based on their accountings, a friend was someone who would not do these things even though other peers would or had, indicating an absence of negativity from friends. They also indicated that friends, in the presence of these situations, would stand up for them rather than join in or be mean along with other students, indicating a feeling of safety. Although, unconditional kindness was not identified by the current study's participants, they discussed that those they consider friends were typically "less mean" than other peers. These findings are consistent with the existing research that suggests that social difficulties in youth with ASD put

them at greater risk for victimization. This can be because of having fewer friends, or friendships that are not reciprocal or supportive in nature, as well as having difficulty relating to peers or effectively communicating (Kloosterman et al., 2013; Malecki & Demaray, 2004; Weisman, K., 2013). Regardless of the reason, the current study indicates that adolescents with ASD experience a great deal of negativity and rejection in their regular peer interactions. These experiences have greatly influenced how these adolescents view social relationships. The interpretation several adolescents in the current study reported was that an absence of negativity and victimization was indicative of friendship regardless of the presence of other characteristics and dimensions typically associated with positive and meaningful social relationships. In this same vain, there were adolescents who reported experiences where peers did not want to spend time with them and made this known. Several adolescents mentioned spending time with friends, but included words such as "willing to" and "actually want." For example, when asked about his friendships one adolescent said, "Well, they voluntarily spend time with you" and another said, "They are willing to see you outside of school. A lot of people won't spend time with me." This is further evidence of the perceived and actual rejection that adolescents on the autism spectrum experience from their peers. This theme is also discussed below relating to how adolescents with ASD delineate a friend from a non-friend. The ability to identify these two important and differing views on what makes a friend is critical to the understanding and promotion of friendship for adolescents with ASD.

While the majority of adolescents in the current study discussed multiple dimensions of friendship and were able to engage in a discussion over what friendship meant to them, there were a percentage of adolescents who expressed uncertainty over what a friend or friendship meant to them, even after being prompted. When asked about friendship, several adolescents

made statements indicating that they have a lack of understanding of what friendship meant to them or had an inability to describe it. Responses also indicated that participants found this to be a difficult question that they were unable to answer. This difficulty with describing friendship is consistent with existing research that suggests that adolescents with ASD are less likely to be able to give a complete description of friendship (Bauminger & Kasari, 2000). In the current study, this difficulty with describing friendship may be attributed to a number of things. First, it may be due to a lack of experience. As noted in the results section, a percentage of the adolescents reported that they did not have any friends, therefore, may not have a working model or definition for what friendship looks like or means to them. This may only apply to some adolescents, however, as there were others who were able to list a friend, but then expressed uncertainty over what a friend means to them. This indicates that the adolescents may have felt that they had a friend, but still did not know how to define these relationships. This may suggest a level of discomfort with talking about the topic or speak to social communication deficits. By definition, individuals with ASD struggle with relating to peers and social communication (APA, 2013; Kloosterman et al., 2013). Therefore, discussing complex social situations, such as friendship, may lead to anxiety, uneasiness, and embarrassment over their lack of understanding or knowledge on the subject. For example, of the 6 participants who reported that they were uncertain of what a friend was 5 of them later reported having at least one friend. Along these same lines, this difficulty defining friendship may indicate a true lack of insight due to social competence difficulties associated with ASD. In some instances, individuals in the current study stated that this was a complex question and one that they had not thought about in detail before. This is likely true and may be an area they are unable to navigate or decipher on their own at this time. Or perhaps it highlights the need to increase engagement and discussion on this topic as

part of the curriculum for children and adolescents with ASD. Finally, this inability to describe may be due to difficulties with limited language abilities or level of intellectual functioning. However, the current study does not support this idea as participant IQ and SRS scores did not result in significant differences in the number of dimensions of friendship described.

Similar to how adolescents described what friendships were, they endorsed a variety of ideas or themes as to how friends differ from non-friends such as peers. Among the most frequently endorsed were Intimacy and Companionship. These dimensions, as listed in Table 5, indicate that these adolescents delineated a friend from a non-friend partially based on feeling closer to a friend and spending time with a friend, versus a peer who they did not spend time with. The other most endorsed theme was that of Uncertainty, which included responses in which adolescents shared that they did not know the difference between a friend and a non-friend or did not know how to explain it. Again, this speaks to the possibility of a lack of insight, a level of discomfort, a lack of experiences, or a lack of discussion sufficient enough to answer this question.

Interestingly an almost equal number of adolescents indicated that Transcending Context (seeing a friend in more places than just school) or Interaction at School alone were a differentiation of friends versus non-friends. This indicates that some of the adolescents recognized that while they interacted with peers at school, these individuals may just be acquaintances versus a true friend. This shows the ability of adolescents with ASD to recognize various levels of social relationships and "being polite" or a general acknowledgement from a classmate does not indicate a meaningful, reciprocal friendship. On the other hand, there were adolescents who stated that classmates did not talk to them or sit by them at school whereas friends did. A possible explanation for this difference comes from a subsequent question about

how often they spend time with friends. A percentage of adolescents (74%) did not spend time with friends outside of school on a weekly basis. Another percentage (26%) had never interacted with a friend outside of school, which may speak to why they would delineate interaction at school as indicative of friendship, particularly when examining these results through the lens of a social relationship framework (Hinde, 1979). In their experience, they did not spend time with friends outside of school. Therefore, their interactions with peers at school were the most complete picture or example they had of what friendship looks like and how they expected interactions with peers to occur in the future.

This last point brings to light an important consideration, which is the amount of time adolescents with ASD are exposed to and interact with peers. Based on existing research, adolescents with ASD are less likely to spend time with peers outside of school on a regular basis, let alone at all, compared to other students with disabilities (The National Longitudinal Transition Study-2 (NLTS2) Wagner et al., 2003; Shattuck, Orsmond, Wagner, Cooper, 2011). While some see this as a lack of interest in peer interaction, it may also be attributed to a lack of opportunity and a lack of peers including students with ASD in social activities (Wagner et al., 2003). In the current study, the majority of participants (81%) had spent time with a friend outside of school at some point, however, only a minority (26%) had spent time with them outside of school in the past week. This indicates that 74% reported that they had not physically interacted with a friend outside of school in the past week. Also, 45% of adolescents with ASD reported that they had not interacted at all with a friend outside of school including texting, calling, or emailing. When you include adolescents who did not report a friend at all, 26% of adolescents in this study had not ever spent time with a peer they consider a friend outside of school. These results differ significantly from typically developing adolescents who report

spending an average of two hours daily with their friends (American Time Use Survey, 2016) and highlight the limited access, accessibility, and/or focus place on the development of friendships for adolescents with ASD. These results indicate that adolescents with ASD are not spending a significant amount of time with peers and therefore not being exposed to or developing age-appropriate interactions and relationships. Often the focus of improving social skills in adolescents with ASD is to teach them social norms and help them develop social competence skills. While this is important, if the focus is devoid of how to develop and cultivate friendship skills in real life settings these adolescents may not have the opportunity to practice and expand these skills. This may limit their quality of life (Helseth & Misvær, 2010) and they may miss out on the opportunity to develop what could be argued is one of the most important developmental milestones of adolescence (Brown, 2004). Furthermore, learning in-vivo or in the moment with peers can also be beneficial as they can see first hand how peers interact with each other, with them, and in response to their social overtures. This is further evidence that interventions involving typically developing peers (i.e. peer-mediated interventions) are beneficial and necessary for adolescents with ASD (Asmus et. al., 2017). Research has consistently found that simply having students with ASD in the same classrooms as typically developing peers often fails to lead to increased social interactions, but utilizing peer-mediated interventions has been shown to be effective (Carter & Asmus, 2009). These interventions not only allow individuals with ASD to develop and practice skills, but when done correctly they can lead to true friendships and not just peer acceptance. Peer acceptance and a lack of victimization are important, but are not the same thing as friendship. The benefits vary between the two and the two terms are merely related, not interchangeable (Bukowski & Hoza, 1989).

This study also resulted in adolescents indicating that some of their experiences with peers were less than ideal. As mentioned above, there were adolescents who indicated that in their experience, peers do not interact with them. Several indicated that peers ignore them in classes, do not sit by them at lunch, and do not spend time with them outside of school. There were also three adolescents who indicated that the difference between a friend and a non-friend was "giving them things." This included giving them "whatever they want," as well as "do whatever they ask." These responses indicate that these adolescents could be at risk for, or are being, victimized when they choose "friends" who take advantage of their willingness to please and do what is asked of them. These results shed light on the importance of not solely focusing on teaching individuals with ASD social competence skills. Rather than focusing on how to "do the correct thing" socially, the focus needs to shift to include how to be safe and aware, and what to do when they feel they are not. Furthermore, it speaks to a need for working with typically developing adolescents on their understanding and acceptance of their peers. Compassion, like other skills, can be taught and learned (Weng, Fox, Hessenthaler, Stodola, & Davidson, 2015), and should be a focus in intervention and education with typically developing peers.

Limitations

There are several limitations of the current study. First, because this was a secondary data analysis, the design was a product of the data available. This limited the scope of the research questions that could be examined. The data collection was completed prior to the proposal of the current study and consequently could not be changed; therefore how the data was used and what questions could be answered from it, were carefully considered. Throughout analysis this limitation was considered and the examiner made note of questions that would have been helpful

to ask and areas that would have been ideally examined. These are included in the discussion about future directions below, but will also be mentioned here.

The qualitative analysis of this data was insightful and helpful to better understand this population's experience of friendship, however, its utility was not as far-reaching as it could have been if the study was not a secondary analysis. Throughout analysis, there were instances where the researcher felt it would have been useful to follow up with a participant to get more information about his/her response(s). It would have also been helpful to obtain observational data of the adolescents interacting with peers and to have interviewed peers identified as friends by adolescents with ASD to determine the perspective from the other side of the friendship equation.

Another limitation was that there was not a comparison group (i.e. group of typically developing adolescents) to determine how similar or different the participants' responses were from their peers. There is research available to describe what adolescents say about friendships and the relationships they have, but a comparison group in this study that was asked the same questions would have provided a clearer picture of whether or not there are true differences between the different groups.

Another limitation was that different individuals conducted the Time 1 Interviews with the adolescents. The interviews were semi-structured in nature, which allowed for open-ended questions and elaboration on the adolescents' parts, but also some differences in interview strategies. While all of the interviewers were trained for data collection, each had various background, experiences, and personalities, which may have led to differences in the level of prompting used and follow-up questions asked. Furthermore, as this was part of a research study, and the topic (i.e. friends and friendships) was a sensitive one for some participants, data

collectors knew to be cognizant of the participants' mood and affect throughout the interviews. Due to differences in skills and previous training, it is possible that some data collectors were more or less sensitive than others and prompted for responses in a different way. It is not believed that this significantly changed the outcome of the study, however, it is possible that some examiners were able to obtain richer or more complete responses to the interview questions than others. Future research would prescribe a more complete sequence and protocol for eliciting information or have fewer individuals completing the interviews for more consistency.

In addition to the interview protocol, it would have been helpful to have measures that quantitatively measured certain aspects of adolescent relationships and friendships and levels of satisfaction within these relationships. While the data collected was used to gain insight into how adolescents with ASD described and experienced friendship, data on friendship satisfaction was not gathered. The ability to understand the extent to which adolescents with ASD were or were not satisfied with the number and/or types of friends and friendships they had is important information that can provide a more complete picture of friendships for these individuals. To a large degree, this is just as important to know in order to guide intervention efforts and understand the needs and desires this population.

The inclusion criteria for the larger research protocol provided a somewhat homogenous sample with limited variability in participant functioning. While this was necessary for the larger study, it may have hindered the ability to see what effect functioning and skills such as FSIQ and SRS scores had on participants' ability to describe, understand, and experience friendship. Future research that evaluates friendship over a wider level of individuals with ASD symptomology will allow for greater understanding and differentiation of experiences, definitions, and importance of friendship for this population.

Future Directions

The current study provides insight into how adolescents with ASD experience and describe friendship. While the results are helpful, they are just the beginning of trying to better understand the needs of this population. The limitations listed above were taken into consideration and future directions to advance this area of study are discussed below.

First, a future study would include a more concrete, specific, and thorough interview about friendship perceptions and experiences. Ideally, a semi-structured interview procedure would be utilized to allow for participants to expand and share information as needed, but also to obtain the specific information being sought. Similar open-ended questions about what friendship means to them would be included in the analysis along with more specific questions related to each dimension and about positive and negative experiences with peers including incidents of victimization or bullying. The study design would include a review of transcripts directly after the interview in order to follow-up with participants as needed for clarification.

In a future study, more data on time spent with peers and the specific activities engaged in would be collected. In addition to asking participants to share how often they spend time with friends generally, they and their parents and school staff would also be asked to log their time spent with peers over a set period of time (i.e. three months). This would allow for a more thorough analysis of the amount of time spent engaging with peers. If feasible, an observation of each participant interacting with peers and/or friends would also be included to get an idea of what these relationships look like from the outside. Ideally follow-up interviews with peers with and without ASD identified as friends would also be included to gain insight about friendship from the other friend in the dyad.

Another measure that would be added would be to measure satisfaction with the friendship relationship. Adolescents with ASD may have friendships that look different than their typically developing peers, but that does not mean they are not as fulfilling or satisfying to the individuals in them. By gathering additional information on how adolescents with ASD feel about their friendships we will be better able to understand how to guide intervention efforts for this population. One way to address this would be to ask open-ended questions about their satisfaction with their friendships. In addition, a Likert-scale for each dimension related to friendship and its importance to them, the level of presence in their friendship, and satisfaction with that dimension and their overall friendship(s) would be used.

Finally, a comparison group would be used. This would allow for thorough comparison of participants with ASD and typically developing peers. It would also allow for information to be gathered on how typically developing adolescents perceive, experience, and understand peers who may have ASD and how that does or does not differ from adolescents with ASD.

Summary

Friendships and peer relationships in adolescence are widely studied topics, with great complexities (Brown, 2004) and a long-standing history of significance (Hall, G. S., 1904). Students with ASD have been found to engage with their peers less frequently and report fewer friendships than typically developing adolescents and this impacts their development, functioning, and long-term outcomes (Carter, Davis, Klin, & Volkmar, 2995; Tantam, 2003). Despite this, there is limited research that focuses on relationships of adolescents with ASD and how they perceive and experience friendship.

The current study aimed to present information related to the perception of friendship from the point of view of the adolescent with ASD, as well as how these perceptions map on to

the existing research on typically developing adolescents' view of friendship in order to better understand and begin to explain friendship in this population.

A mixed-methods approach was used through secondary-data analysis. The results of the current study add to the limited body of research examining friendships of adolescents with ASD in their own words. This study indicates that to a large degree, adolescents with ASD describe friendship using common themes outlined in the existing literature. Adolescents with ASD identified, on average, two of the eleven most common characteristics identified by typically developing peers. The data further indicated that adolescents with ASD experience peer relationships differently than their typically developing peers, particularly surrounding victimization and bullying. In addition to themes that are typically found in the existing literature to categorize friendships, this study resulted in two novel themes including "Absence of negativity" identified by 15% of participants and "Safety" identified by 27% of participants. These themes outlined the participants' experiences with peers who had victimized them, bullied them, or were friends by definition because they were peers who stood up for them when they were being bullied. There did not appear to be significant differences in perceptions or experiences of friendship based on participant functioning characteristics including FSIQ and SRS scores.

The results of this study highlight the importance of developing interventions and curriculum that address the true needs and wants of this population, such as protection from victimization. Based on the current study, it appears that adolescents with ASD do perceive friendship in a similar manner as their typically developing peers, but their experience varies. This study adds to a small body of literature examining friendships of adolescents with ASD in their own words, but it also sheds light on the necessity for continued research on this topic.

REFERENCES

Adams, R. G., Blieszner, R., & De Vries, B. (2000). Definitions of friendship in the third age: Age, gender, and study location effects. *Journal Of Aging Studies*, *14*(1), 117-133. doi:10.1016/S0890-4065(00)80019-5

Adler, P. A., & Adler, P. (1998). *Peer power: Preadolescent culture and identity.* New Brunswick, NJ: Rutgers University Press.

Aikins, J. W., Bierman, K. L., & Parker, J. G. (2005). Navigating the transition to junior high school: The influence of pre-transition friendship and self-system characteristics. *Social Development, 14*(1), 42–60. doi:10.1111/j.1467-9507.2005.00290.x.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.), Washington, D.C.: American Psychiatric Association.

Asher, S. R., Parker, J. G., & Walker, D. L. (1996). Distinguishing friendship from acceptance: Implications for intervention and assessment. In Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (Eds.), *The company they keep: Friendships in childhood and adolescence*, pp. 366–405. Cambridge: Cambridge University Press.

Ashworth, P. and Lucas, U. (2000). Achieving empathy and engagement: A practical approach to the design, conduct, and reporting of phenomenographic research methods. *Higher Education Research & Development, 24*(4), 321-334.

Asmus, J. M., Carter, E. W., Moss, C. K., Biggs, E. E., Bolt, D. M.,...& Weir, K. (2017). Efficacy and social validity of peer network interventions for high school students with severe disabilities. *American Journal on Intellectual and Developmental Disabilities*, *122*(2), 118-137.

Bandura, A. (1977). *Social learning theory*. New York: Prentice Hall.

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.

Barry, C. M., Madsen, S. D., Nelson, L. J., Carrol, J. S., & Badger, S. (2009). Friendship and romantic relationship qualities in emerging adulthood: Differential associations with identity development and achieved adulthood criteria. *Journal of Adult Development*, *16*, 209 – 222.

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

Bauminger, N., & Kasari, C. (2000). Loneliness and friendship in high-functioning children with autism. *Child Development, 71*(2), 447-456. doi:10.1111/1467-8624.00156

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 and Developmental Disorders*, 38, 1211-1229. doi: 10.1007/s10803-007-0501-2

Bauminger, N., & Shulman, C. (2003). The development and maintenance of friendship in high-functioning children with autism: Maternal perceptions. *Autism, 7*(1), 81-97. doi:10.1177/1362361303007001007

Berndt, T. J. (1989). Obtaining support from friends during childhood and adolescence. In D. Belle (Ed.), *Children's social networks and social supports* (pp. 308–330). New York: Wiley.

Berndt, T. J. (1996). Exploring the effects of friendship quality on social development. In W. M. Bukowski, A. F. Newcomb, W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 346-365). New York, NY, US: Cambridge University Press.

Bigelow, B. J. (1977). Children's friendship expectations: A cognitive-developmental study. *Child Development, 48.* 246-253.

Bissonnette, B. (2015). *Helping adults with Asperger's syndrome get and stay hired: Career coaching strategies for professionals and parents of adults on the autism spectrum.* Philadelphia, PA: Jessica Kingsley Publishers.

Brown, B. B. (2004). Adolescents' relationships with peers. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology, 2nd edition* (pp. 363-394). New York: Wiley.

Bukowski, W. M. (2001). Friendship and the worlds of childhood. In Nangle, D. W., & Erdley, C. A. (Eds.), *The role of friendship in psychological adjustment,* pp. 93-104. San Francisco: Jossey-Bass Publishers.

Bukowski, W. M., & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement, and outcome. In Berndt, T. J., & Ladd, G. W., (eds), *Peer Relationships in Child Development*, pp. 101-111. New York: Wiley.

Bukowski, W.M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: The development and psychometric properties of the Friendship Qualities Scale. *Journal of Social and Personal Relationships, 11,*471-484.

Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (1996). Friendship and its significance in childhood and adolescence: Introduction and comment. In Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (Eds.), *The company they keep: Friendships in childhood and adolescence*, pp.1-15. Cambridge: Cambridge University Press.

Burr, W. R., Leigh, G. K., Day, R. D., & Constantine, J. (1979). Symbolic interaction and the family. In W. R. Burr, R. Hill, & I. L. Reiss (Eds.), *Contemporary theories about the family* (Vol 2). New York: Free Press.

Cappadocia, M., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*(2), 266-277. doi:10.1007/s10803-011-1241-x

Carrington, S., Templeton, E., & Paponczak, T. (2003). Adolescents with Asperger syndrome and perceptions of friendship. *Focus on Autism and Other Developmental Disabilities 18*, 211-218.

Carter, E. W., & Asmus, J. A. (2009). Peer support & peer network interventions to improve peer relationships and school engagement. Madison, WI: University of Wisconsin-Madison.

Carter, A. S., Davis, N. O., Klin, A., & Volkmar, F. R. (2005). Social development in autism. In F. R. Volkmar, R. Paul, A. Klin, & D. Cohen (Eds.), *Handbook of autism and pervasive*

developmental disorders: Vol. 1. Diagnosis, development, neurobiology, and behavior. Hoboken, NJ: John Wiley & Sons.

Constantino, J. N., & Gruber, C. P. (2005). Social responsiveness scale. Los Angeles: Western Psychological Services.

Corsano, P., Majorano, M., & Champretavy, L. (2006) Psychological well-being in adolescence: The contribution of interpersonal relations and experience of being alone. *Adolescence* 41, 341–353

Centers for Disease Control and Prevention (CDC). (2014). *Autism Spectrum Disorder, Data & Statistics (Data file).* Retrieved from http://www.cdc.gov/ncbddd/autism/data.html

Daniel, L. S., & Billingsley, B. S. (2010). What boys with an autism spectrum disorder say about establishing and maintaining friendships. *Focus On Autism And Other Developmental Disabilities*, *25*(4), 220-229. doi:10.1177/1088357610378290

Dedoose Version *7.0.23***,** web application for managing, analyzing, and presenting qualitative and mixed method research data *(2017)***.** Los Angeles, CA: SocioCultural Research Consultants, LLC www.dedoose.com.

De Vries, B., L. A. Dustan, and R. E. Wiebe. November 1994. *The Understanding of Friendship Over the Life Course.* Paper presented at the 47th Annual Scientific Meetings of the Gerontological Society of America, Atlanta, GA.

Dunn, Judy. *Children's Friendships: The Beginnings of Intimacy*. Malden: Blackwell Publishing, 2004. 3-160. Print.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing ethnographic fieldnotes* (2nd ed.) Chicago, IL: University of Chicago Press.

Erdley, C. A., Nangle, D. W., Newman, J. E., & Carpenter, E. M. (2001). Children's friendship experiences and psychological adjustment: Theory and research. In Nangle, D. W., & Erdley, C. A. (Eds.), *The role of friendship in psychological adjustment,* pp. 5-23. San Francisco: Jossey-Bass Publishers.

Farley, M. A., McMahon, W. M., Fombonne, E., Jenson, W. R., Miller, J., Gardner, M., et al. (2009). Twenty-year outcome for individuals with autism and average or near-average cognitive abilities. *Autism Research, 2*(2), 109–118.

Feldhusen, J. F., Thurston, J. R., & Benning, J. J. (1970). Longitudinal analysis of classroom behavior and school achievement. *Journal of Experimental Education, 38*(4), 4-10.

Gauze, C., Bukowski, W. M., Aquan-Assee, J., & Sippola, L. K. (1996). Interactions between family environment and friendship and associations with self-perceived well-being during early adolescence. *Child Development,* 67, 2201-2216.

Graziano, W. G. (1984). A developmental approach to social exchange processes. In J. C. Masters & K. Yarkin-Levin (Eds.), *Boundary areas in social and developmental psychology* (pp. 161–193). Orlando, FL: Academic Press.

Hall, G. S. (1904). *Adolescence* (Vols. 1 & 2). New York: Appleton.

Hand, L. S., & Furman, W. (2009). Rewards and costs in adolescent other-sex friendships: Comparisons to same-sex friendships and romantic relationships. *Social Development, 18*(2), 270-287. doi:10.1111/j.1467-9507.2008.00499.x

Hartup, W. W. (1996). Cooperation, close relationships, and cognitive development. In Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (Eds.), *The company they keep: Friendships in childhood and adolescence*, pp. 213-237. Cambridge: Cambridge University Press.

Helseth, S., & Misvær, N. (2010). Adolescents' perceptions of quality of life: What it is and what

matters. *Journal Of Clinical Nursing, 19*(9-10), 1454-1461. doi:10.1111/j.1365-2702.2009.03069.x

Hinde, R. (1979). Towards understanding relationships. New York: Academic Press.

Holmquist, J. (2012). Use positive strategies to protect your child with a disability from bullying. *The Exceptional Parent (Online), 41*, 32-34. Retrieved from http://search.proquest.com.ezproxy.library.wisc.edu/docview/1367559659?accountid=465

Howlin, P., & Goode, S. (1998). Outcome in adult life for people with autism and Asperger syndrome. In F. R. Volkmar (Eds.), *Autism and pervasive developmental disorders* (pp. 209– 241). New York: Cambridge University Press.

Howlin, P., Mawhood, L., & Rutter, M. (2000). Autism and developmental receptive language disorder: A follow-up comparison in early adult life- Social behavioural, and psychiatric outcomes. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 41,* 561–578.

Humphrey, N., & Symes, W. (2011). Peer interaction patterns among adolescents with autistic spectrum disorders (ASDs) in mainstream school settings. *Autism, 15,* 397–419.

Irby, S. M., & Floyd, R. G. (2013). Review of Wechsler Abbreviated Scale of Intelligence, Second Edition. *Canadian Journal Of School Psychology, 28*(3), 295-299. doi:10.1177/0829573513493982

Jones, R. M., Vaterlaus, J. M., Jackson, M. A., & Morrill, T. B. (2014). Friendship characteristics, psychosocial development, and adolescent identity formation. *Personal Relationships, 21*(1), 51-67. doi:10.1111/pere.12017

Kanne, S. M., Randolph, J. K., & Farmer, J. E. (2008). Diagnostic and assessment findings: A bridge to academic planning for children with autism spectrum disorders.

Neuropsychology Review, *18*(4), 367-384.

Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous Child, 2,* 217–250.

Kloosterman, P. H., Kelley, E. A., Craig, W. M., Parker, J. A., & Javier, C. (2013). Types and experiences of bullying in adolescents with an autism spectrum disorder. *Research in Autism Spectrum Disorders, 7(*7), 824-832. doi:10.1016/j.rasd.2013.02.013

Kornienko, O., & Santos, C. E. (2014). The effects of friendship network popularity on depressive symptoms during early adolescence: Moderation by fear of negative evaluation and gender. *Journal Of Youth And Adolescence, 43*(4), 541-553. doi:10.1007/s10964-013-9979-4

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*(4), 481-500. doi:10.1177/1362361311416380

Ladd, G. W., & Kochenderfer, B. J. (1996). Linkages between friendship and adjustment during early school transitions. In Bukowski, W. M., Newcomb, A. F., & Hartup, W. W. (Eds.), *The company they keep: Friendships in childhood and adolescence*, pp. 322-345. Cambridge: Cambridge University Press.

Lambert, N. M. (1972). Intellectual and non-intellectual predictors of high school status. *Journal of Special Education, 38,* 104-110.

Lemerise, E. A., & Arsenio, W. F. (2000). An integrated model of emotion processes and cognition in social information processing. *Child Development* 71, 107–118.

Liptak, G. S., Kennedy, J. A., & Dosa, N. P. (2011). Social participation in a nationally representative sample of older youth and young adults with autism. Journal of Developmental and Behavioral Pediatrics, 32(4), 277–283.

Lord, C., Rutter, M., DiLavore, P. C., Risi, S., Gotham, K., & Bishop, S. L. (2012). *ADOS-2: Autism Diagnostic Observation Schedule Manual Part 1: Modules 1-4* (2nd ed.). Los Angeles, California: Western Psychological Services.

Malecki, C. K., & Demaray, M. K. (2004). The role of social support in the lives of bullies, victims, and bully-victims. In D. L. Espelage & S. M. Swearer (Eds.), *Bullying in American schools: A social-ecological perspective on prevention and intervention* (pp. 211–225). Mahwah, NJ: Lawrence Erlbaum.

Margalit, M. (1994). *Loneliness among children with special needs.* New York: Springer-Verlag.

Marton, F. (1981). Phenomenography: Describing conceptions of the world around us. *Instructional Science*, 10(1981), 177-200.

Marton, F., & Booth, S. (1997). *Learning and awareness*. Mahwah, NJ: Lawrence Erlbaum Associates.

Matheson, C., Olsen, R. J., & Weisner, T. (2007). A good friend is hard to find: Friendship among adolescents with disabilities. *American Journal On Mental Retardation, 112*(5), 319-329. doi:10.1352/0895-8017(2007)112[0319:AGFIHT]2.0.CO;2

McCrimmon, A., & Rostad, K. (2014). Review of Autism Diagnostic Observation Schedule, second edition (ADOS-2) manual (Part II): Toddler module and Autism Diagnostic Observation Schedule, second edition. *Journal Of Psychoeducational Assessment, 32*(1), 88-92. doi:10.1177/0734282913490916

McEwan, M. J., Espie, C. A., Metcalfe, J., Brodie, M. J., & Wilson, M. T. (2004). Quality of life and psychosocial development in adolescents with epilepsy: A qualitative investigation using focus group methods. *Seizure: The Journal of The British Epilepsy Association* 13, 15–31.

Mendelson, M. J., & Aboud, F. E. (1999). Measuring friendship quality in late adolescents and young adults: McGill Friendship Questionnaires. *Canadian Journal Of Behavioural Science, 31*(2), 130-132. doi:10.1037/h0087080

Miles, M. B., Huberman, M., & Saldana, J. (20014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: SAGE Publications.

Miller, P. H. (2002). *Theories of developmental psychology.* New York: Worth Publishers.

Naglieri J, Chambers. 2009. Psychometric issues and current scales for assessing autism spectrum disorders. In Goldstein S, Naglieri JA, Ozonoff S. Assessment of Autism Spectrum Disorders. New York: Guilford Press.

Newcomb, A. F., & Bagwell, C. L. (1995). Children's friendship relations: A meta-analytic review. *Psychological Bulletin, 117,* 306–347.

Ojanen, T., Grönroos, M., & Salmivalli, C. (2005). An interpersonal circumplex model of children's social goals: Links with peer-reported behavior and sociometric status. *Developmental Psychology, 41*(5), 699–710. doi:10.1037/0012-1649.41.5.699.

Ojanen, T., Sijtsema, J. J., Hawley, P. H., & Little, T. D. (2010). Intrinsic and extrinsic motivation in early adolescents' friendship development: Friendship selection, influence, and prospective friendship quality. *Journal Of Adolescence, 33*(6), 837-851. doi:10.1016/j.adolescence.2010.08.004

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.

Orsmond G. I., & Kou, H. (2011). The daily lives of adolescents with an autism spectrum disorder: Discretionary time use and activity partners. *Autism 15*,1-21.

Parker, J. G., & Gottman, J. M. (1989). Social and emotional development in a relational

context: Friendship interaction from early childhood to adolescence. In Brendt, T., & Ladd, G. (eds), *Peer relationships in child development*, pp.131–95. New York: Wiley.

Patterson, B. R., L. Bettini, & J. F. Nussbaum. 1993. The meaning of friendship across the life span: Two studies. *Communication Quarterly 41*: 145-160.

Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development*, *6*(1), 111-135. doi:10.1111/j.1467-9507.1997.tb00097.x

Rutter, M., Bailey, A., & Lord, C. (2003). *Social Communication Questionnaire-WPS SCQ-WPS)*. Los Angeles, CA: Western Psychological Services.

Safilios-Rothschild, C. (1976). A macro- and micro-examination of family power and love: An exchange model. *Journal of Marriage and the Family*, *38*, 355–362.

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). London: Sage.

Sameroff, A. J. (1983). Developmental systems: Contexts and evolution. In P. H. Mussen & W. Kessen (Eds.), *Handbook of child psychiatry*: Vol. 1. History, theories and methods (pp. 237– 294). New York: Wiley.

Sandelowski, M. (2000). Focus on research methods: Whatever happened to qualitative description?. *Research in Nursing and Health, 23,* 334-340.

Schall, C. M., & McDonough, J. T. (2010). Autism spectrum disorders in adolescence and early adulthood: Characteristics and issues. *Journal of Vocational Rehabilitation, 32*(2), 81–88.

Shattuck, P. T., Orsmond, G. I., Wagner, M., & Cooper, B. P. (2011). Participation in social activities among adolescents with an autism spectrum disorder. *Plos ONE, 6*(11), doi:10.1371/journal.pone.0027176)

Smith, L. E., Greenberg, J. S., & Mailick, M. R. (2014). The family context of autism spectrum disorders: Influence on the behavioral phenotype and quality of life. *Child And Adolescent Psychiatric Clinics Of North America, 23*(1), 143-155. doi:10.1016/j.chc.2013.08.006

Sullivan, H. S. The Interpersonal Theory of Psychiatry. New York: Norton, 1953.

Tantam, D. (2003). The challenge of adolescents and adults with Asperger syndrome. *Child Adolescence and Psychiatric Clinics of North America, 12,* 143–163.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups*. New York: Wiley.

Todd, Z., Nerlich, B., & McKeown, S. (2004). Introduction. In Z. Todd, B. Nerlich, S. McKeown, & D. D. Clarke (Eds.), *Mixing methods in psychology: The integration of qualitative and quantitative methods in theory and practice* (pp. 3–16). Hove, East Sussex: Psychology Press.

Uljens, M. (1996). On the philosophical foundation of phenomenography. In G. Dall'Alba & B. Hasselgren (Ed.), *Reflections on Phenomenography* (pp. 105–130). Goteborg: Acta Universitatis Gothenburgensis.

Wechsler, D. (2011). Wechsler Abbreviated Scale of Intelligence, second edition (WASI-II) Manual. San Antonio, TX: The Psychological Corporation.

Weisman, K. (2013). Banishing bullies. School Library Monthly, *30*(1), 39-41.

Weiss, R. S. (1974). The provisions of social relationships. In Rubin, Z. (Ed.), *Doing unto others.* Englewood, NJ: Prentice Hall.

Welsh, Elaine (2002). Dealing with Data: Using NVivo in the Qualitative Data Analysis Process. Forum: Qualitative Social Research, *3*(2), Art. 26, http://nbn-resolving.de/urn:nbn:de:0114-fqs0202260.

Weng, H. Y., Fox, A. S., Hessenthaler, H. C., Stodola, D. E., & Davidson, R. J. (2015). The role of compassion in altruistic helping and punishment behavior. *PLoS One, 10*(12) doi:http://dx.doi.org.ezproxy.library.wisc.edu/10.1371/journal.pone.0143794.

Wilkerson, K. L., Perzigian, A. B., & Schurr, J. K. (2014). Promoting social skills in the inclusive classroom. In K. R. Harris & S. Graham (Eds.), *What Works for Special-Needs Learners*. New York, NY: The Guilford Press.

APPENDIX A- IRB Approved Consent Form

UNIVERSITY OF WISCONSIN-MADISON
Research Participant Information and Consent Form

Title of the Study: Transitioning Together: An Intervention for Adolescents with ASD and their Families

Principal Investigator: Leann E. Smith, PhD (phone: 608-890-1390) (email: lsmith@waisman.wisc.edu)

DESCRIPTION OF THE RESEARCH

You are invited to participate in a research study about a new program for families of adolescents with autism spectrum disorder (ASD). You have been asked to participate because you have a son or daughter with ASD between the ages of 14 and 17 years. The purpose of the research is to evaluate an education and support program for parents of teenagers with ASD. By participating, you will be able to provide us with valuable insights regarding how to best design and implement programs for families with teenagers on the autism spectrum.

WHAT WILL OUR PARTICIPATION INVOLVE?

If you agree to be in this study, we will ask you and your child to participate in four different ways: (1) the first interview visit, (2) individual family sessions, (3) group sessions, and (4) the second interview visit. After participating in the first interview visit, you will be assigned to either an initial group or a wait-list group on a random or chance basis. You will have an equal chance of being assigned to either group. Families in both groups will have the opportunity to participate in all parts of the program. The initial group will participate in individual and group sessions immediately

following the first interview, whereas the wait-list group will be invited to participate in these sessions after completing the first and second interviews. If you decide to participate, your involvement would include:

1) The first interview visit: The first interview will last for approximately 2 hours. During the visit you will participate in an interview and complete a self-administered questionnaire. In both the interview and the questionnaire we will ask you questions about characteristics of your family member with ASD, your family relationships, your community involvement, and your health and well-being. The interview will be audio recorded in its entirety and a brief section will be transcribed. This section will ask you to describe your family member with ASD, which will allow us to "get to know" him or her from your perspective. Also during the first interview visit, we will conduct an assessment with your son or daughter with ASD, asking questions about his or her friendships, activities, and goals about adulthood. We will also directly test the level of your son or daughter's cognition and autism symptoms, which will be video recorded for data monitoring and reliability purposes. This first interview visit will take place at the Waisman Center. On the Tuesday and Wednesday following the first interview visit, we will also ask you to complete a Home Saliva Collection Kit in which you will provide 3 saliva samples and indicate your level of daily stress each day. You will return the kit to us using a postage-paid envelope.

2) Individual family joining sessions: You will be invited to attend two individual family sessions where you will get to know the program facilitators prior to meeting with other families during the group sessions. During these individual family meetings you will have a chance to share about your experiences with your son or daughter as well as to tell us what you hope to get out of participating in the program and what information might be most useful for you. These sessions may be audio recorded to document the intervention process and treatment fidelity. If you choose not to be audiotaped, the session will proceed normally without any audio-recording. These sessions will last approximately one and a half hours and will take place at the Waisman Center.

3) Group sessions: You will also be invited to participate in group meetings with other families who have an adolescent son or daughter with ASD. There will be 8 weekly group sessions which will last for approximately one and a half hours. During these sessions you will hear from experts on topics such as transition planning and behavior management. You will also have opportunities to talk with other families and to learn about how to support your son or daughter as they make the transition from adolescence into adulthood. Your son or daughter will also be invited to participate in a social skills group at the same time that you are participating in the group meetings. At the end of each session you and your son or daughter will be asked to give feedback about the session and your thoughts about the program. These sessions may be recorded to document the intervention process and treatment fidelity. If you choose not to be audiotaped, the session will proceed normally without any audio-recording.

4) The second interview visit: The second interview will last for approximately 2 hours. During the visit you will participate in an interview and complete a self-administered questionnaire. The questions in the second interview and questionnaire will be similar to those in the initial interview. Also during the second interview visit, we will conduct an interview with your son or daughter with ASD, asking questions about his or her friendships and activities, but we will not do any direct testing of cognition or autism symptoms. This

second interview visit will take place at the Waisman Center. On the Tuesday and Wednesday following the second interview visit, we will also ask you to complete a Home Saliva Collection Kit in which you will provide 3 saliva samples and indicate your level of daily stress each day. You will return the kit to us using a postage- paid envelope.

All activities as part of this research, including interviews and intervention sessions, will take place at the Waisman Center at the University of Wisconsin-Madison. As few as 2 and up to 19 hours will be required for study participation. Data will be retained for future use.

ARE THERE ANY RISKS TO ME AND MY CHILD?

There are no risks to participating in this study beyond those experienced in everyday life. Some of the topics we discuss during the interviews and group sessions may remind you of difficulties you may face as a family member of an individual with ASD. Reflecting on these stresses may cause some sadness or mild discomfort. However, these feelings typically subside almost immediately or shortly after the interview or session. Also, many people find that they feel better after having an opportunity to share their feelings and ideas with someone else. There also are no known risks to measuring cortisol levels in saliva.

ARE THERE ANY BENEFITS TO ME AND MY CHILD?

We hope that the group sessions will have benefits for you and your family in the form of new knowledge for supporting your family member with ASD and the connections you may make with other families. Although there may not be any direct benefit for you or your family, we believe that what we learn in this study will be very important for planning future programs that will be helpful for families and their adolescents with ASD. In this way, we believe that many other families may benefit from your participation in this project.

WILL WE BE COMPENSATED FOR OUR PARTICIPATION?

You and your child will each receive $10 for completing the first interview visit and $10 for completing the second interview visit.

HOW WILL OUR CONFIDENTIALITY BE PROTECTED?

We consider everything you tell us to be strictly confidential, and so we will protect your privacy in several ways. Your answers will not be shared with anyone else including your family members. Your responses will not be identified by name; instead, only an identifying number will be used on all forms. Only project staff will have access to the forms and audiotapes for coding and research purposes. All forms and audiotapes will be kept in locked offices for the duration of the project. You or your family members will never be named or personally identified in any way in these reports. All data will be reported in aggregate form so that you cannot be identified. Information you provide will only be used for research purposes.

If you participate in this study, we would like to be able to quote you and your child directly without using your name. If you agree to allow us to quote you in publications, please initial the statement at the bottom of this form. If you agree to be audiotaped, please initial the statement at the bottom of this form.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research you should contact the Principal Investigator Dr. Leann Smith at 608-890-1390.

If you are not satisfied with the response of research team, have more questions, or want to talk with someone about your rights as a research participant, you should contact the Education Research and Social & Behavioral Science IRB Office at 608-263-2320.

You and your child's participation is completely voluntary. If you decide not to participate or to withdraw from the study it will have no effect on any services or treatment you are currently receiving.

Your signature indicates that you have read this consent form, had an opportunity to ask any questions about your participation in this research and voluntarily consent for you and your child to participate. You will receive a copy of this form for your records.

Name of Participant (please print):_____

_____ _____

Signature Date

_____ Date I give my permission to be quoted directly in publications without using my name.

_____ I give my permission to be audiotaped.

_____ I give my permission to be videotaped.

APPENDIX B- IRB Approved Assent Form

UNIVERSITY OF WISCONSIN-MADISON
Research Participant Information and Assent Form

Title of the Study: Transitioning Together: An Intervention for Adolescents with ASD and their Families

Principal Investigator: Leann E. Smith, PhD (phone: 608-890-1390) (email: lsmith@waisman.wisc.edu)

DESCRIPTION OF THE RESEARCH

You are invited to participate in a research study about a new program for families of teens with autism spectrum disorder (ASD). You have been asked to be part of the study because you are between the ages of 14 and 17 years and have an autism spectrum disorder. The purpose of the research is to evaluate an education and support program for families of teenagers with ASD.

WHAT WILL MY PARTICIPATION INVOLVE?

If you agree to be in this study, we will ask you to do four things: (1) the first interview visit, (2) joining sessions, (3) social group sessions, and (4) the second interview visit.

1) The first interview visit: The first interview will last for approximately 2 hours. We will ask you questions about your friendships, activities, and goals about adulthood. This part of the interview visit will be video recorded. This first interview visit will take place at the Waisman Center.

2) Joining sessions: You will be invited meet with the study team before beginning the group sessions. These sessions will take about one and a half hours. These sessions may be recorded. If you choose not to be recorded, the session will proceed normally without any audio-recording.

3) Social group sessions: You will also be invited to participate in a social group with other teenagers your age who are on the autism spectrum. There will be 8 weekly group sessions which will last for about one and a half hours. During these sessions, you will participate in games and other fun activities and learn about social skills. At the end of each session you will be asked questions about the session and your thoughts about the program. These sessions may be audio recorded. If you choose not to be audiotaped, the session will proceed normally without any audio-recording.

4) The second interview visit: The second interview will last for about 2 hours. During the visit we will ask you questions about your friendships and activities.

All activities as part of this research, including interviews and intervention sessions, will be at the Waisman Center at the University of Wisconsin-Madison.

There are no risks to participating in this study beyond those experienced in everyday life.

We hope that the group sessions will have benefits for you in the form of new knowledge about social skills and the connections you may make with other teens.

You will receive $10 for completing the first interview visit and $10 for completing the second interview visit.

HOW WILL MY CONFIDENTIALITY BE PROTECTED?

We consider everything you tell us to be strictly confidential, and so we will protect your privacy in several ways. Your answers will not be shared with anyone else including your parents or other family members. Your responses will not be identified by name; instead, only a number will be used on all forms. All forms and audio and video tapes will be kept in locked offices for the duration of the project. You or your family members will never be named in these reports. Information you provide will only be used for research purposes.

If you agree to allow us to quote you in publications, please initial the statement at the bottom of this form. If you agree to be audiotaped or videotaped, please initial the statement at the bottom of this form.

WHOM SHOULD I CONTACT IF I HAVE QUESTIONS?

You may ask any questions about the research at any time. If you have questions about the research you should contact the Principal Investigator Dr. Leann Smith at 608-890-1390.

Your participation is completely voluntary. If you decide not to participate or to withdraw from the study it will have no effect on any services or treatment you are currently receiving.

Your signature shows us that you have read this consent form, asked any questions, and voluntarily consent to participate.

Name of Participant (please print: _____

Signature Date

_____ I give my permission to be quoted directly in publications without using my name.

_____ I give my permission to be audiotaped.

_____ I give my permission to be videotaped.

APPENDIX C: TT Screening Protocol

Transitioning Together
Telephone Screening Form

Date/Times of calls:

BEFORE PLACING THE CALL:

a) Review the Family Information Sheet.
b) Have the Family Information Sheet available as you make the call.
c) Use the scripts below and fill in the necessary information on the screening form. Make any changes in address, phone, etc. as you talk to the respondent.
d) Use a pencil so you can erase and clarify your notes after the phone call is complete.
e) Remember to smile while you talk. It helps your voice sound friendly.

NOW YOU ARE READY TO MAKE THE CALL:

"Hello, may I please speak with ____?" ("Is this ____?") "This is (your name) from the Waisman Center at UW-Madison. I'm calling about the Transitioning Together Study. You may remember recently _____ (attending the day with the experts/emailing Leann Smith/calling our office) and asking for more information about participating. Is this a good time to chat? I wanted to tell you a bit about the program and ask a few questions to see if your family qualified to be in the study. It will take about 30 minutes? Is that OK?"

(If NOT a good time to talk, ask when might be a better time to talk.)

"As you may remember from _____ (day with the experts/seeing our flier), the Transitioning Together program is an 8 week education and support program for parents as well as a social group for teens. Is this still something you might be interested in participating in?" (If yes). "Great. I need to ask you a series of questions about your family to see if you qualify. OK?"

(If NOT interested any more, thank them, say we understand ____ reason, and let them know they can contact us at anytime. "thank you, goodbye.")

ADMINISTER SCREENER:

"First, I wanted to double check that I have your information correct. Your child's name is _____, and I have down that _____(child's name) father/mother as _____, and you live at _____." (Double check all info)

1. First and Last Name of Parents:

Mother: _____

Father: _____

Child: _____

Home Address: Home Phone:

Cell Phone:

Email: Best time to reach:

Is there a number you would prefer us to call?
Would you rather us email you or call you? Or does it not matter?
And just to double check for the purposes of this study, would you be the main contact or would _____(father/mother's name)?

2. How did you hear about the study?

3. ADMINISTER FAMILY GRID (ASK QUESTIONS FOR EACH CHILD)

"Ok. Now I am going to ask a few questions about your children, starting with your oldest child. What is the first name of your oldest child. And your next child? And your next child? Ok. Great. Now, starting with _____ (oldest child), what is his/her birthday?"

(If gender isn't clear, ask gender. Ask all questions for each child).

a. What is child's name?
b. What is child's gender?
c. Is child your biological, adopted, or step-child?
i. If step-child, are you a legal guardian?
d. What is child's date of birth?

e. What is child's date of death?
f. Does child have any of the following conditions:
- ASD (to explain: autism spectrum disorder—including Aspergers, autism, PDD-NOS, intellectual disability (to explain: sometimes referred to as mental retardation or cognitive disability), learning disability, ADHD, psychiatric disorder (to explain: a diagnosis of anxiety, depression, bipolar disorder), genetic disorder (to explain: Fragile X syndrome, Down syndrome), or other

g. Where does child currently live? With you?
h. Is child currently enrolled in school?
i. What grade is child in?

4. SELECT TARGET CHILD (14-17 years with ASD, lives at home, enrolled in school).

(If the family has more than one child with ASD between the ages of 14 and 17 who live at home with parents and is enrolled in school, ask the remaining screening questions for both children. If both children still meet all inclusion criteria and both want to participate, flip a coin to determine the target child. Both children may attend intervention sessions.)

DETERMINE IF TARGET CHILD MEETS THE CRITERIA ASKED IN GRID:

- If parent is not the child's legal guardian, then DOES NOT QUALIFY
- If child is not between 14 and 17 years of age, then DOES NOT QUALIFY
- If child does not live at home with parents, then DOES NOT QUALIFY
- If child is not currently enrolled in school, then DOES NOT QUALIFY

5. Do you have documentation from a health care professional confirming that your son/daughter has an autism spectrum disorder? Do you have a copy of your child's IEP? We will need you to provide us with copies of these records. (EITHER IS OK, do not need both, but if they offer it that is fine)

_____ (0) no _____ (1) yes

Record info here:

FOR THIS PARTICULAR STUDY, THE TEENAGERS WILL BE PARTICIPATING IN A SOCIAL GROUP THAT INVOLVES VERBAL INTERACTIONS WITH OTHER TEENS. I NEED TO ASK A FEW QUESTIONS ABOUT YOUR TEENS LANGUAGE AND LEARNING SKILLS TO SEE IF HE/SHE IS ELIGIBLE FOR THIS CURRICULUM.

6. Can you tell me a little about how SON/DAUGHTER communicates? Is he/she able to talk using short phrases or sentences? Is he/she able to have a to and fro conversation? Is he/she use sentences with two clauses?

____ no (DOES NOT QUALITY) ____yes

7. How much time does your son/daughter spend in the regular education classroom? (You also might ask if the child is going to be receiving a regular diploma or if they will be receiving a special education certificate. When in doubt, if the child doesn't have an intellectual disability (from family grid), then they are likely either in a reg ed class or accessing general educ curricula for about the amount of time we are looking for.)

(If there is a question, let the family know that sometimes it can be hard to have a clear sense of the type of curriculum or placement for students at this age and you will either check back with the research team and/or have the principal investigator call them back.)

- If it is not clear you can say: OK, well it sounds like school is kind of a tricky situation, so let me check with the research team on this, and the PI, Leann Smith, will get back in touch with.

- Reason for this question: We use a lot of visuals, often have things written down, and have a sort of question and answer type of format in group, so we just want to make sure that the teens that come to the group sessions can participate.

    - if less than 50%, then DOES NOT QUALITY

8. ADMINISTER SCQ FORM AND SCORE
* If they are talking a lot during their answers you can say: Thank you so much for giving me such great information about _____(child's name), I really appreciate it. At the same time, I just wanted to let you know that we are just trying to get a quick glance into _____(child's name) history, and in the follow up interview we will ask you questions that will allow you to go much more in depth.

(IF TOTAL SCORE IS LESS THAN 14, then DOES NOT QUALITY)

9. Finally, to participate in the current study, one parent or legal guardian must be able to complete the interviews before and after the intervention as well as to attend every weekly group session. Your son or daughter will also need to be able to participate. Based on our past experience, it is important that families attend ever week, as consistent attendance helps parents get to know the other parents and the teen to feel comfortable with the other teens. If the son or

daughter is sick or does not want to attend on a given week, at least one parent should still attend.

The next group will be meeting on DATE [Monday nights from 6:00 to 7:30] starting in either MONTH or MONTH. Since this is a research study, we have a waitlist control design, meaning that all families will participate in the exact same program but you will either start the program in MONTH or MONTH. Given this schedule, will your family be able to participate in both the interviews and the weekly intervention sessions?

____ no ___ yes

If parent reluctant about the time commitment or not sure if teen will participate:

We understand that you want some time to think about this and you may want to talk it over more with your son or daughter. Do you want to think about it and get back to us after you have had time to consider this as a family? If now isn't a good time for you to participate, you could be in the program at a later time (e.g., in the summer/fall group instead of spring group).

If parent is unsure if teen will want to come every time:

We know that often teens are hesitant about joining a group. This is why we meet individually with your family before the group starts so we can get to know your teen and hear what he/she likes to do (e.g., types of games/interests and favorite snacks) so we can make the group as fun as possible for your individual teen. To be in the study it's important that your son/daughter at least agree to participate initially and try out the group. If he/she does not want to continue participation, we will respect that choice. As with any research, he/she always has the right to not answer any questions or participate in parts of the program if he/she chooses not to do so. However, we know that families get the most out of being in the program when they make a commitment to attend every week.

FOR THOSE WHO QUALIFY

Thank you for taking the time to answer these screening questions. You and your family meet the qualifications to be included in the study. Do you think this is something you would be interested in participating in at this time? If so, would you like to schedule a time to do the initial visit to the Waisman Center with you and your teen? The initial visit at the Waisman Center involves an interview for you and an assessment for your teen and will last approximately 2 hours. We can be very flexible in schedule a time that will work well for you and your family. We would like to see you within the next two weeks. Is there a day that works well for you? Nights and weekends are OK as well.

Questions/Concerns/Comments:

Date/Time Waisman visit scheduled:_____
* If they say they want to come the next night you can say: We typically send information in the mail beforehand but if that works best for you we might be able to make that work.

Thanks so much for your willingness to participate in the study. We will be sending you a packet in the mail with more information about the study, including copies of the consent form for you to read and sign as well as directions to the Waisman Center. Do you have any other questions for me at this time? Thank you again and we look forward to seeing you and _____ on _____. Goodbye."

FOR THOSE WHO DO NOT QUALIFY

EXCLUDED DUE TO PARENT NOT BEING THE LEGAL GUARDIAN: Thank you for your interest in the Transitioning Together Study. We can only take families for whom the parent is the legal guardian. Since this is a research study, the parent is required to consent not only for their own participation but also for the participation of the child. If you cannot legally consent for the child, then he or she cannot participate. Thank you again for contacting us and have a good day.

EXCLUDED DUE TO AGE: Thank you for your interest in the Transitioning Together Study. At this time we are focusing on families who have children between the ages of 14 and 17 years. However, we may be offering similar types of studies the future which you and your family might qualify for. Would you like for me to keep your name on a list to be contacted when a new program becomes available? Thank you again for contacting us and have a good day.

EXCLUDED DUE TO NOT LIVING WITH PARENT: Thank you for your interest in the Transitioning Together Study. At this time we are focusing on families who have a child currently living with them at home. Thank you again for contacting us and have a good day.

EXCLUDED DUE TO NOT ENROLLED IN SCHOOL: Thank you for your interest in the Transitioning Together Study. At this time we are focusing on families who have a child who is currently enrolled in school. Thank you again for contacting us and have a good day.

EXCLUDED DUE TO NOT BEING IN REGULAR EDUCATION: Thank you for your interest in the Transitioning Together Study. At this time we are using a social skills curriculum that has a high level of verbal and learning demands. However, we are hoping to test other types of curricula in the future that would be appropriate for a wider range of teens, which you and your family might qualify for. Would you like for me to keep your name on a list to be contacted when a new program becomes available? Thank you again for contacting us and have a good day.

EXCLUDED DUE TO NOT MEETING ASD: Thank you for your interest in the Transitioning Together Study. At this time, our curriculum is designed for teens with autism symptoms that are more significant than your child's and you do not meet criteria to participate in this study. However, we are hoping to test other types of curricula in the future that would be appropriate for a wider range of teens, which you and your family might qualify for. Would you

like for me to keep your name on a list to be contacted when a new program becomes available? Thank you again for contacting us and have a good day.

CANNOT MAKE MONDAYS: We ask that you be able to commit to this particular day at this time but this program will be going on for 18 months, and there will also be groups in July and September if that night does not work for you. Are you interested in starting in the summer?
IF YES
Great, we will keep your information and re-check in with you in the future.

IF TEEN IS HESISTANT TO COMMIT: Yes, I completely understand this concern. For this study we would really like teens to try, and really just do their best to come. At this point we just want to know that they will try, and we will make sure to incorporate their own special interests as much as we can. The reason we are asking for teens to come regularly is because the entire program will have more of an impact on them, because they will become more familiar and comfortable with the group over time, and overall the group will work better. At the same time we will respect their decision, and if they are unable to make it, we still would like you to come participate in the parent group.

TIPS FOR OTHER ISSUES THAT MAY ARISE

IF PARENT ASKS IF CERTAIN SUBJECT WILL BE ADDRESSED IN GROUP: "We will talk about a variety of things in the course of the program and these are the kinds of things that will be great for you to bring up. Thank you for sharing this with me as I know once you are in the program we will be talking about that more."

IF PARENT IS OFF TASK OR HAVING TROUBLE DECIDING ON AN ANSWER: Wait until an appropriate break in the conversation and then reassure parent that we are only wanting to know their perspective and that there is no right or wrong. Thank them for sharing and that at this time we only need a yes/no response but we will be asking for more specific information as part of the program. See if they feel that there response is "closer to yes or closer to no."

IF PARENT ASKS ABOUT CHILDCARE FOR OTHER CHILDREN: Indicate that at this time we do not have childcare available for other children. However, if they need to bring the other child to the initial assessment, that is OK.

IF PARENT ASKS ABOUT COVERING THE COSTS OF TRAVEL TO THE WAISMAN CENTER: Let the parent know that for doing the initial visit at the Waisman Center both the parent and the teen will receive $10 as a small thank you and a way to offset travel costs. However, at this time we cannot reimburse for travel to the weekly sessions. If this seems like it might be a barrier, don't promise but say that is something you will get back to them about.

APPENDIX D: Time 1 Interview Materials

Transitioning Together Study

Time 1
– Adolescent Interview –

- Wechsler Abbreviated Scale of Intelligence (WASI)
- Autism Diagnostic Observation Schedule, 2nd Edition
- Friends and Activities Questions
- Adulthood Goals

FRIENDS AND ACTIVITIES QUESTIONS

The next questions are about your friends. I will ask you for their names in order to keep track of them, but we will use only their initials. Please tell me the names of your BEST MALE FRIENDS (up to 5 best male friends).

(1) What is [friend]'s name?
(2) Does [friend] go to school?
(3) Does [friend] go to your school? (code for same school, different school, etc)
(4) What grade is [friend] in?
(5) How long have you been friends?
(6) Did you go to [friend]'s house during the past 7 days?
(7) Did you meet [friend] to hang out or go somewhere during the past 7 days?
(8) Did you spend time with [friend] during the past weekend?
(9) Did you talk to [friend] about a problem during the past 7 days?
(10) Did you talk to or text [friend] on telephone during the past 7 days?
(11) Did you send email, play online games, or post/chat online during the past 7 days (e.g. facebook, twitter)?

	Name	In school 1=yes	School Type	School Grade	How long friends	Go to friends house 1=yes	Hang out 1=yes	Time on weekend 1=yes	Talk problems 1=yes	Talk phone 1=yes	Interact Online 1=yes
1											
2											
3											
4											
5											

1 = YES, 0 = NO

SCHOOL TYPE:
1 = same school
2 = different school: elementary school
3 = different school: middle school
4 = different school: high school
5 = different school: college
8 = NA: not in school

Please tell me the names of your BEST FEMALE FRIENDS (up to 5 best female friends).

(1) What is [friend]'s name?
(2) Does [friend] go to school?
(3) Does [friend] go to your school? (code for same school, different school, etc)
(4) What grade is [friend] in?
(5) How long have you been friends?
(6) Did you go to [friend]'s house during the past 7 days?
(7) Did you meet [friend] to hang out or go somewhere during the past 7 days?
(8) Did you spend time with [friend] during the past weekend?
(9) Did you talk to [friend] about a problem during the past 7 days?
(10) Did you talk to or text [friend] on telephone during the past 7 days?
(11) Did you send email, play online games, or post/chat online during the past 7 days (e.g. facebook, twitter)?

	Name	In school 1=yes	School Type	School Grade	How long friends	Go to friends house 1=yes	Hang out 1=yes	Time on weekend 1=yes	Talk problems 1=yes	Talk phone 1=yes	Interact Online 1=yes
1											
2											
3											
4											
5											

THESE NEXT QUESTIONS HAVE TO DO WITH HOW YOU SPEND YOUR TIME AND THE ACTIVITIES YOU MIGHT LIKE TO DO.

1. During the past week, how many times did you:

	Not at all	1 or 2 times	3 or 4 times	5 or more times
Do work around the house, such as cleaning, cooking, laundry, yardwork, or caring for a pet?				
Do hobbies, such as collecting baseball cards, playing a musical instrument, reading, or doing arts and crafts?				
Watch TV or videos or play video games?				
Go roller-bladding, roller-skating, skate-boarding, or bicycling?				
Play an active sport, such as baseball, softball, basketball, soccer, swimming, or football?				
Do exercise, such as jogging, walking, karate, jumping rope, gymnastics, or dancing?				
How many times did you just hang out with friends?				

2. At this time, do you participate in any clubs, organizations, or teams, either through school or outside of school?

_____ yes _____ no

If yes, please describe.

_____

_____

APPENDIX E- Sources of data for analysis

The questions that will be included in the analyses are below. It should be noted that these questions are pulled from a larger interview protocol and the order below does not reflect the exact order of the interview questions.

Questions from the ADOS-2 that will be used in analysis include:

- *Do you have some friends? Can you tell me about them?*
- *What do you like doing together? How did you get to know them? How often do you get together?*
- *What does being a friend mean to you? How do you know someone is your friend?*
- *How is a friend different from someone you just go to school with?*

Questions from the Friends and Activities Questionnaire (for both Male and Female friends) include:

(1) What is [friend]'s name?
(2) Does [friend] go to school?
(3) Does [friend] go to your school? (code for same school, different school, etc)
(4) What grade is [friend] in?
(5) How long have you been friends?
(6) Did you go to [friend]'s house during the past 7 days?
(7) Did you meet [friend] to hang out or go somewhere during the past 7 days?
(8) Did you spend time with [friend] during the past weekend?
(9) Did you talk to [friend] about a problem during the past 7 days?
(10) Did you talk to or text [friend] on telephone during the past 7 days?
(11) Did you send email, play online games, or post/chat online during the past 7 days (e.g. Facebook, Twitter)?