Identifying Social Deficits Using the Social Thinking Dynamic Assessment Protocol

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ABSTRACT

The use and interpretation of appropriate social skills are necessary for successful functioning in everyday life. For individuals with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), impaired social functioning often has a detrimental impact on everyday life situations. While it is evident that many students struggle with social communication, it is often difficult to assess these deficits when determining the need for services in the educational setting. Formal assessments present a challenge in evaluating a student's social thinking ability. Furthermore, many students with disorders in which social impairment is characteristic often present with average to above average intelligence and perform well on standardized assessments, making it difficult to justify the need for intervention even though their deficits in social aspects of communication are readily apparent.

The purpose of this study is to investigate the effectiveness of the Social Thinking Dynamic Assessment Protocol in identifying deficits as well as differences in social functioning among three groups of students with ASD, ADHD, and typically developing students. Results showed marked differences in social functioning between the group with ASD and the control group. Results also indicated areas of deficit in the group with ADHD. Similarities in deficits were noted between the groups with ASD and ADHD. The findings from this study support the use of an informal dynamic assessment when evaluating social skill ability in students with suspected deficits. Improving assessment methods for identification of social skill impairment is likely to benefit students with ASD, as well as students with ADHD and other developmental disorders not typically

treated for social impairment because it will allow for more in-depth investigation into social and cognitive functioning aspects of social language use.

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DEDICATION

This dissertation is dedicated to the memory of my Nana Glenda. You always believed in me and knew I could do this. You are loved beyond words and missed beyond measure.

Chapter I

INTRODUCTION

Of all the parameters of language development, social communication is perhaps the most intriguing yet subjective component. Knowledge and use of social communication is necessary in all life experiences, yet many individuals face challenges with appropriate pragmatic language ability. Deficits in social language impact not only one's interpersonal relationships with others, but also academic success, work related performance, and participation in a variety of social contexts throughout the lifespan.

For individuals with Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD), impaired social functioning often has a detrimental impact on everyday life situations. Skills and knowledge about the social world that develop naturally in most people do not develop as intuitively in persons with ASD or ADHD. For students with ASD, impaired social functioning is a core symptom and defining characteristic of the disorder (Rogers, 2000; White, Keonig, & Scahill, 2007). Unlike children with typical development, children with ASD often demonstrate deficits in social functioning and orienting; limited play, sharing, and joint attention; and impaired imitation of others. In addition, impairments are noted in social reciprocity, verbal and nonverbal communicative behaviors, conversational skills, topic maintenance, listening, and understanding subtleties of social interactions. Many students with ASD have average to above average intelligence and language skills, suggesting that their deficits in social functioning are distinct from these skills. Often, school age students

continue to struggle with social competence throughout the adolescent years (Sigman & Ruskin, 1999). For those with ADHD, deficits in social functioning are mainly thought to be attributed to impulsivity and inattention (Hoza, 2007; Staikova, Gomes, Tartter, McCabe, & Halperin, 2013). Social deficits in these individuals are evidenced by impairments in initiating conversation, participating in reciprocal conversation, appropriately regulating and demonstrating emotions, and interpreting verbal and nonverbal cues, including perspective taking. For students with developmental disorders in which impaired social functioning is characteristic, everyday life situations can be challenging.

The theories of central coherence, theory of mind, and executive function guide the understanding and exploration of social cognition, as well as help identify and describe the social challenges that students with ASD and ADHD face on a daily basis. In short, the theory of central coherence explains the processes that individuals use to organize and prioritize information and comprehend the larger context in which it occurs. Students with ASD often fail to "see the big picture" which leads to fragmented perceptions (Dakin & Frith, 2005). Deficits in join attention skills in children with ASD are also explained by the theory of central coherence. As a consequence of weak central coherence, the inability to understand the world in a centrally cohesive manner leads individuals with ASD to interpret their world in a fragmented way, which then leads to deficits in their understanding and functioning within social contexts and meaning (Pina, Flavia, & Patrizia, 2013). Deficits in central coherence have also been documented in students with ADHD. Difficulties with impulse control lead to weak response inhibitions. Similar to those with ASD, individuals with ADHD tend to focus on the details and fail

to grasp the whole picture, which then prohibits the ability to maintain attention to a task for extended periods of time (Solomon, Ozonoff, Cummings, & Carter, 2008).

Theory of mind describes the ability to understand the thoughts, feelings, and intentions of others. For students with ASD and ADHD, this often results in a lack of understanding and empathy towards others who may have differing thoughts, feelings, or intentions. Theory of mind has also been linked to tasks that require inhibitory control and, as a consequence, pragmatic processing, empathy, and perception of emotions in others (Bignell & Cain, 2007; Caillies, Bertot, Motte, Raynaud, & Abely 2014).

The theory of executive function refers to one's ability to plan, organize, sustain attention, and inhibit inappropriate responses or control impulses. In order to understand and use social skills appropriately, students must be able to regulate emotions, control impulses and refrain from saying things they shouldn't say, shift between topics, use flexible thinking, and monitor their own responses and behaviors. Studies have shown that individuals with ASD and ADHD have similarities in executive function ability, including decreased response inhibition and similar levels of prefrontal lobe activation during executive function tasks (Xiao, Xiao, Ke1, Hong, Yang, Su, Chu, Xiao, She, & Liu, 2012).

Based on these underlying cognitive theories, Winner (2007) describes social cognitive deficits as a combination of learning disabilities that are unique but overlapping and suggests that addressing these deficits as a series of learning disabilities helps clinicians better understand the struggles of students with these deficits. While it is evident that many students struggle with social communication and interacting with peers in socially acceptable ways, it is often difficult to assess these weaknesses within the

context of underlying social cognition and given the limitations of static, formal assessments. Current formal assessments cannot accurately evaluate a student's level of social thinking ability or social cognition (Winner, 2007). Furthermore, many students with disorders such as ASD or ADHD often present with average to above average intelligence and perform well on standardized assessments. Students may demonstrate knowledge and understanding of social rules but still fail to use social language in appropriate ways to interact with others in their environment. These elements cannot be adequately captured with a static, formal assessment.

Improving assessment methods, including the use of dynamic assessments, for identification of social skill impairment is likely to benefit students with ASD, ADHD, and other developmental disorders because it will allow for more in-depth investigation into social thinking and cognitive functioning aspects of social language. Improved assessment methods will also lead clinicians to more appropriate intervention methods as assessment will focus on the application of social skills knowledge.

Chapter II

REVIEW OF THE LITERATURE

Development of Communication

The development of language involves multiple cognitive processes that extend beyond simple speech production and comprehension (Perna, Loughan, Northington, & Perkey, 2015). Components of phonology, morphology, syntax, semantics, and pragmatics follow a developmental path that eventually branches into a means for broad communication, including gestures, social and affective interactions with others, as well as facilitation of learning and thinking skills (Perna et al., 2015). Language also involves many social functions and is a highly complex construct that guides the entire human experience (Perna et al., 2015).

Typical Language Development. Regardless of culture or language background, individuals from around the world follow a similar path of language development. Infants begin learning communicative gestures and develop lexical understanding through exposure to both verbal and nonverbal parental expressions (Goldin-Meadow, Levine, Hedges, Huttenlocher, Raudenbush, & Small, 2014; Locke, 1997). Socially relevant cognitive linguistic operations such as vocal turn-taking with a caregiver, gesturing, and mimicking speech patterns all assist in introducing infants to word learning and communication (Locke, 1997; Tsao, Liu, & Kuhl, 2004). At the same time that infants are making significant gains in receptive language acquisition, they also experience growth in expressive language skills. During the toddler and preschool years, children

progress quickly from using one word utterances to three-, four-, and five-word sentences. Children also begin to learn the structures of speech and acquire grammatical ability, which provide the foundation necessary for morphology, phonology, syntax, and lexicon mastery (Locke, 1997). During the elementary school years, vocabulary, grammar, metalinguistic awareness, and pragmatics all continue to experience dramatic growth (Perna et al., 2015). At the same time, children's social communication skills are intuitively developed through observation of and interaction with others in their environments.

Social Language Development. Good communication skills are a prerequisite for good social skills. Social communication can be defined as a collection of skills for the purpose of participating successfully in a variety of social situations and interactions (Cacioppo, 2002). Social skills are essential for the formation of relationships with others and for the ability to function and participate successfully within one's environment and community (Cacioppo, 2002). Disruption to social skills can lead to problems such as psychological distress, social isolation, poor self-esteem, and overall reduced quality of life (Beauchamp & Anderson, 2010). For typically developing children, development of social communication begins before the age of two and continues through adolescence, reflecting a dynamic interaction between the individual and his/her environment (Beauchamp & Anderson, 2010). Early in development, infants begin to participate in their first social interactions through direct gaze with caregivers (Beauchamp & Anderson, 2010). By 2-3 months of age, infants begin to initiate social interactions, show preferences, and recognize various visual and auditory stimuli (Beauchamp & Anderson, 2010; Kelly, Quinn, Slater, Lee, Gibson, Smith, & Pascalis, 2005; Legerstee, Anderson,

& Schaffer, 1998; Rochat & Striano, 2002). At 7 months of age, infants are able to differentiate between affect in faces and voices of others (Beauchamp & Anderson, 2010; Grossmann, Striano, & Friederici, 2006). One of the most important building blocks of social communication is the development of joint attention, which emerges around 9 months of age (Beauchamp & Anderson, 2010). Joint attention is considered to be a prerequisite to the development of more complex social cognition, including theory of mind, because it paves the way for children to develop the ability to understand the thoughts and intentions of others, which emerges in the early toddler years (Baron-Cohen & Ring, 1994; Beauchamp & Anderson, 2010).It also leads to later discovery of coordinating ideas and other internal mental states (Vernon, Miller, Ko, & Wu, 2016). According to Brune and Brune-Cohrs (2006), the development of one's own mental state and the recognition of others' mental states follows a distinct sequence. By the age of four, children have learned how to self-regulate their own behavior in an effort to build relationships and engage in play with peers (Didow & Eckerman, 2001; Vernon et al., 2016). This ability, along with the development of theory of mind, is a predictor of later success with friendships and relationship skills (Slomkowski & Dunn, 1996; Vernon et al., 2016).

Underlying Theories Impacting Social Development

There are three major theories that guide the exploration of social cognition and social language development (Winner, 2007). These theories also help describe the social learning challenges that many students face. The following sections will discuss the theories of central coherence, theory of mind, and executive function and how these theories relate to the development of social cognition and social skills in students.

Theory of Central Coherence. The theory of central coherence refers to the ability to gather information from a smaller context into a centrally coherent whole, as well as interpret the meaning of information or actions taking place within that context (Pina et al., 2013). Central coherence impacts a wide range of psychological functions and development, including perception, language, and social skills (Pina et al., 2013). Frith (1989) argued that both social and behavioral symptoms observed in students with ASD could be a direct result of weak central coherence. He further stated that without a strong ability for coherence, students with ASD are unable to integrate information to make sense of his or her social world, resulting in "an incoherent world of fragmented experience" (Frith, 1989, p. 93). Winner (2007) states that these students often think in individual parts and are not able to relate these pieces of information to a larger pattern of behavior or thought. The theory also argues that students present with a conceptual learning disability that impacts their oral and written communication abilities, such as summarizing, writing cohesively, and recognizing expectations (Winner, 2007), all of which can negatively impact students both socially and academically. Based on this theory, students with ASD lack the ability to organize and integrate acquired knowledge and skills in order to make it meaningful or useful in real world situations. For students with ADHD, central coherence deficits are exhibited through difficulty with impulse control, response inhibition, and cognitive perseveration, inhibiting the ability to maintain attention to and concentration on a task (Pina et al., 2013; Solomon et al., 2008). Similar to students with ASD, students with ADHD may also have difficulty processing stimuli within a given context and relating it to a larger whole (Pina et al., 2013).

Studies have investigated central coherence ability in students with ASD and ADHD and explored its relationship to executive function and theory of mind. Pellicano (2010) stated that students with ASD have a "tendency for processing local elements at the expense of global meaning" (p.531). Differing patterns of emergence of central coherence have also been documented, showing that students with ASD demonstrate weak central coherence early in development (Pellicano, 2010).This is evidenced by impairments in joint attention, including initiating as well as responding to others' directives (Pina et al., 2013). Deficits in joint attention, along with the inability to process environmental stimuli within the appropriate context, negatively impact the development of theory of mind for students with ASD as well as ADHD (Chevallier, Noveck, Happe, & Wilson, 2011; Pina et al., 2013). The assumption then becomes that weak central coherence negatively impacts the development of other important functions, including executive function and theory of mind.

The early development of theory of mind tasks, such as joint attention, are dependent upon the integration and coordination of verbal and nonverbal cues including eye gaze, body language, and pointing (Pellicano, 2010). Students with weak central coherence ability have difficulty integrating visual cues to achieve joint attention with another person (Pellicano, 2010). Given their deficits in attention and impulsivity, children with ADHD struggle to attribute mental states to others and are unable to appropriately interpret and relate meaning within a given context (Pina et al., 2013). Because joint attention skills are considered precursors to the continued development of theory of mind throughout childhood, it is reasonable to conclude that deficits in central

coherence could greatly impact the ability to understand and consider another person's mental states (perspective taking) in students with ASD and ADHD.

Theory of Mind. Theory of mind describes a person's ability to understand and identify the thoughts, feelings, and intentions of other people. For students with ASD, the inability to understand and consider that other people have thoughts, feelings, and intentions different from their own often results in a lack of empathy or understanding of others. Russell & Grizzle (2007) found that executive function deficits in self-regulation lead to misunderstanding of mental concepts, which establishes a link between executive function and theory of mind. Theory of mind describes this inability to attribute mental states to others as a fundamental deficit in students with ASD (Baron-Cohen, 1989). Burnette, Mundy, Meyer, Sutton, Vaughan, & Charak (2005) stated that the ability to represent another person's thoughts or feelings is essential to understanding the social behavior of others and to the development of one's own theory of mind and social cognitive skills. This inability to instinctively track what another person is thinking about or knows during interactions impacts essentially every aspect of personal interaction.

Research has confirmed that children with ASD present with deficits in theory of mind. In a study conducted by Baron-Cohen, Leslie, and Frith (1985), 20% of children with ASD were able to predict the ideas of others when given a theory of mind test while 100% of comparison subjects were able to do so. Similarly, deficits in theory of mind have been reported in adolescents and adults with ASD as well (Baron-Cohen, O'Riordan, Jones, Stone, Jones, & Plaisted, 1999; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). For students with ADHD, theory of mind ability has been linked to tasks that require inhibitory control which could lead to other theory of mind skills,

including pragmatic processing (Caillies, et al., 2014). Other studies have reported evidence of social cognition challenges in students with ADHD, particularly in perception of emotions and pragmatic processing, theory of mind, and empathy (Bignell & Cain, 2007; Caillies et al., 2014). In addition to theory of mind weaknesses, students with social cognition challenges also present with impairments in executive function.

Theory of Executive Function. Executive function can be described as the air traffic control center of the brain and includes skills such as planning, organizing, sustaining attention, and inhibiting inappropriate responses. Executive function skills help the brain perform as a cohesive unit, resulting in more purposeful and fluid responses to interpersonal and environmental demands (Gioia, Isquith, Guy, & Kenworthy, 2000). In order to understand and use social skills appropriately, students must be able to regulate their emotions, control impulses to keep themselves from saying things they shouldn't say, shift between topics, use flexible thinking, and monitor their own responses and behaviors. If students struggle with these executive skills, then they will most likely have difficulty with peer relationships, even if they have a discrete set of "social skills" (Winner, 2007).

Executive function impairments such as inhibition, working memory, flexibility, planning, setting attention, and maintaining attention are observed in students with ASD (Roelofs, Visser, Berger, Prins, Van Schrojenstein Lantman-DeValk, & Teunisse, 2015). Executive function deficits have also been regarded as a causal factor for the repetitive and restrictive behavior patterns, as well as the social interaction difficulties, in students with ASD (Brady, Saklofske, Schwean, Montgomery, Thorne, McCrimmon, 2017). Barkley (1998) created a model that delineates specific areas of executive function

impairment in students with ADHD. These include verbal working memory, non-verbal working memory, self-regulation, and reconstitution. He proposed that deficits in these four main areas lead to the social deficits that define ADHD. Due to impulsivity and impairment in self-regulation, students with ADHD rarely take time to plan tasks, and often have difficulty analyzing and sequencing smaller steps needed to complete larger tasks (Barkley, 2006; Johnson & Reid, 2011). In addition to its impact on social communication, executive function deficits are prevalent in students with ADHD and can detrimentally impact academic performance, particularly in the areas of planning, organizing, and maintaining effort on tasks (Johnson & Reid, 2011). A major component of executive function is inhibitory control. A study conducted by Xiao et al. (2012) found similar dysfunction in inhibition in participants with ASD and ADHD. From a behavioral perspective, participants in both groups demonstrated impaired response inhibition and increased errors as compared to a control group when given various inhibitory tasks (Xiao et al., 2012). These researchers also found correlations in brain imaging between the participants with ASD and ADHD, indicating a similar decreased level of right prefrontal lobe activation as compared to control participants.

The elements in these three theories culminate to form one's social cognition. In turn, social cognition impacts an individual's ability to perform and manage day to day tasks and processes (executive function), the ability to take another person's perspective (theory of mind), and the ability to see the whole as a sum of parts (central coherence). Together, these skills can help or hinder a person's ability to function appropriately and successfully in society. In summary, the concept of social cognition attempts to explain how people learn and use certain behavioral patterns. The environment, the people within

that environment, and the behaviors being exhibited all influence one another and thus the people who are observing (Winner, 2007).

Social Communication

Social skills are at the heart of every human interaction, both direct and indirect. For most people, social skills are not explicitly taught but rather are learned through observation, intuition, and what is considered to be the cultural norm. Good social skills are often described by particular pragmatic abilities such as turn taking, maintaining a conversational topic, using appropriate proximity and eye contact, and recognizing emotions. However, these descriptions lack attention to a larger and highly subjective concept that involves whether or not a person has good social skills based on how he or she is perceived by others, regardless of whether or not any speaking is taking place (Winner, 2007). While the term social skills is often loosely defined by terms and concepts such as turn-taking, maintaining conversational topic, reading nonverbal cues, eye contact, recognizing emotions in others, and proximity, a more appropriate definition should include more than just a set of discrete skills. Winner (2007) describes social skills as the ability to adapt effectively to others across a variety of contexts. The understanding that social skills also involve social adaptability and effective interpretation of the thoughts, feelings, and desires of others points to the importance of social skills not only during interactions with others, but also for other contexts such as effectively sharing space with others or working at a job (Winner, 2007).

While individuals may differ in their social skill abilities, perception of others, and the way others perceive them, there are particular developmental disorders associated

with social skill impairment. ASD and ADHD are among the most prominent developmental disorders in which social skills are a primary feature.

Autism Spectrum Disorder

A brief overview of the symptoms of ASD indicates the presence of social skill deficits to be perhaps the most salient feature of the disorder and, in fact, the primary symptom from which the disorder arises (Rogers, 2000; White, et al., 2007). Burnette et al. (2005) defined ASD as a pervasive developmental disorder characterized by impairments in three domains: communication, behavioral flexibility, and social interaction. The revised definition of ASD outlined in the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition(DSM-V)* states that those with ASD exhibit persistent deficits in social communication and interaction across multiple environments manifested by challenges in the following areas: social-emotional reciprocity, nonverbal communicative behaviors necessary for social interaction, and deficits in developing, maintaining, and understanding social relationships with others (DSM-V; American Psychiatric Association [APA], 2013). The new diagnostic criteria accounts for the social and behavioral deficits associated with pervasive developmental disorders. The definition also provides for the occurrence of ASD with or without an accompanying language disorder or intellectual disability.

The communicative deficits exhibited by students with ASD are well documented in the literature. Students with ASD may demonstrate impaired social functioning and orienting, limited play and joint attention, limited sharing, and impaired imitation of others, all skills that students with typical development master at a very young age (Anderson, Moore, Godfrey, & Fletcher-Flinn, 2004; Bernier, Webb, & Dawson, 2006;

Hamilton, Brindley, & Frith 2009). Social communication deficits also include impairments in aspects of social reciprocity and verbal/nonverbal communicative behaviors for purposes of social interaction. Students exhibit conversational limitations, difficulty with topic maintenance, and poor management of reference for listeners (Adams, Gaile, Lockton, & Freed, 2015). Students with ASD have difficulty in understanding the subtleties of social interactions, such as reading social cues. In addition, students exhibit restricted, repetitive behaviors, interests, or activities manifested by stereotyped, repetitive speech, movement, or use of objects, as well as hyper- and/or hypo-sensitivity to sensory input.

Social Challenges in Adolescents with ASD. Adolescents with ASD often present with social communication skills that are inadequate for the increasingly complex social world that they will face as young adults (Gutstein & Whitney, 2002; Hendricks & Wehman, 2009; Vernon, et al., 2016). These deficits in social skills are not directly related to their level of intelligence or language ability (Bauminger & Kasari, 2000; Vernon et al., 2016). A longitudinal study by Sigman and Ruskin (1999) found that a group of students with high functioning autism (HFA) continued to demonstrate challenges with social competence throughout their adolescent years. Adolescents with ASD are also at a higher risk for increased anxiety and depression due to struggles with social interactions (Vernon et al., 2016).While social challenges are a defining characteristic of ASD, students with other disorders, such as ADHD, also present with social communication challenges.

Attention Deficit Hyperactivity Disorder

ADHD is a neurodevelopment disorder that is characterized by inattention, hyperactivity, and impulsivity. Approximately 11% of school age students between the ages of four and seventeen have received a diagnosis of ADHD, with numbers increasing each year (Centers for Disease Control [CDC], 2017). According to the most recent definition presented by the DSM-V, children up to age seventeen must exhibit six or more symptoms of inattention and hyperactivity/impulsivity for at least six months and to a degree which is no longer considered to be developmental in nature (APA, 2013). Symptoms of inattention include failure to pay close attention to details or making careless mistakes; failure to hold attention to tasks or activities; appearance of not listening when spoken to; failure to follow through on directions, tasks, or chores; difficulty with organization; reluctance to complete tasks that require thought and effort over a period of time; frequent loss of personal items; frequent distractibility; and frequent forgetfulness during daily tasks. Symptoms of hyperactivity or impulsivity include fidgeting, tapping, or squirming behaviors; leaving his/her seat often when remaining still is expected; feelings of restlessness; difficulty participating in tasks or activities quietly; excessive talking or blurting out; difficulty waiting for his/her turn; and interrupting or intruding on others often. Diagnosis according to the new definition also requires that the following conditions be met: presence of several symptoms before age twelve; presence of several symptoms in two or more settings (home, school, work); clear evidence that symptoms negatively impact the individual's quality of school, work, or social functioning; and symptoms cannot be attributed to another mental disorder (CDC, 2017).

Social Challenges in Adolescents with ADHD. Academic and social impairments across the lifespan have been attributed to ADHD. Particularly in adolescence, ADHD negatively impacts academic achievement (Johnson & Reid, 2011; Sibley, Altszuler, Morrow, & Merrill, 2014) and social relationships with others (Staikova et al., 2013). Impulsivity and inattention are thought to account for the social skill difficulties in students with ADHD (Hoza, 2007; Staikova et al., 2013). Students often have difficulty with skills such as reciprocal conversation, initiating conversation, emotional regulation, appropriate demonstration of their own emotions, and interpretation and use of both verbal and nonverbal cues given by others, including visual perspective taking (Ratcliffe, Wong, Dossetor, & Hayes, 2015). These deficits are associated with difficulty in self-regulation and inattention (Fine, Semrud-Clikeman, Butcher, & Walkowiak, 2008). Students with ADHD have also been found to have fewer reciprocated friendships with peers (Staikova et al., 2013). These deficits can have a detrimental effect on students' self-esteem, particularly during the adolescent years, as well as on prognosis for adulthood.

Before appropriate intervention can be implemented, a thorough and comprehensive evaluation must be conducted to determine specific areas of social cognitive weakness. Formal assessments present a unique challenge for identification of social cognitive impairment in students with social skill deficits.

Assessment of Social Skills

The Individuals with Disabilities Education Act of 2004 (IDEA) outlines policies and procedures when conducting evaluations and assessments of students with suspected disabilities. These evaluations should be comprehensive, individualized, and

multidisciplinary in nature as they have major educational and legal significance. According to IDEA, a comprehensive evaluation should: (1) assess all areas of suspected disability; (2) include a variety of assessment tools to obtain relevant information on the student's academic, functional, and developmental abilities; (3) avoid the use of any single procedure as the only criterion for determining the presence of a disability or the need for specialized services; (4) include assessments that will evaluate the student's intellectual and behavioral skills in addition to physical and developmental skills; and (5) utilize evaluation tools and strategies that will provide the eligibility team with relevant information to assist in the decision making process when determining the needs of the student.

In addition to the federal regulations outlined by IDEA, special education eligibility guidelines in the state of Georgia indicate that multiple evaluation and assessment procedures should be utilized when considering the need for specialized services (Georgia Department of Education, 2016). One such guideline states that a communication evaluation should include assessment of verbal and non-verbal language, prosody, and pragmatic language ability using a combination of formal and informal procedures. In order to qualify for services in most educational settings, assessments must indicate that a student's deficits are severe enough to warrant specialized services and that these deficits negatively impact a student's educational performance (Winner, 2007).

Formal Assessment of Social Skills

According to eligibility requirements outlined by Georgia law, inclusion of standardized assessments is an essential part of the eligibility process in the educational

setting. Formal assessments are relatively easy to administer, have established reliability and validity, and utilize research-based norms.

It is important for a comprehensive evaluation of social communication skills to include multiple sources of information, both formal and informal. While formal assessments are an integral part of the evaluation process and should be included, there are several limitations that warrant discussion in the following section.

Limitations of Formal Assessments. Most norm-referenced assessments are designed to be administered in structured and rigid environments, leaving little room for dynamic and natural problem-solving, which are at the very heart of social interactions. In addition, formal measures do not allow for social processing and responses given in real time, which is estimated to be less than 2 seconds (Winner, 2007). Usually, formal measures examine parts of a process, thereby eliminating social executive function challenges that occur in real-life social situations (Winner, 2007). In addition, the rigid structure of these tests makes it difficult for clinicians to examine communicative interactions in which social engagement rules are more dynamic and less explicit (Adams, 2002). The manner in which a student uses language skills in various contexts and social environments may be more relevant to determining social success and adjustment than more narrowly focused abilities in other language areas, such as vocabulary (Russell & Grizzle, 2008). Appropriateness of a response or interaction is dependent on more than grammatical correctness or appropriate semantics.

While it is evident that many students struggle with social communication and interacting with peers in socially acceptable ways, it is often difficult to assess these weaknesses when determining the need for services in the educational setting. Current

formal assessments cannot accurately evaluate a student's level of social thinking ability or social cognition (Winner, 2007). For example, on the *Test of Pragmatic Language (TOPL) (* Phelps-Terasaki & Phelps-Gunn, 1992), students are instructed to explain how they would respond in various situations given a social context. This only assesses the most superficial levels of social thinking ability, and higher functioning students will most likely score within the average range. In fact, many students with ASD and those with other disorders such as ADHD often present with intellectual ability within the average range and perform well on standardized assessments (Winner, 2007).However, a test score within the average range does not imply that students are able to function as competent and socially acceptable individuals (Winner, 2007; Russell & Grizzle, 2008). These students may present with adequate technical understanding of language, but are unable to appropriately execute it during social interactions. While they may demonstrate knowledge and understanding of social rules, they fail to understand how to appropriately use social language to interact with others in their environment. The use of informal, dynamic assessment procedures, in conjunction with formal measures, will provide a more accurate description of a student's social cognitive deficits.

Informal/Dynamic Assessment of Social Skills

While norm-referenced measures are necessary for determining eligibility in most public school settings, they should be used in conjunction with other forms of assessment that provide opportunities to examine a student's use of social skills, rather than just his/her knowledge of the use of social skills. Given that successful social communication is dependent not only on a student's knowledge of skills, but also on the ability to use that knowledge and skills in a socially meaningful way, a dynamic, situational assessment

should be utilized (Winner, 2007). The Social Thinking Dynamic Assessment Protocol (STDAP) is one possibility, as it aims to assess the abstract elements of social communication and provide opportunities for students to demonstrate their ability to use social thinking through various tasks and social situations. A student's ability to use social language in the various contexts of his or her environments may be more relevant to social outcomes and success than their ability in the more traditionally assessed areas of language, such as syntax, vocabulary, and semantics (Russell & Grizzle, 2008).

The Social Thinking Dynamic Assessment Protocol. Winner (2007) describes social cognitive deficits as a combination of learning disabilities that are unique but overlapping, such as conceptual learning disability, inferential learning disability, language formulation disability, perspective taking learning disability, and significant organizational challenges. Conceptual learning disability includes difficulty with reading comprehension and written expression, poor problem-solving, organization, and prioritization, and poor ability to glean information from larger concepts/contexts. Inferential learning disability includes difficulty reading nonverbal emotions, understanding implied meaning, difficulty with figurative and abstract language, and difficulty adjusting one's own behavior and reactions within a given context or social situation. Language formulation disability includes difficulty with formulation and initiation of language to learn about others' points of view and interests, solve personal problems, and maintain conversation. Perspective-taking learning disability includes difficulty recognizing the needs and intentions of others and how to respond, difficulty understanding another person's expectations and what his/her own role should be, difficulty completing obligatory tasks, and difficulty understanding how to participate in

a relationship. Significant organizational challenges are manifested through difficulty with tracking and competing homework, difficulty organizing materials across multiple environments, difficulty planning and breaking down tasks for completion, difficulty completing obligatory tasks and assignments, and difficulty prioritizing importance of tasks and predicting time for completion.

Given these unique learning challenges, Winner (2007) developed the ILAUGH model that outlines various areas which contribute to a student's social cognitive challenges. These challenges may include difficulties in academic skills, functional life skills, work-related skills, and social contexts. This model helps to identify and break down a student's social cognitive challenges so that attention can be paid to specific areas of weakness. The results can be used to identify specific weaknesses and thus facilitate appropriate assessment and treatment approaches. Winner (2007) notes that students with social cognitive challenges may present with his or her own individual pattern of strengths and weaknesses within the ILAUGH model, emphasizing the importance of conducting individualized, comprehensive assessments. The components of this model provide for assessment of multiple areas of functioning that impact a student's social cognitive ability. Discussed below in detail, this model is used as a guide when conducting informal, dynamic assessments for students with social thinking challenges, and is the model on which the STDAP is based.

The first component of the model, initiation of language (I), includes problem solving, asking for help, and initiating/entering conversations that are not routine. The second component, listening with the eyes and brain (L), includes understanding body language, facial expressions, and eye contact in addition to listening to what people are

saying. Abstract and inferential thinking (A), a third component, refers to the ability to make judgments about meaning based on the context of the situation. The next element is termed understanding perspective (U), and involves a person's ability to consider another person's thoughts, feelings, intentions, and beliefs. Gestalt processing (G), the fifth factor, is a person's ability to see the big picture rather than focusing only on the details. Finally, humor and humor relatedness (H) includes helping students learn to enjoy social interactions with others and be able to integrate all elements of social thinking into their own thinking and learning processes (Winner, 2007).

The STDAP differs from standardized measures of language ability because it attempts to identify a student's underlying social cognition and social language ability (Winner, 2007). This assessment allows for clinicians to present a task for each of the components, followed by his or her own assessment of the student's social knowledge and understanding of the skill, and how the student might incorporate this knowledge into everyday situations at home and school. It also provides "real time" observations of how a student uses his or her knowledge of social skills in the moment of the interaction with the examiner; this is vital information that cannot be obtained through a formal test.

In addition to utilizing components of the ILAUGH model, the STDAP provides important information regarding the development of an appropriate treatment plan for students identified as needing services. The protocol allows clinicians to gather real-life, functional information about a student, which can then be used to develop individualized, meaningful treatment programs for students with social thinking and social cognitive deficits. Complete and appropriate evaluations that ultimately lead to appropriate treatment of deficit areas are of utmost importance. Often, students are unable to receive

the services they need because the evaluation failed to assess the underlying social cognitive deficits that are present. Since social skill deficits are evident in children with ASD and ADHD, as well as other developmental disorders, it is vital to examine the nature and cause of any underlying social communication challenges. The STDAP and its various sections are described below.

1. *Getting to know the student.* This section allows for gathering information about the student from parents and teachers. It includes questionnaires to be completed by parents and teachers. It also provides for reviewing and recording previously completed assessments or reports from school educators or private professionals.
2. *Asking for help.* In this task, students are instructed to complete a simple writing task that includes filling out basic information about themselves (name, date, birth date, home address, and parents' names). During completion of the writing task, the researcher is able to assess the student's penmanship, ability to ask for help, and general knowledge and abilities.
3. *The double interview*. Part one of the double interview consists of the researcher interviewing the student. This task allows the researcher to examine the dynamics of communication when the focus is on the student. During this interview, the researcher is able to observe the following: use of body language and eye contact, ability to control volume and tone of voice, use of narrative language to answer questions, and ability to give responses related to the question asked.

The researcher can also observe if there is a particular topic or subject the student keeps shifting back to, or if the student seems disinterested when the discussion changes to a topic that is of little interest to him/her.

Part two of the double interview consists of using pictures as a source for questioning the evaluator. The student is given three pictures of the researcher and family members, one at a time. This task allows the researcher to assess the student's ability to shift perspective from him or herself to the researcher, ability to read others' faces, ability to account for contextual cues, and ability to make inferences.

Part three of the double interview consists of the student interviewing the researcher. Switching roles and instructing the student to conduct the interview examines the student's social executive functioning skills and helps identify weaknesses in shifting perspectives, organizing thoughts and moving conversation in a purposeful direction, and formulating questions to learn about another person' interests or thoughts.

4. *Thinking with our eyes.* This task requires the researcher to look at an object in the room followed by instructing the student to make a guess at which object the researcher was looking. This task is repeated four times with the researcher looking at various objects in the room, including looking at the child once. For students who respond correctly to at least two of these trials, the researcher proceeds to the

next part of the task. In the second part of the task, the researcher looks at each of the previous four objects again, but this time the student is instructed to make a guess about what the researcher might be thinking. For students who respond incorrectly to the first part of the task, this task is discontinued.

5. *Picture sequencing.* This task examines a student's gestalt processing ability, or the ability to see the big picture. It also assesses the ability to relate individual pieces to one concept or thought and the ability to arrange items or steps into logical sequence. The student is presented a group of pictures and asked to reorganize them in a way that tells a story or shows the steps of completing something. The student is also instructed to tell the story or describe the task pictured.
6. *Reading social scenario pictures.* The purpose of this section is to assess perspective taking. The student is presented with pictures depicting various social scenarios and is instructed to explain what was happening in each picture and to identify any emotions he or she feels are being exhibited by the people in the pictures.

7. *Assessing organization skills.* The final section includes various questions about the student's organizational skills. The purpose of these questions is to gather information in about the following areas: motivation, time-management skills, daily homework and study habits, responses and attitudes towards homework, long-term homework and study habits, ability to organize and prioritize assignments, ability to ask for help, ability to take relevant notes, and ability to gather and use appropriate study materials (planning skills).

Significance of the Problem

Improving assessment methods for identification of social skill impairment is likely to benefit students with ASD and other developmental disorders for two reasons (Adams, 2002). First, it will allow more in-depth investigation into social and cognitive functioning aspects of language use. Second, it will lead clinicians to more appropriate intervention methods as assessment will focus on the application of social skills knowledge. This is substantial given that social language impairment and social skill deficits can co-exist within a number of other developmental disorders, including ASD and ADHD (Ratcliffe et al., 2015).

Purpose of the Study

The current study will investigate the effectiveness of the STDAP in identifying areas of social skill deficits, as well as differences in social skills among three groups of participants. It is hoped that the current investigation will highlight the importance of incorporating dynamic assessments in addition to standardized protocols when attempting to identify social skill deficits in students. The first goal of this study is to contribute to

the body of literature that supports the use of dynamic assessments in addition to standardized measures when assessing social skill deficits in students. The second goal is to examine the use of the STDAP as a tool in identifying areas of social skill deficits in adolescents with disorders in which social skill impairment is characteristic, specifically ASD and ADHD. The third goal is to identify any differences in function according to the STDAP among a group of students with ASD, a group of students with ADHD, and a group of students with typical development. The fourth goal is to determine if the developed scoring method is reliable. This study will be conducted to address the following research questions:

(1) Does the STDAP accurately identify social skill deficits in students with developmental disabilities in which social skill impairment is a characteristic?

(2) Will results obtained on the STDAP differ between individuals with ASD and typically developing adolescents?

(3) Will results obtained on the STDAP differ between individuals with ADHD and typically developing adolescents?

(4) Will results obtained on the STDAP differ between individuals with ASD and those with ADHD?

Based on these questions, the following hypotheses were developed:

(1) The STDAP will identify social skill deficits in individuals with developmental disabilities in which social skill impairment is a characteristic.

(2) There will be a difference in scores obtained on the STDAP between individuals with ASD and typically developing adolescents.

(3) There will be a difference in scores obtained on the STDAP between individuals with ADHD and typically developing adolescents.

(4) There will not be a marked difference in scores obtained on the STDAP between individuals with ASD and those with ADHD.

Chapter III

METHODS

Participants

Recruitment and Informed Consent Procedures. Approval from the Valdosta State University Institutional Review Board, as well as permission from the Irwin County, Jeff Davis County, and Appling County school systems in southeast Georgia, was obtained prior to initiation of participant enrollment (see Appendices A-C). Three groups of participants were included: students with a diagnosis of ASD, students with a diagnosis of ADHD, and typically developing (TD) students. Participants in all groups were selected based on convenience sampling, and each student was individually invited to participate in the study. School and/or medical records were reviewed to determine if the student had a diagnosis of ASD or ADHD.

To locate potential participants for the experimental groups in this investigation, the researcher utilized a school psychologist, speech language pathologist, and 504 coordinator to assist with identifying possible participants. Once these individuals were identified as meeting preliminary qualifications for participation, parents were sent a letter explaining the study and requesting permission for their child to participate. Parents were informed that non-participation was acceptable and would not in any way affect their child's services or learning at school. Parents who agreed to participation were asked to sign a written permission form. Child assent was also obtained for each child who participated. Compliance with the Health Insurance Portability and Accountability

Act (HIPAA) was ensured by keeping students' identifying information concealed until after the researcher received parental consents in writing for those students who were identified for possible participation by school personnel.

Children with ASD. The researcher contacted the school psychologist in Irwin County and the speech language pathologist at Jeff Davis Middle and High Schools to assist in identifying possible qualifying participants for the ASD group. The researcher was aware of seven potential participants for the study at Appling County Middle and High Schools. The researcher contacted the 504 coordinators at Appling County Middle School and Appling County High School to assist with identifying additional qualifying students of whom the researcher was not already aware. Once possible participants were identified, a total of eleven parent permission forms were sent home with students. Eight forms were returned, indicating that parent permission had been given. Three permission forms were not returned and consent for participation was not obtained. No permission forms distributed in Irwin or Jeff Davis Counties were returned. Once parental permission forms were received, the researcher administered the *Kaufman-Brief Intelligence Test-2* (KBIT-2) (Kaufman & Kaufman, 2004). Inclusion of this measure ensured that all participants fell within the range of normal intelligence for purposes of this investigation. Three students achieved a score in the below average range and were excluded from further participation in the study. Five students between 11 and 16 years of age from the Appling County School District in Georgia achieved a score within the average range on the KBIT-2 and therefore were included in this investigation.

Children with ADHD. The researcher contacted the 504 coordinator at Appling County Middle School to assist with identifying qualifying participants. Once possible

participants were identified, a total of seven parent permission forms were sent home with students. Six forms were returned, indicating that parent permission had been given. One permission form was not returned and consent for participation was not obtained. Once parental permission forms were received, the researcher administered the KBIT-2. One student achieved a score in the below average range and was excluded from further participation in the study. Five students between 11 and 16 years of age from the Appling County Middle School achieved a score within the average range on the KBIT-2 and therefore were included in this investigation.

Children with Typical Development. Participants for the control group were selected based on review of school records indicating average performance in school and no previous diagnoses or records indicating the presence of ASD, ADHD, cognitive delay, or other psychological or medical condition that would prohibit participation in the study. Control participants were matched to the experimental groups for age and IQ score to reduce variability in the sample. The researcher contacted the guidance counselor at Appling County Middle School to assist with identifying qualifying participants. Once possible participants were identified, a total of eight parent permission forms were sent home with students and all forms were returned, indicating that parent permission had been given. Once parental permission forms were received, the researcher administered the KBIT-2. One student achieved a score in the above average range and was excluded from further participation in the study. Three students achieved scores in the below average range and were also excluded from further participation in the study. Four students between 11 and 16 years of age from Appling County Middle School achieved a

score within the average range on the KBIT-2 and therefore were included in this investigation.

Tests

Kaufman Brief Intelligence Test, Second Edition (KBIT-2). The KBIT-2 provided a measure for both verbal and nonverbal ability through two distinctive scales (crystallized and fluid). The crystallized (verbal) scale contained two item types of verbal knowledge and riddles which assess receptive language, general knowledge, vocabulary knowledge, reasoning, and comprehension. The fluid (nonverbal) scale was a matrices subtest that examined the ability to complete visual analogies and understand relationships. Inclusion of both verbal and nonverbal ability made this a balanced assessment and ensured that all participants in the study achieved a composite IQ score within the average range. As stated above, participants who scored either below (n = 7) or above (n = 1) the average range were excluded from further participation in the study.

Social Thinking Dynamic Assessment Protocol (STDAP). The STDAP was individually administered to participants by the primary researcher. Each session lasted approximately 45 minutes and was conducted in a quiet setting in the school. Each testing session was video recorded to ensure proper recording and scoring of participants' responses during testing, including verbal responses, facial expressions, and other mannerisms noted during testing. Additionally, video recording testing sessions allowed for later inter-rater reliability scoring.

As previously noted, the STDAP is based on the ILAUGH model (Winner, 2007). The components of this model are used as a guide when conducting informal assessments for students with suspected social impairment, and the underlying components on which

it is built have a strong research base which lends support to its usefulness in the assessment process. The STDAP differs from standardized measures of language ability because it attempts to identify and quantify a student's underlying social cognition and social language ability (Winner, 2007). This assessment allows for clinicians to present a task for each of the components, followed by their own assessment of the student's social knowledge/understanding of the skill, and how the student might incorporate this knowledge into everyday situations at home and school. It also provides "real time" observations of how a student uses his or her knowledge of social skills in the moment of the interaction with the examiner.

Development of Scoring

Due to the informal nature of the STDAP, a system for quantifying correct and incorrect responses was not available. A scoring system was developed as part of this investigation in an effort to quantify results and examine differences in performance among each of the groups. The researcher examined published testing protocols to determine the best method for scoring. One published assessment that was reviewed was the *Autism Diagnostic Observation Schedule (*ADOS) (Lord, Rutter, DiLavore, & Risi, 1999). This measure was chosen because the nature of the assessment is similar to the STDAP in that various tasks are presented to the student while the examiner observes and takes note of how the student responds and interacts. The examiner determines if various responses are observed or unobserved, followed by a determination of the degree to which each observed behavior occurred. This gives a quantitative result for the student's performance on the test. During development of the scoring system for the STDAP, a primary goal of the researcher was to avoid changing or imposing different wording or

interpretation of possible responses on the STDAP. In addition, the researcher attempted to maintain simplicity, ease of use, and limit as much subjectivity as possible during scoring. Therefore, the scoring system that was developed was intended for possible responses to be marked as "observed" or "not observed." For each section of the test, the total number of responses observed and the total number of responses not observed were recorded. The combined total number of observed responses could then be calculated, followed by the total number of not observed responses, providing a quantitative score for the test.

Chapter IV

RESULTS

The purpose of this study was to investigate the effectiveness of the STDAP in identifying specific areas of social skill deficits in three groups of students. Percentage differences among groups for the overall score as well as within each portion of the STDAP were calculated using median data. Due to the small sample size, the median was used as the primary data reference.

Results of the KBIT-2

The KBIT-2 was administered to each participant prior to administration of the STDAP. Inclusion of the KBIT-2 ensured that each student possessed the verbal skills needed to participate in the social thinking assessment. Results of the KBIT-2 indicated that participants in each group scored within the range of normal intelligence. Standard scores of participants ranged from 88 to 109.

Results of the STDAP

Percentage differences were calculated using the formula $V_1 - V_2 / [(V_1 + V_2) / 2] \times 100$ to examine differences in performance among groups. As can be seen in Table 1, the difference in overall scores on the STDAP were similar when comparing the control participants and those with ADHD, or the participants with ADHD and those diagnosed with ASD. However, the difference in scores between the control participants and those with ASD were nearly twice as much. Examination of individual data reveals that the control participants consistently exhibited lower scores on the STDAP than the

participants with ADHD and ASD (see Figure 1). To further explore differences between control participants vs. participants with ADHD and participants with ADHD vs. participants with ASD, a closer examination of individual differences among the various sections of the STDAP is necessary.

Groups	KBIT Median Percent Difference	Median Percent Difference	Group Average Percent Difference
Control vs. ADHD	1.98%	40.00%	45.16%
Control vs. ASD	6.06%	85.71%	82.93%
ADHD vs. ASD	4.08%	50.00%	41.67%

Table 1. Median percent difference in KBIT-2 scores among the three groups.

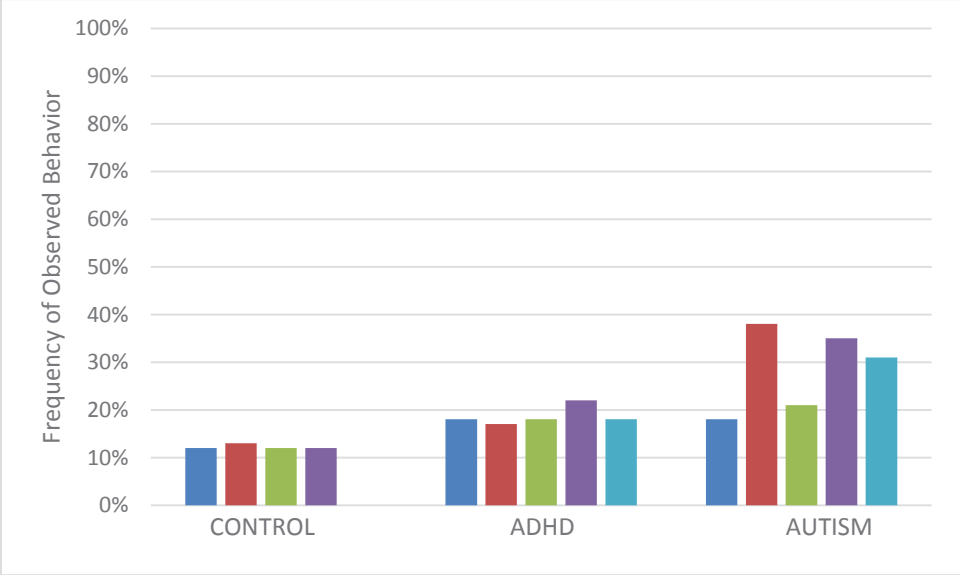

Figure 1. Overall scores obtained on the STDAP for the control participants and participants with ADHD and ASD.

An examination of test sections revealed more detailed differences among the three groups. On the sections Asking for Help, Double Interview Part 1, and Social

Scenarios, control participants and participants with ADHD performed the same. However, a difference in performance was found between the participants with ASD and the other groups. On the section Thinking with Your Eyes, all three groups performed the same with no differences between scores. On the sections Double Interview Part 2, Double Interview Part 3, and Sequencing Pictures, differences in scores between control participants vs. participants with ASD were greater than differences between control participants vs. participants with ADHD and participants with ASD vs. participants with ADHD. On the section Organization, differences in scores between control participants vs. participants with ADHD and control participants vs. participants with ASD were greater when compared to differences in scores between participants with ADHD vs. participants with ASD. These groups performed similarly on tasks involving organization. The percentage differences are provided in Table 2.

While the three groups performed similarly on some sections of the STDAP, seven of the eight subtests differentiated the control participants from participants with ASD, with three portions indicating a greater difference in performance between these two groups. Four of the subtests also differentiated control participants from participants with ADHD, with the greatest difference shown in the Organization section. Three of the eight subtests showed a substantial difference in performance between participants with ADHD and participants with ASD.

Group/ Section	Asking for Help	Double Interview Part 1	Double Interview Part 2	Double Interview Part 3	Thinking with Your Eyes	Sequencing Pictures	Social Scenarios	Organization
Control vs. ADHD	0.00%	0.00%	19.17%	25.00%	0.00%	16.67%	0.00%	120.00%
Control vs. ASD	11.32%	128.57%	58.07%	100.00%	0.00%	62.50%	66.67%	140.26%
ADHD vs. ASD	11.32%	128.57%	40.00%	80.00%	0.00%	47.06%	66.67%	35.29%

Table 2. Group median percent differences among sections of the STDAP.

Control vs. ADHD

When examining differences in performance and skills between participants in the control group vs. participants with ADHD, it is evident that, on some portions of the STDAP, students with ADHD performed the same as students with typical development (see Table 2). As shown in Figures 2-9, the control participants and participants with ADHD performed similarly on the sections Asking for Help, Double Interview Part 1, Thinking with Your Eyes, and Social Scenarios. However, other portions showed a difference between control participants and those with ADHD. These portions included Double Interview Part 2, Double Interview Part 3, Sequencing Pictures, and Organization. The median difference in scores on these subtests ranged from 16.67% to 120%.

Control vs. ASD

Conversely, differences in performance were noted on all portions of the STDAP between control participants and participants with ASD except for Thinking with Your Eyes, which indicated no difference (see Table 2). The greatest differences in performance were noted during the Double Interview Part 1, Double Interview Part 3, and Organization, ranging from 100% to 140.26%. Other portions showed a smaller difference between control participants and those with ASD, including Asking for Help, Double Interview Part 2, Sequencing Pictures, and Social Scenarios. The median difference in scores on these subtests ranged from 11.32% to 66.67%.

ADHD vs. ASD

When comparing differences between participants with ADHD and those with ASD, some similarities in performance were noted between these two groups and control

participants vs. participants with ASD on the sections Asking for Help, Double Interview Part 1, Thinking with Your Eyes, and Social Scenarios. The median difference in scores on these subtests ranged from 0% to 128.57%. See Table 2 and Figures 2-9 for results. This indicates that these portions of the STDAP may be useful in distinguishing between children with ASD from those without ASD. On the portions Double Interview Part 2, Double Interview Part 3, Sequencing Pictures, and Organization, median difference in scores ranged from 35.29% to 80%.

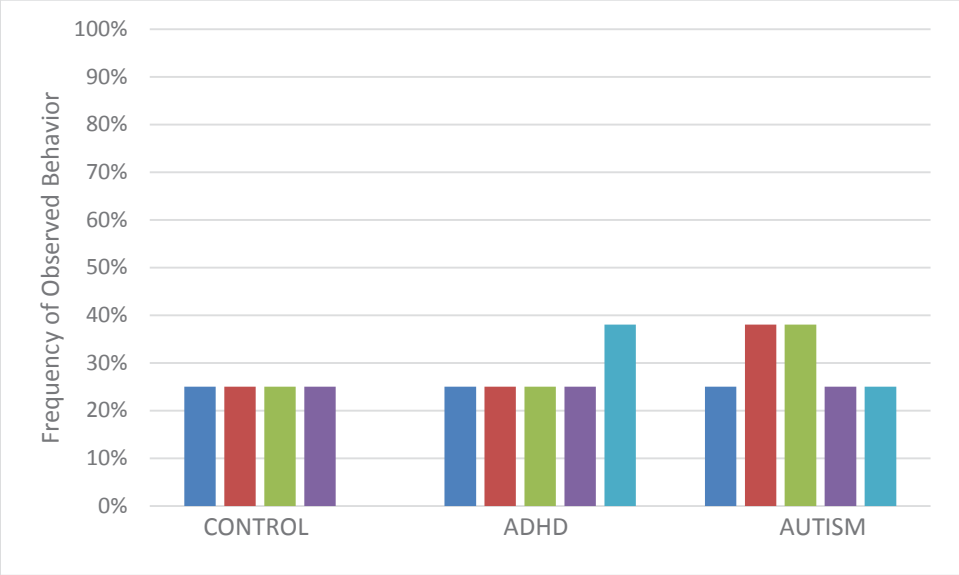

Figure 2. Frequency of observed behaviors on the subtest "Asking for help."

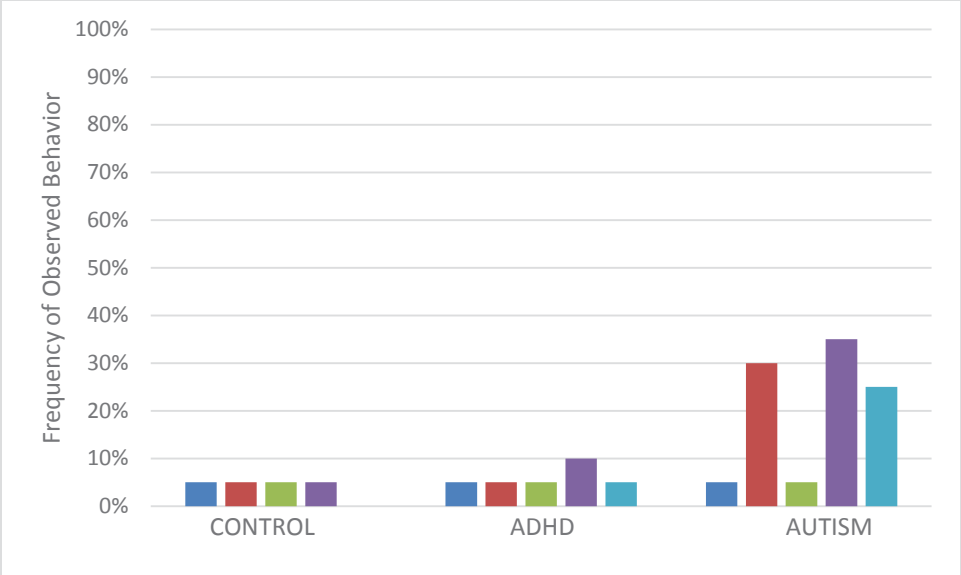

Figure 3. Frequency of observed behaviors on the subtest "Double interview part 1."

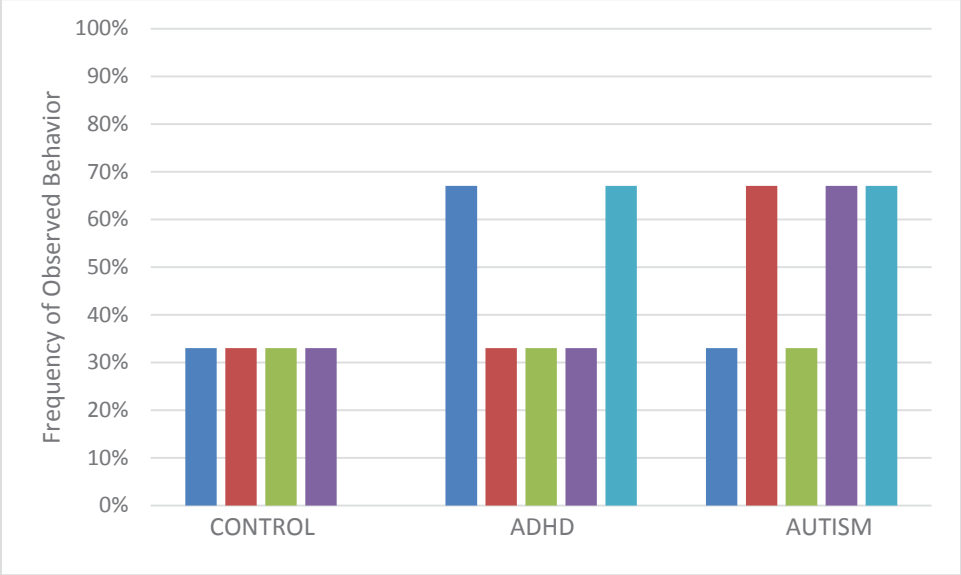

Figure 4. Frequency of observed behaviors on the subtest "Double interview part 2."

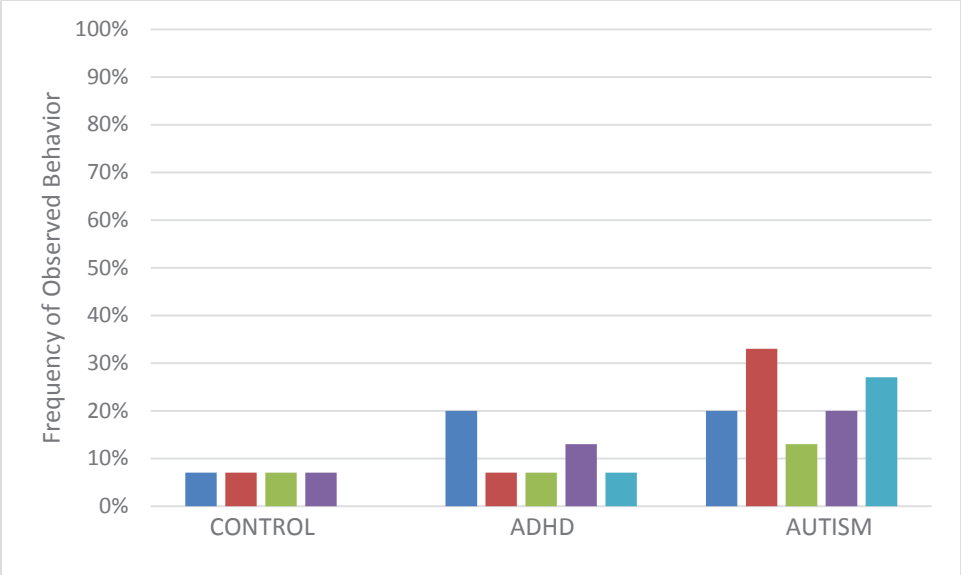

Figure 5. Frequency of observed behaviors on the subtest "Double interview part 3."

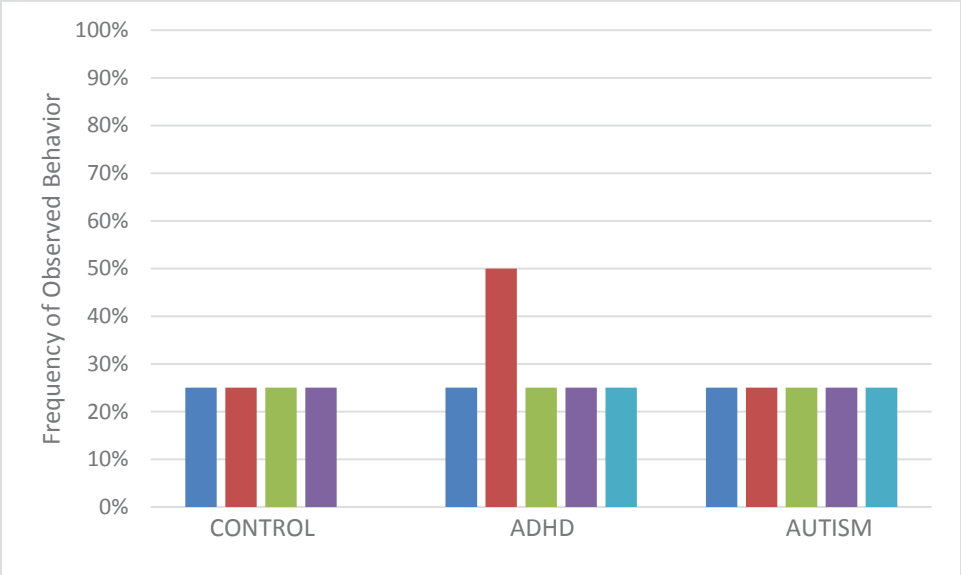

Figure 6. Frequency of observed behaviors on the subtest "Thinking with your eyes."

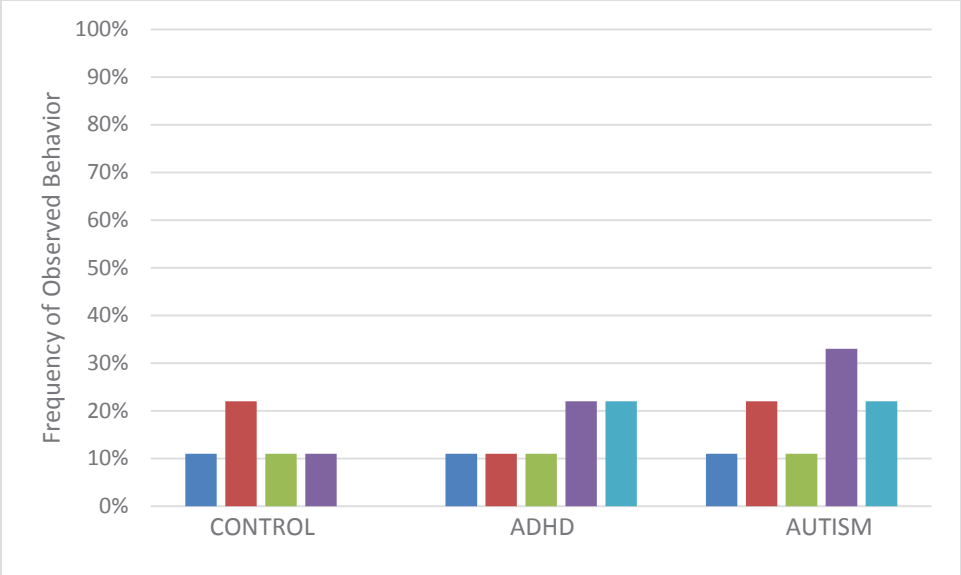

Figure 7. Frequency of observed behaviors on the subtest "Sequencing pictures."

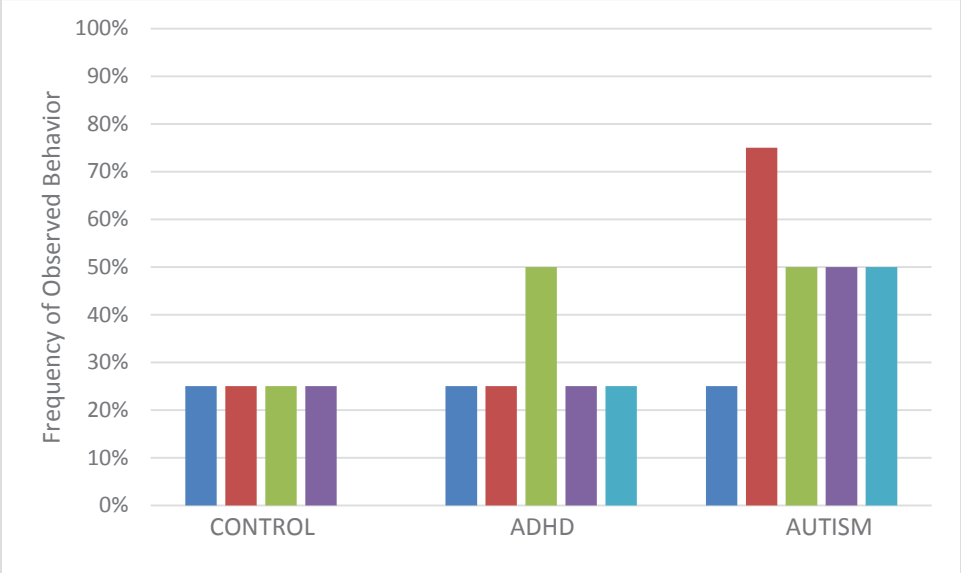

Figure 8. Frequency of observed behaviors on the subtest "Social scenarios."

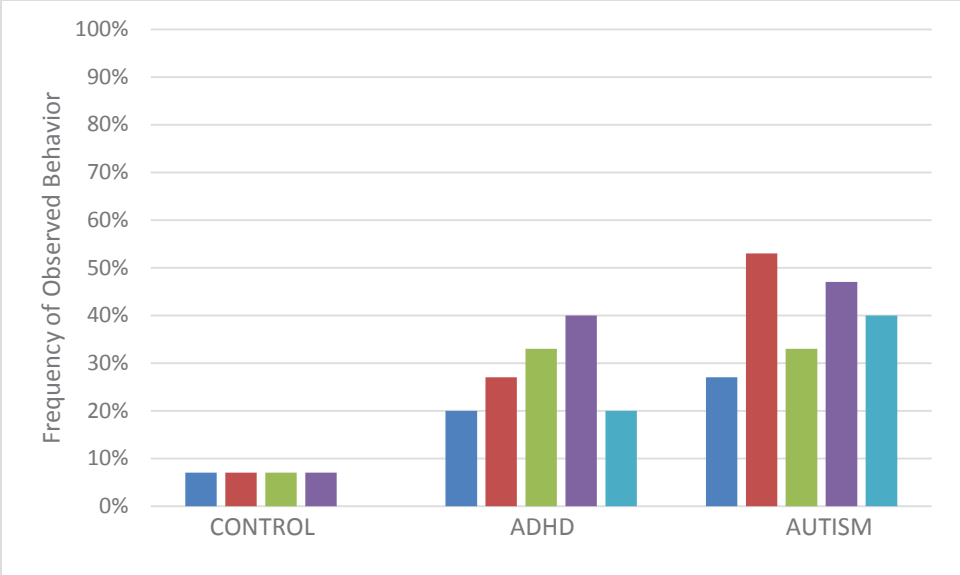

Figure 9. Frequency of observed behaviors on the subtest "Organization."

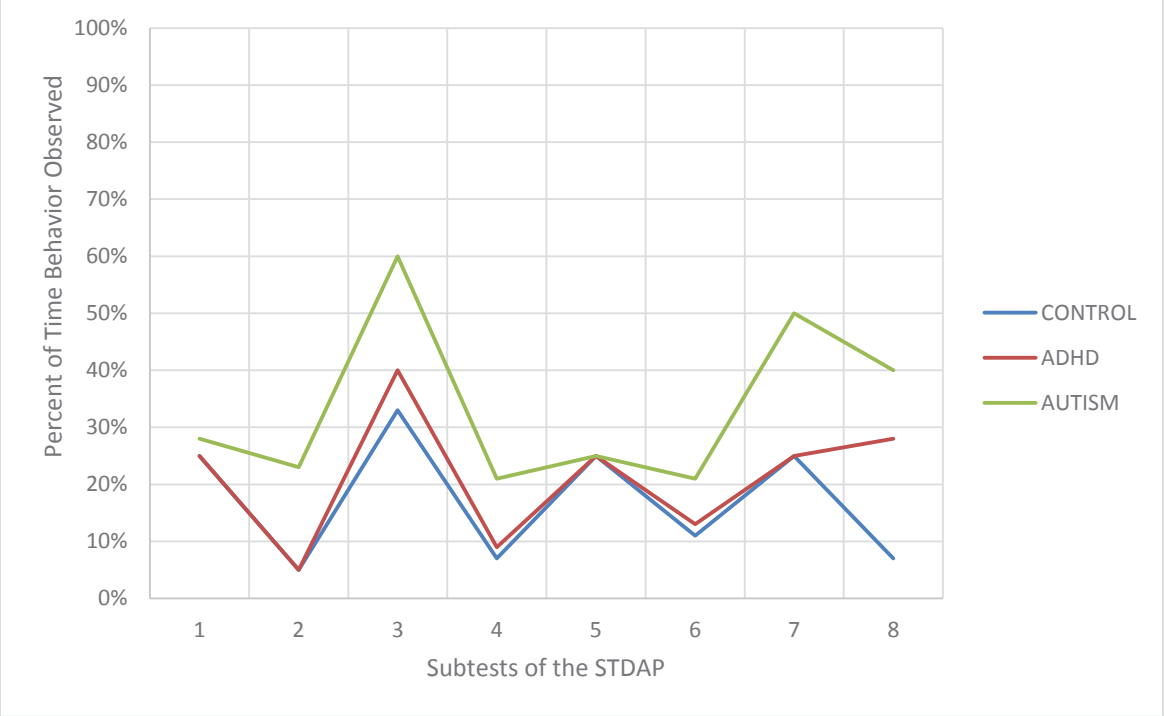

Figure 10. Summary of patterns of scores across groups.

Inter-rater Reliability

Following administration of the STDAP to all participants, the primary researcher recruited another speech-language pathologist to complete inter-rater scoring for one participant from each group by reviewing the recorded assessment sessions. Overall inter-rater reliability was high ($r_s = .967$, $p < .000$).

Conclusion

In summary, the subtest Thinking with Your Eyes revealed no differences among groups. Overall, the participants with ASD scored notably higher than control participants and participants with ADHD, particularly in regard to performance on the subtests Double Interview Part 2 and Social Scenarios. Performance on the subtest Organization was also notably different among groups, with participants with ADHD performing similarly to participants with ASD on this subtest.

Chapter V

DISCUSSION

Current Guidelines and Research

When conducting evaluations of students with suspected social skill deficits, it is imperative to include a comprehensive battery of assessment tools. This would include utilizing both formal and informal measures in all areas of suspected disability, evaluating intellectual and behavioral as well as physical and developmental skills, and obtaining relevant information regarding the student's academic, functional, and developmental abilities from multiple sources (IDEA, 2004). Additionally, guidelines outlined in the state of Georgia mandate that a communication evaluation include assessment of verbal and nonverbal language, prosody, and pragmatic language ability using a combination of formal and informal procedures (Georgia Department of Education, 2016).

The purpose of the current study was to investigate the effectiveness of the STDAP in identifying differences in social skills among three groups of students. To better understand how the STDAP was useful in identifying and differentiating areas of social skill deficit in each group of students, a closer look at group comparisons and performance is necessary.

One hypothesis of the current study stated that the STDAP would identify social thinking deficits in individuals with developmental disabilities in which social skill impairment is characteristic, specifically ASD and ADHD. This hypothesis was

supported. While differences in scores between participants with ASD and control participants were greater than differences between participants with ADHD and control participants, the STDAP was able to differentiate between groups of students with developmental disabilities in which social challenges are a primary feature and students with typical development. On the portions Double Interview Part 1, Double Interview Part 3, and Social Scenarios, the participants with ASD performed substantially lower than both the control participants and participants with ADHD, confirming this hypothesis. The performance of students with ASD on these sections supports the literature that outlines social impairment in these students. Individuals with ASD often present with weaker narrative and perspective taking ability and an inability to generate conversation and questions about the interests of others (Winner, 2007). This was observed during the Double Interview sections as students with ASD struggled to engage in narrative conversation with the researcher, but rather gave short or one-word responses to questions. Students in this group also struggled to generate questions to ask the researcher during Double Interview Part 3, even when given visual cues.

In addition, students with ASD have difficulty reading contextual cues, nonverbal language, and body language, which are skills that begin to develop early during infancy (Beauchamp & Anderson, 2010; Grossmann et al., 2006). These findings were confirmed based on the performance of the participants with ASD during Social Scenarios. Students demonstrated difficulty in reading others' emotions, taking another person's perspective, and reading contextual cues to effectively interpret various social situations presented. In the current study, participants with ASD also exhibited difficulty with synthesizing nonverbal and contextual information to understand a main idea, particularly during the

Double Interview Part 1 and Social Scenarios sections. These skill areas point to a deficit in central coherence and theory of mind, including the integration and coordination of joint attention tasks (Pellicano, 2010; Pina et al., 2013).

Participants with ADHD performed similarly to students with ASD on most sections of the STDAP, with marked similarities during the Double Interview Part 1 and Social Scenarios. These findings suggest that students with ADHD exhibit similar social challenges as students with ASD, thus supporting the hypothesis that there would not be a distinct difference in results obtained between these two groups. Difficulty on these tasks agree with reported deficits in reciprocal conversation, initiating conversation, regulating emotions, and appropriately interpreting verbal and nonverbal cues, including perspective taking in students with ADHD (Ratcliffe et al., 2015). In addition, Winner (2007) states that observed deficits on these portions of the STDAP may imply a limited ability to initiate and maintain conversational flow with others, including the ability to ask questions for the purpose of getting to know another person, and inability to appropriately interpret inferential information presented by others. These deficits also point to weaknesses in perspective taking ability and theory of mind in students with ADHD (Fine et al., 2008, Ratcliffe et al., 2015; Winner, 2007). The primary differences in results between participants with ADHD and control participants were noted on the sections Double Interview Parts 2 and 3, Sequencing Pictures, and Organization. The weaker performance on Organization by students with ADHD may be explained by their substantial deficits in attention and executive function ability, as well as impulsivity (Barkley, 2006; Johnson & Reid, 2011).

The median percent differences in scores suggest that the STDAP is an appropriate measure of social skill impairment to identify differences between individuals with ASD and those with typical development. However, it did not suggest a substantial difference between ASD and ADHD because participants in both groups exhibited deficits in social skills. While students with ASD and ADHD present with social functioning deficits, patterns of similarities and differences emerged based on results of the STDAP. Studies have shown that both students with ASD and ADHD present with deficits in central coherence based on their difficulties with the ability to relate smaller parts to a socially relevant whole (Pina et al., 2013). This was evident during the Picture Sequencing and Social Scenarios tasks because both of these sections required students to understand a sequence of events within a broader social context, as well as interpret the meaning of that context and the people within the context. These tasks also required students to interpret not only what was happening in a social situation, but to identify the emotions and details to understand the complexity and meanings of the various situations.

These same sections of the STDAP point to deficits in theory of mind in both groups, as students often misunderstood or incorrectly attributed mental states and feelings of others in the various tasks presented. For students with ADHD, it appears that weaknesses in tasks involving theory of mind are more likely linked to deficits in executive function (Caillies et al., 2014). While there may be different underlying reasons for social deficits in students with ASD and ADHD, the presentation of these deficits is similar. Both students with ASD and ADHD have difficulty with the functions of planning and regulating their own emotional responses to a social situation, which demonstrates deficits in executive function ability. Based on these findings, the STDAP

is useful for assessing students with ASD and ADHD. It is reasonable to conclude that the STDAP would also be useful for assessing any student with suspected deficits in social cognition and social functioning, or students with yet undiagnosed disorders involving social functioning.

Recommendations for Future Research

Future studies should attempt to account for the limitations of the current study. A larger sample size would improve the generalization of results to other populations, including both younger and older students. Inclusion of students with other diagnoses in which social skill deficits are a characteristic would also expand the use of the STDAP and identify specific areas of social skill deficits for appropriate intervention planning, such as perspective taking, recognizing and interpreting emotions of others, inferring information not explicitly stated or given, and understanding contextual cues to appropriately interpret social information. Another avenue for future studies might include expansion of the proposed scoring system as opposed to the current observed/not observed method of scoring. In the current study, inter-rater reliability data were included to control for subjectivity of scoring the items. The results showed high reliability for the current system; however, additional information concerning the level of deficits in each section of the STDAP may improve the detection of specific deficits in different groups as well as identifying subtle weaknesses in students not diagnosed with disorders associated with social skill dysfunction, i.e., ASD or ADHD.

Limitations

The results of the current study were limited by several factors. The small sample size limited the ability to generalize results to other populations and age groups. The lack

of statistical power also limited the analyses used to examine relationships among the three groups. Instead, median percent calculations were used to analyze results and group comparisons. Another limitation was the familiarity of the primary researcher with several of the participants. The presence of previously established rapport between the primary researcher and those participants may have impacted performance during administration of certain portions of the STDAP. Given that the STDAP is an informal measure of various areas of social skill ability, and that it is based on observation, scoring of the measure was somewhat subjective. As previously noted, expansion of the scoring system may improve the ability of the STDAP to differentiate between different populations. Another limitation was the inclusion of verbal language ability based on KBIT-2 scores. While each participant achieved a full-scale IQ score within the average range, participants were not individually matched based on verbal language or cognitive ability across the three groups. Therefore, it is a possibility that variance in verbal ability, as well as general cognitive ability, contributed to performance on the STDAP.

Summary

In conclusion, the findings of this study are important in that they support the use of an informal measure of social skills when assessing students with ASD. The STDAP is most useful as an indicator of differences in social skills between students with ASD and students with typical development. While the results showed greater differentiation between students with ASD and students with typical development, they also identified areas of social skill challenges in a group of students with ADHD. Although students with ADHD were not determined to be as severe in social deficits as those with ASD, the results of the STDAP revealed areas of weakness in the participants with ADHD, which

is an area not typically treated for social functioning deficits. Therefore, based on group comparisons, the STDAP may be used as a predictor of social skill deficits in students with ASD and ADHD. The findings from the current study support the use of informal and dynamic assessments when evaluating social skill ability in students with suspected deficits. The identification of specific areas of deficit can be useful in intervention planning for students who struggle with social skills in the educational setting.

Chapter VI

CONCLUSION

The results of this study show that the STDAP can be a useful reflection of social skill weaknesses that students with ASD and ADHD demonstrate. For the purpose of the current study, the STDAP was used to examine social skill deficits and differences among these deficits between three groups of students. The purpose was not to attempt differential diagnoses between ASD and ADHD but rather to simply measure areas of social skill weaknesses. There were substantial differences among the three groups of participants based on the total STDAP score as well as specific portions of the measure. As a whole, the STDAP adequately differentiated between students with disorders in which social skill weaknesses are a characteristic and students with typical development. In addition, specific sections revealed marked differences in function between participants with ASD and those with ADHD. Specifically, students with ASD exhibited weaknesses in social executive functioning, showing interest in another through questioning, use of narrative language to answer questions, maintaining ease and dynamics of conversation, asking for help, use of body language and eye contact, and organization skills. Students with ADHD exhibited weaknesses in perspective taking and perspective shifting, inferencing and use of context clues, social executive functioning, organizing thoughts, formulating questions, gestalt processing, and organization. This information can be useful in identification and intervention planning to aid students who struggle in the academic setting due to social skill deficits. Improved identification of impairment in social skills and social thinking through the use of dynamic assessments,

followed by appropriate intervention planning, will improve outcomes for students who struggle in this area.

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Appendix A:

Parent/Guardian Permission Form

VALDOSTA STATE UNIVERSITY

Parent/Guardian Permission for Child's/Ward's Participation in Research

You are being asked to allow your child (or ward) to participate in a research project entitled "Identifying Social Deficits Using the Social Thinking Dynamic Assessment Protocol." This research project is being conducted by Chelsei Norris, a student in the Communication Sciences and Disorders Department at Valdosta State University. The researcher has explained to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks to your child (or ward). You may ask the researcher any questions you have to help you understand this study and your child's (or ward's) possible participation in it. A basic explanation of the research is given below. From this point on in this form, the term "child" is used for either a child or a ward. Please read the remainder of this form carefully and ask the researcher any questions you may have. The University asks that you give your signed permission if you will allow your child to participate in this research project.

Purpose of the Research: This study involves research. The purpose of the study is to examine the effectiveness of the Social Thinking Dynamic Assessment Protocol in identifying social skill weaknesses and differences in students with autism and ADHD.

Procedures: Your child will participate in completion of the assessment by answering questions and completing tasks as instructed by the researcher. There are no alternatives to the experimental procedures in this study. The only alternative is to choose for your child not to participate at all.

Your child will be given the assessment on one day at school. Administration of the assessment will last approximately 45 to 60 minutes. The assessment includes gathering information about your child, asking your child to complete a writing sample, completing an interview with the child, and asking the child to complete a variety of tasks (talking about an object, picture sequencing, explaining scenes, and organizing items and information).

Possible Risks or Discomfort: Although there are no known risks to your child associated with these research procedures, it is not always possible to identify all potential risks of participating in a research study. However, the University has taken reasonable safeguards to minimize potential but unknown risks.

By granting permission for your child to participate in this research project, you are not waiving any rights that you or your child may have against Valdosta State University for injury resulting from negligence of the University or its researchers.

Potential Benefits: Your child's participation will help the researcher gain additional understanding in identifying social skill differences and weaknesses in students with autism and ADHD. Knowledge gained may contribute to addressing the need for social skill instruction in the school setting for underserved populations, such as students with ADHD.

Costs and Compensation: There are no costs to you or your child and there is no compensation (no money, gifts, or services) for your child's participation in this research project.

Parent/Guardian's Initials: _____

Assurance of Confidentiality: Valdosta State University and the researcher will keep your child's information confidential to the extent allowed by law. Members of the Institutional Review Board (IRB), a university committee charged with reviewing research to ensure the rights and welfare of research participants, may be given access to your child's confidential information.

Your child's private information will be kept confidential throughout duration of the study. Your child's testing form will be kept securely locked in a filing cabinet and only the primary researcher will have access to your child's information. All testing forms will be destroyed in three years from completion of the study.

Data from this study will be reported in combination with information obtained from other participants. Data will not be associated with participants by name, nor will they be individually identifiable.

Voluntary Participation: Your decision to allow your child to participate in this research project is entirely voluntary. If you agree now to allow your child to participate and you change your mind later, you are free to withdraw your child from the study at that time. By not allowing your child to participate in this study or by withdrawing him/her from the study before the research is complete, you are not giving up any rights that you or your child have or any services to which you or your child are otherwise entitled to from Valdosta State University.

If you decide to withdraw your child from the study after data collection is complete, your child's information will be deleted from the database and will not be included in research results.

Information Contacts: Questions regarding the purpose or procedures of the research should be directed to Chelsei Norris at 912-381-8027 or scstone@valdosta.edu. This study has been approved by the Valdosta State University Institutional Review Board (IRB) for the Protection of Human Research Participants. The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your child's rights as a research participant, you may contact the IRB Administrator at 229-333-7837 or irb@valdosta.edu.

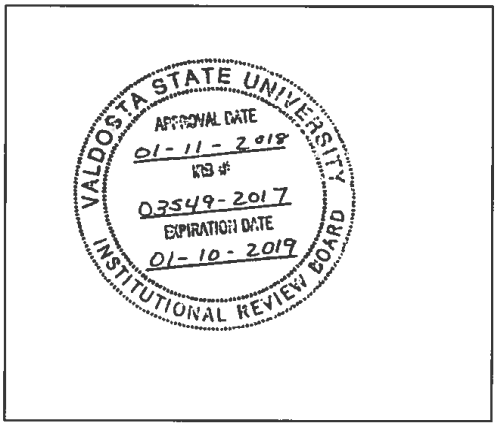
Agreement to Participate: The research project and my child's (or ward's) role in it have been explained to me, and my questions have been answered to my satisfaction. I grant permission for my child to participate in this study. By signing this form, I am indicating that I am either the custodial parent or legal guardian of the child. I have received a copy of this permission form.

_____
Printed Name of Child/Ward

_____
Printed Name of Parent/Guardian

_____
Signature of Parent/Guardian Date

_____
Signature of Person Obtaining Consent Date



Appendix B:

Child Assent Form

Hi! My name is Chelsei Norris and I'm a student at Valdosta State University. Right now, I'm trying to learn more about social skills, or how we interact with people in different ways. I would like to ask you to help me by being in a study, but before I do, I want to explain what will happen if you decide to help me.

I will ask you to write some things for me and I will ask you different questions about yourself. I will also ask you to tell me about different objects in the room, put some pictures in the right order, and explain what is happening in pictures. There are no right or wrong answers. I will be video taping our time together so that I can remember all that you tell me. It will take us about 45 minutes to 1 hour to complete everything. By being in the study, you will help me understand more about social skills and how some may be easier or harder for you.

Your parents and teachers will not know what you have said or how you have answered any questions. When I tell other people about my study, I will not use your name, and no one will be able to tell who I'm talking about.

Your parents have said that it is okay for you to be in my study. However, if you don't want to be in the study, you don't have to be. What you decide won't make any difference with your grades or any of your classes or services at school. No one will be upset if you don't want to be in the study. If there is anything you don't understand you should tell me so I can explain it to you.

You can ask me questions about the study. If you have a question later that you don't think of now, you can call me or ask your parents to call me or send me an email.

Do you have any questions for me now?

Would you like to be in my study and talk to me, answer some questions, and complete some tasks?

NOTES TO RESEARCHER: The child must answer "**Yes**" or "**No**." Only a definite "**Yes**" may be taken as assent to participate.

Name of Child: _____ **Parental Permission on File:** ☐ Yes ☐ No

(If "No," do not proceed with assent or research procedures.)

Child's Voluntary Response to Participation: ☐ Yes ☐No

Signature of Researcher: _____ **Date:** _____

(Optional) Signature of Child: _____

Appendix C:

Letters of Approval from School Districts

Appling County Board of Education

Scarlett Miles Copeland, Ed.D.
Superintendent
Scarlett.copeland@appling.k12.ga.us

249 Blackshear Highway
Baxley, Georgia 31513
Phone (912) 367-8600
Fax (912) 367-1011

November 27, 2017

To whom it may concern:

It is my understanding that Mrs. Chelsei Norris will be conducting a research study at Appling County High School and Appling County Middle School on "Identifying Social Deficits Using the Social Thinking Dynamic Assessment Protocol". I am aware of the design of the study as well as the targeted population. I support this effort and will provide any assistance to the successful implementation of this study. If you have any questions, please contact me at (912) 367- 8600.

Sincerely,

Scarlett M. Copeland

Scarlett M. Copeland, Ed.D.
Superintendent

Irwin County Schools

Dr. Thad Clayton, Superintendent

November 27, 2017

To whom it may concern:

It is my understanding that Chelsei Norris will be conducting a research study in the Irwin County School System. This letter serves to acknowledge that the Irwin County Board of Education is aware of the research study taking place.

Sincerely,

Dr. Stacie Howard

Dr. Stacie Howard
Irwin County School System
Special Education Director
210 Apple Street
Ocilla, GA 31774
(229) 468-9510

November 27, 2017

To whom it may concern:

It is my understanding that Chelsei Norris will be conducting a research study in the Jeff Davis County School System. This letter serves to acknowledge that the board of education is aware of the research study taking place.

Sincerely,

Chuck Crosby

Asst. Superintendent

Appendix D:

Percent of observed and unobserved behaviors on the STDAP

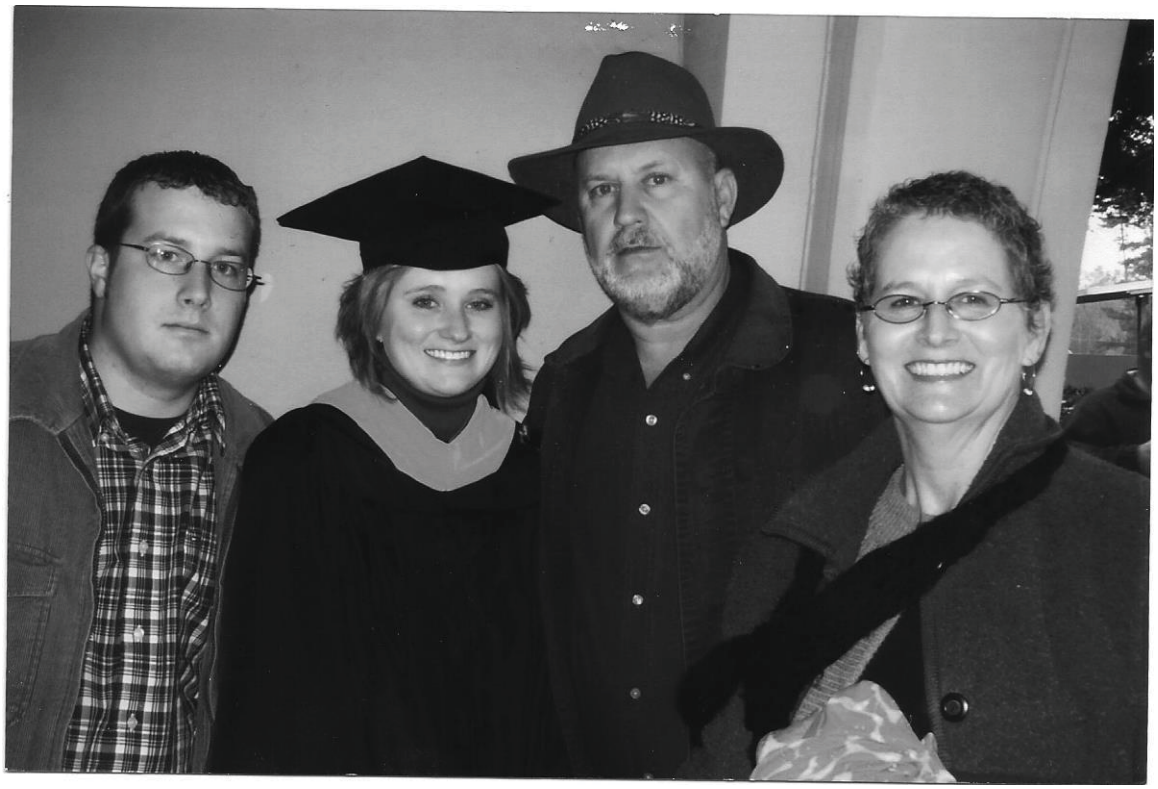
Section	ASD	ADHD	Control
Asking for Help	O = 28%	O = 25	O = 25%
	NO = 73%	NO = 75%	NO = 75%
Double Interview Part 1	O = 23%	O = 5%	O = 5%
	NO = 78%	NO = 95%	NO = 95%
Double Interview Part 2	O = 60%	O = 40%	O = 33%
	NO = 40%	NO = 60%	NO = 67%
Double Interview Part 3	O = 21%	O = 9%	O = 7%
	NO = 79%	NO = 91%	NO = 93%
Thinking with your Eyes	O = 25%	O = 25%	O = 25%
	NO = 7%	NO = 75%	NO = 75%
Sequencing Pictures	O = 21%	O = 13%	O = 11%
	NO = 79%	NO = 87%	NO = 89%
Social Scenarios	O = 50%	O = 25%	O = 25%
	NO = 50%	NO = 75%	NO = 75%
Organization	O = 40%	O = 28%	O = 7%
	NO = 60%	NO = 73%	NO = 93%

O = Observed

NO = Not Observed

Appendix E:

Double Interview Part 2 Photographs




Valdosta State University
Chelsei Stone

Appendix F:

Social Thinking Dynamic Assessment Protocol

Social Thinking Dynamic Assessment Protocol

Section 1. Getting to Know the Student

Evaluator's Name _____Today's Date _____

Student's Name _____

Student's birth date _____

Obtain the following information from the student's parents:

School Student Attends _____ Grade _____

Contact at School _____

Classroom Teacher _____

Classroom Setting (circle one) Mainstream Inclusion Resource Other: _____

Any professionals working with the student at school: _____

_____

_____

Private Practitioners working with the student at school: _____

_____

_____

Previous treatment programs the child has participated in: _____

_____

_____

Is the child on any medications? _____

_____

_____

Does the child have a history of sensory integration issues? _____

_____

_____

Does the child have a history of behavioral problems? _____

_____

_____

Is the child being treated for any significant mental health problems, or had past hospitalizations?

_____

_____

Other information pertinent to the assessment _____

_____

_____

Section 2. Questionnaire for Teachers and Related Service Professionals

Dear Teacher,

We are exploring the social-communication and organizational skills of the student listed below in order to develop social teaching strategies aligned with his/her unique strengths and challenges. Your knowledge of this student's functioning levels is very important. Please complete the following chart and return it to me. Feel free to contact me with any questions. Thank you!

Date _____

Child's Name _____ Return form by _____

Your Name _____

Relationship to the student _____

Place a check mark in the box that best describes this child.

SKILL	Comments	Above grade level	At grade level	Below grade level	Not observed
Math					
Reading Decoding					
Reading Comprehension					
Written Expression					
Large Group Participation During Class Discussions or Lectures					

SKILL	Comments	Above grade level	At grade level	Below grade level	Not observed
Small Group Participation in Class					
Making and Keeping Friends During Free Time					
Ability to Ask For Help in Class					
Organizational Skills While in Class					
Organizational Skills from Home to School and Back					

Does this child stand out as unique in his interpersonal skills, either in class or out of class?

YES or NO (circle one)

If yes, please explain why: _____

_____

_____

_____

Do you anticipate this student will encounter more challenges in future school years and/or adulthood? YES or NO (circle one)

If yes, please explain why: _____

_____

How would his/her peers describe this student? _____

_____

Section 3. Writing Sample: Asking for Help

(Ask the student to complete this section)

Student's Name _____

Today's Date _____

Student's Birth Date _____

Parents' first and last names _____

_____

Home Mailing Address

Please write the address as you would write it on an envelope to mail at the post office

_____

_____

Phone Number _____

Section 3. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 3
Checklist for Student Activity: Completing Form and Asking for Help

Did you observe any of the following while the student was filling out the form? Write "O" if it was observed. Leave blank if it was not observed.

_____ Student did this task effortlessly, needing no help.

_____ Student's writing was awkward. He held his pen oddly; writing is difficult to read.

_____ Student complained that he hates to write or that writing tires him.

_____ He did not ask for help, but instead delayed filling out a section(s).

_____ Asked for help effortlessly.

_____ Was familiar with all information requested.

_____ Is an older child (4th grade or above) but did not know basic information such as his address, phone number or date of birth.

_____ Writing task went well but parent has significant concerns about the student's ability to express him or herself in writing or refuses to engage in writing tasks in the classroom or at home.

_____ = TOTAL OBSERVED **_____ = TOTAL NOT OBSERVED**

Other comments on the child's writing skills or ability to ask for help:

_____

_____

_____

_____

Section 3. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 3 (continued)

Errors in this section may imply:

- Difficulty with the physical act of handwriting. Student may easily fatigue and become stressed by physical load of the task.
- Difficulty asking for help. Student may not indicate that he needs help and instead becomes more stressed by the task. Or, student may become agitated or act out because he does not know how to ask for help.
- Student is limited in basic functional, personal knowledge (address, phone, etc.)

Recommendations based on weaknesses on this task:

- Possibly seek a consult from an OT with regards to written language concerns.
- Explore the use of technology to teach keyboarding, etc.
- Teach student specific strategies to ask for help. Also explore with student why each of us asks for help. Make sure strategy is implemented by all teachers.
- In spite of student's possibly strong intelligence, make sure attention is paid to teaching functional life skills such as address, home phone number, etc.

Impact on different academic and social elements in a day:

- Student may fatigue easily with writing assignments, but may be unable to explain this and display behavioral problems as a result.
- Student may become school phobic because of his inefficient motor system; may not want to have to sit at his desk and spend so much time on written tasks.
- Student may become easily frustrated at school since he or she does not naturally ask for help.

Section 4. The Double Interview

The Double Interview – Part 1. Interviewing the Student		
What are your hobbies?	Student Response	While the student is describing his life in this interview, observe the following skills and check if they are problematic for this student: ___ Avoids eye contact ___ Body or shoulders turned away from you ___ Prosody of voice fluctuates too much ___ Voice is monotone ___ Voice is too loud or soft ___ Looks very nervous ___ Looks depressed ___ Is using echolalia ___ Has odd mannerisms: _____ ___ Provides very limited, unelaborated responses ___ Pronoun confusion ___ Tries to tell a story or sequenced information but you cannot follow the story, poorly narrated ___ Talks a lot about a specific topic: _____
Do you have siblings?	Student Response	
Do you have pets?	Student Response	
What chores do you have to do at home?	Student Response	
What are good things about school?	Student Response	
What are harder things you have to do at school?	Student Response	
Who are your friends? What do you do with them at lunch or recess? Describe:	Student Response	While the student is describing his life in this interview,

If your mom had a day to herself, when she didn't have to focus on being a mom, what would she choose to do on that day?	Student Response	observe the following skills and check if they are problematic for this student: ___ Constantly talking, but not regulating to the interviewer ___ Language is tangential. Appears very literal, needs explicit instruction to stay with the task ___Fails to read your body language or facial expression ___Fails to read your intentions ___ Is very self-oriented ___Laughs inappropriately
If your dad had a day to himself, when he didn't have to focus on being a dad, what would he choose to do on that day?	Student Response	___Completed task with ease

_____ = TOTAL OBSERVED **_____ = TOTAL NOT OBSERVED**

Other Comments/Observations:

_____

_____

_____

_____

Section 4. The Double Interview

The Double Interview – Part 2. Picture Interpretation	
Picture One of you/family	Student Response
Picture Two of you/family	Student Response
Picture Three of you/family	Student Response

Check off which of the following observations were most accurate:

_____ Student described all pictures in a timely manner, appropriately.

_____ Student struggled to figure out the people and/or relationships in the pictures.

_____ Student could not infer the theme of the picture (family portrait, party, etc.)

_____ = TOTAL OBSERVED **_____ = TOTAL NOT OBSERVED**

Other Comments/Observations:

_____

_____

_____

_____

_____

Section 4. The Double Interview

The Double Interview – Part 3. The Student Interviews the Evaluator	
Begin by reviewing the steps involved in an interview. Remind the student he was just interviewed by you, and he can ask questions about the three pictures you just discussed with him, or anything in the room.	
Records the questions the student asks you. Note if you had to prompt any part of the questions.	Briefly note your response to the question

Section 4. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 4
Checklist for analyzing the double interview

Check off which of the following observations were most accurate:

_____ The student generated novel questions easily, within 1-3 seconds.

_____ The student was noticeably uncomfortable during this task when compared to the first part of the double interview.

_____ The student could not initially generate a question; you had to write out the WH questions to help him think of ways to start questions.

_____ You needed to draw four squares on a piece of paper to remind the student that the task would end once he had asked four questions.

_____ The student was unable to generate a question so you gave him a visual cue (showed him a specific picture).

_____ The student was unable to generate a question so you gave him a verbal cue or started to form the question for him.

_____ The student told you he had no interest in talking to you.

_____ The student commented on what he/she knew about you but did not ask questions.

_____ The student asked the same questions you asked him.

_____ The student asked a question but failed to ask any follow-up questions.

_____ The student mostly asked questions about his own areas of interest.

_____ The student went on to talk about what was interesting to him, ceasing to interview you.

_____ The student shut down with body language and eye contact; you had to help the student through the entire process.

_____ The student told you he couldn't do it and refused to participate in the task.

_____ = TOTAL OBSERVED **_____ = TOTAL NOT OBSERVED**

_____ OTHER: _____

_____

Section 4. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 4

Errors in this section may imply:

- Very weak narrative language skills if the student had a lot of difficulty explaining his or her own life in part 1 of the interview. An underlying problem may be very inefficient perspective taking skills; the student cannot figure out what the listener needs to know or wants to know.
- Very ineffective use of his own body language and facial expressions, minimizing his or her own communicative effectiveness.
- Problems with eye-contact, limited in his or her communication effectiveness and may impact processing of other people's messages.
- Difficulty with prosody, tempo, and voice loudness.
- Difficulty reading people's faces quickly enough to distinguish them from others.
- Limited ability to generate language, specifically questions, to learn about other people's interests (limited perspective taking).
- Inability to ask follow-up questions, thus conversation about other people's interests remains fairly shallow; inability to turn small talk towards conversational language.
- Limited ability to self-monitor how his or her language is interpreted by others.
- Difficulty self regulating his talking time.
- Inability to share an imagination; only talks about what he knows.
- Student may not realize that conversation involves both what you know about someone and what you think they may want to talk about.

Impact on different academic and social elements in a day:

- Student may appear uninterested in others either because he appears shy and talks to very few people or because he is gregariously engaged in topics that only pertain to his areas of interested or his own life events.
- Student can be a challenge in the classroom, either because of lack of participation or over-participation; the child tangentially relates all subjects back to his own experiences or preferred topics.
- Student likely will encounter challenges with written expression as the student displays limited expressive language skills to meet the needs of the communicative exchange.
- Student fails to work well in group work classroom projects.

Section 5. Thinking with Our Eyes

Mark a "+" in the box if the student easily can follow your eye gaze, or a "-" if the student struggles with the task or provides an incorrect response				
Student looks at your eyes and where you are looking to determine what you are looking at.	Evaluator looks at the student	Evaluator looks at the clock	Evaluator looks at the door handle	Evaluator looks at another object in the room
Student tells you what you are thinking about based on where you are looking				

Evaluator Tools for Recording and Analyzing Findings: Section 5

Checklist for analyzing student's actions:

_____ The student was able to easily and quickly engage in all parts of the task.

_____ The student required explicit redirection to stay connected to the task.

_____ The student does not appear to understand reading the direction of eye-gaze, or does so with poor accuracy.

_____ The student could read the eye gaze direction but was far less sure of how to answer when having to guess the thoughts of the evaluator.

_____ = TOTAL OBSERVED _____ = TOTAL NOT OBSERVED

Errors in this section may imply:

- Difficulty understanding that eyes are used to convey information about thought and emotion among people.
- Difficulty quickly and efficiently using eye-gaze to interpret what people are looking at and what their related thoughts might be.

Impact on different academic and social elements in a day:

- Student has difficulty regulating around others given that he is not efficient at reading other's thoughts.
- Student may have extreme difficulty learning in a large classroom setting where one is expected to actively track the eye-gaze direction of fellow teachers and students.
- Student is likely to be unknowingly tricked, given that he cannot read people's intentions as conveyed through their eyes.
- Student is likely to have significant to severe problems with socially relating to all others and particularly peers, who understand how eyes are used in social situations as early as elementary school.

Section 6. Sequencing Pictures

Pre-teens through Adults

Present the older student or adult with a set of pictures (preferably 6-8) to sequence. Tell the student, "You get to create a story from these pictures by putting them in the correct order." Remind the student that this is a non-talking task. Observe the student's organizational and problem solving skills. Does the student verbally mediate the task? What strategy is used to figure out the sequence? Is the student able to move pictures around effectively or does he get lost in the process?

Below is an example from Color Cards Sequences: 6 and 8-Steps for Adults.

Social Theme: Coffee Shop

A. The woman walks to the outdoor café.
B. She sits at a table.
C. She orders a drink.
D. Enjoys her coffee and pastry.
E. Pays the bill.
F. Leaves her wallet on the table; a boy sees it.
G. Boy takes the wallet.
H. Boy gives it to the woman.

Mark above which pictures were placed in error by putting a slash through the letter corresponding to the picture(s).

Ask the student to narrate the story; do not interrupt or make any corrections.

If an error(s) has been made, tell the student he did a good starting job, but that he has to fix a couple of spots. See if the student can figure out what to fix. If not, touch the pictures sequenced incorrectly. Observe how the student goes about fixing the sequence: can he hold the main idea, or does he just get lost?

Ask the student to create a name for the story. You can also describe this as creating a title, like for a book. Does the student understand the gestalt of the story, or is he tangential in his title? With reference to the above story, an example of a gestalt title would be "People Acting Nicely". A tangential title would be something like "Going to the Coffee Shop". Make notes if you have to cue the student to create a title that is more on target. Write down all examples they generate.

Student's title(s):

_____

Once the picture story is properly sequenced, ask the individual to give you an example of the type of conversation that may be happening in each picture of the sequence. Notice if the student understands that conversations are contextually bound.

Section 6. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 6

Checklist for analyzing student's actions:

_____ Student sequenced pictures, narrated the story, summarized title and identified conversation as expected for his/her age.

_____ Student could not sequence the pictures but successfully reorganized them with an initial cue.

_____ Student required significant cues to help sequence the pictures appropriately.

_____ Student was able to narrate the story appropriately.

_____ Student's narration was tangential, hard to follow.

_____ Student was able to efficiently label the story.

_____ Student's title was tangential.

_____ Student could appropriately identify the conversation being held in each picture.

_____ Student could not identify the conversation from the social context.

_____ = TOTAL OBSERVED _____ = TOTAL NOT OBSERVED

Impact on different academic and social elements in a day:

- Reading comprehension of age appropriate stories may be overwhelming; the student cannot hold together a theme.
- Written expression using narrative language may be very challenging; student cannot sequence ideas well.
- Student may have real challenges interpreting intentions and perspective taking; he will have difficulty interpreting language in context both socially and in reading comprehension.
- Student's expressive language may be tangential; he will need to work on holding to the main idea in both spoken and written language.
- Student's expressive language may be literal, resulting in weaknesses in interpreting and producing abstract language.
- Student may have difficulty making inferences in reading comprehension where that inference involves interpreting social information.

Section 7. Social Scenario Pictures

During this next part of the assessment, social scenario pictures are shown to the student, once at a time. The student is asked to "explain what is happening in the picture." The evaluator is listening to determine if:

1. The student accurately captures the overall social theme in the picture.
2. The student is able to appropriate label the environmental context.
3. The student is able to identify any emotions while describing the pictures.

Social scenario pictures from ProED's "Emotions and Expressions Cards" are appropriate but evaluators can use any social picture card that clearly illustrates a social theme.

Present the student with four pictures total, selected based on age and developmental levels. Write a brief summary of the pictures in the left column, and the student's response in the right column. An example follows.

Man with ripped pants	
No money when in a restaurant	
Salt in sugar bowl at breakfast	
Stealing from a store	
Mom leaves child in the care of a babysitter	

Section 7. Evaluation

Evaluator Tools for Recording and Analyzing Findings: Section 7

Check off which of the following observations were most accurate:

_____ Student is able to quickly and efficiently interpret all pictures.

_____ Student struggled to identify the environmental context or roles of the people in some of the pictures.

_____ Student could not easily identify the intentions of one of the persons in the picture (e.g. could not see the boy was planning to trick the sister, could not see the big brother was about to smash the little brother's Legos), meaning the student was not easily picking up on the nonverbal cues of the character's body and face.

_____ Student did not use a range of emotion words to describe how the characters felt in the different scenarios, even when directly asked about their feelings.

_____ = TOTAL OBSERVED _____ = TOTAL NOT OBSERVED

Errors in this section may imply:

- Difficulty reading contextual cues in the environment
- Difficulty reading nonverbal body and face cues
- Difficulty synthesizing nonverbal and contextual cues to understand a main idea
- Limited range of emotion words to express feeling in self, others, or in fictional characters

Impact on different academic and social elements in a day:

- Student may have limited ability to read social contexts needed for navigating the school day.
- Student may have difficulty interpreting social information in order to process inference.
- Student may be tricked by peers because he cannot easily read people's intentions.
- Student may have difficulty with written expression that requires him to incorporate social knowledge (writing in dialogue, etc.) or writing about his own feelings.

Section 8. Assessing Organizational Skills

This final segment of the social assessment is used to gauge the student's organizational and other executive functioning skills. This is done through dialogue with the student, rather than a set of tasks. Remember that everything that transpires throughout the assessment can be commented on as part of the social assessment. As you go through the following list of questions with the student, make note of how easily the student converses with you, body language and tone of voice, motivation/interest, ability to stay focused and on topic, level of stress/calm, etc. These are all indicators of the student's social thinking strengths and weaknesses that can be included in your written report.

Name _____ Date _____

How important are grades to you?
What are your classes and what are your grades?
How do you take notes in class?
How do you study for tests?
Do you write down your assignments?
Do you refer to your assignments once you write them down?
Do you ask for help in the class?
Do you call any students to ask for help?
Do you study in the same place each day?
Do you type pretty well? Which do you prefer, handwriting or typing?

Do you have a study/homework schedule?
Is there a difference between studying and doing homework?
How much time do you spend doing homework/studying each night?
Do you have any tricks to motivate you to keep on studying or doing homework? Do you take any breaks when you study?
How do you prepare to study?
Do you guess how long each homework assignment will take to complete? Yes / No If you do make a guess, how accurate are you at guessing?
Are you better with assignments that are due the next day or ones that are due later in time (two weeks later, etc.)? Why?
Do you wear a watch?
Do you monitor time while you study?
How do you feel when you finish your homework?
Do you study/do homework each night?
Do you monitor time when you do your own hobbies?
Do you ask for help at home?
Do you have an organized backpack?
Do you have many binders? How do you organize them?

Do you always turn in the work you completed at home?
How much of your homework do you actually complete? (percentage)
Do you complete your homework: Quickly Slowly with a lot of interruptions/breaks Thoughtfully

Check off which of the following observations were most accurate:

_____ Student does not appear to have organizational skills challenges beyond those his peers are also experiencing.

_____ Student lacks motivation to participate in the classroom/homework process. Has little concern about grades or his performance.

_____ Student does not have a set study routine.

_____ Student does not predict time for his homework assignments.

_____ Student does not write down homework assignments predictably.

_____ Student does not bring materials for homework from school to home reliably.

_____ Student does not create a study plan each night.

_____ Student cannot break down larger tasks into smaller chunks.

_____ Student does not know how to prioritize workload across a week, a day, or an hour.

_____ Student does not take frequent work breaks, but becomes ineffective continuously sitting to do homework.

_____ Student does not understand that once homework is completed he will have free time, but instead cries/complains at length about assignments that are relatively easy to complete.

_____ Student does not ask for help from teachers, parents, and/or peers.

_____ Student does not use the phone to network with friends on harder assignments.

_____ Student does not turn in homework once complete.

_____ Student makes a lot of excuses for why homework is not done.

_____ = TOTAL OBSERVED **_____ = TOTAL NOT OBSERVED**

Errors in this section may imply:

- Student is overwhelmed by homework tasks; may have behavioral or motivational problems.
- Student has executive function problems; cannot break down abstract tasks into more concrete sub-tasks.
- Student may not know how to study even if he tries to study. Studying requires the intuitive ability to develop, modify, and re-prioritize plans on a regular basis.
- Student may not ask for help, which means he may not have the tools to develop self-advocacy as he ages.
- Student may be getting depressed as the workload increases and he lags farther behind, despite knowing he or she is “smart”.
- Student needs goals written to address specific aspects of the organizational process that are challenging. Student must work on these goals as he transitions from school to home and back again with differing assignments.
- Parents need to learn about and then teach organizational skills at home during teachable moments, and to further generalize skills.

Impact on different academic and social elements in a day:

- Student does not do homework.
- Student may appear to have a bad attitude about school, when in reality he is overwhelmed by the task demands.
- Student may not think he can talk about his challenges with school work and/or homework since he is supposed to be “smart”.
- Increased frustration may result in the student having behavior problems at home and/or school.
- Student may shut down and become depressed over his or her inability to participate in the daily curriculum.

Section	Observed	Not Observed
Writing Sample		
Double Interview Part 1		
Double Interview Part 2		
Double Interview Part 3		
Thinking with our Eyes		
Sequencing Pictures		
Social Scenario Pictures		
Organization		
TOTALS		

Final Notes

Use this section to record other tasks incorporated into the assessment, or general notes about the evaluations that will be pertinent to include in the written report.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____