Development of the Social Interactions Behavior Inventory (SIBI) for Children with High-Functioning Autism/Asperger’s Syndrome

Thesis

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By

Winnie Wing Sum Chung, B.A.
Graduate Program in Psychology

The Ohio State University

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Thesis Committee:

Mary Fristad, Ph.D., ABPP, Advisor
Steven Beck, Ph.D., ABPP
Michael Vasey, Ph.D.
Luc Lecavalier, Ph.D.
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Abstract

Children with high-functioning autism (HFA) and Asperger’s syndrome (AS) experience considerable impairment in their day-to-day social interactions. While interventions such as social skills training programs have been developed to address these concerns, there is a lack of ecologically-valid measures to assess meaningful outcomes in children’s social interactions. The current study utilized a qualitative approach to develop the Social Interactions Behavior Inventory (SIBI), a parent- and child-report measure examining children’s social functioning in the school, community, and home settings. An initial pool of items was generated based on the social functioning literature of children with HFA/AS and expert consultation. Focus groups and individual interviews were conducted to obtain parents’ and children’s feedback regarding the SIBI, and four iterations were completed until a final parent and child version was deemed adequate and satisfactory. Issues regarding parent-child agreement, the use of child self-reports, and parents’ knowledge of children’s school social behaviors are discussed. Future studies examining the psychometric properties of the SIBI in larger, more representative samples are warranted.
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Vita

August 2004..........................ARCT Performance Diploma
Royal Conservatory of Music

June 2005..............................Alpha Secondary School
Burnaby, British Columbia

May 2009..............................Bachelor of Arts, Psychology
University of British Columbia

September 2010 to August 2011........University Fellowship
The Ohio State University

2010 to present........................Graduate Research Associate,
The Ohio State University

June 2012 to August 2012..............Social and Behavioral Sciences Fellowship
The Ohio State University

September 2012 to August 2015..........Doctoral Research Award
Canadian Institutes of Health Research

Publications


Fields of Study

Major Field:  Psychology

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Chapter 1: Introduction

A recent report published by the Centers for Disease Control and Prevention (CDC) estimated the prevalence of Autism Spectrum Disorders (ASDs) in 2008 to be 1 in 88 children (CDC, 2012), a 23% increase from the 2006 estimate (1 in 110 children) and a 78% increase from the 2002 estimate (1 in 150 children). ASDs appear to be a critical and rising health concern. Even among children who are “higher functioning”, or those diagnosed with high-functioning autism (HFA) and Asperger’s syndrome (AS), the social impairments experienced in daily life can be immense and far-reaching. Characterized by persistent impairments in nonverbal behaviors, appropriate friendship development, reciprocal social interactions, and preoccupation with repetitive patterns of interests and behaviors, these cognitively and linguistically higher-functioning individuals experience significant difficulties in their interpersonal functioning (American Psychiatric Association, 2000; Carter et al, 2005).

At first blush, it may seem reasonable to presume that the overall dysfunction experienced by higher-functioning individuals is less impairing than that experienced by their lower-functioning counterparts. However, researchers (e.g., Ghaziuddin et al., 2002) have argued that since higher-functioning individuals tend to view themselves as less competent and have a lower sense of self-worth (e.g., Capps et al., 1995; Sigman et al., 1997), these children may be more prone to psychopathological symptoms such as
anxiety (e.g., White et al., 2010), depression, and social withdrawal, further fueling the dysfunctional social interaction patterns already experienced. Moreover, the often inappropriate and awkward social behaviors these individuals exhibit may seem especially aberrant and odd to their peers because of these individuals’ typical presentations in other domains (e.g., cognitive functioning, physical appearance; Talebi, 2007). As children with HFA/AS enter their adolescent years, they become increasingly aware of their differences from typically developing peers, yet often lack the knowledge and abilities to fit into their social circles (Carrington & Graham, 1999). Intuitively, the social environments and challenges that children and adolescents encounter can be drastically different. For example, significant others and romantic partners become increasingly important in adolescents’ lives. Given the intent of the current study to focus on the social functioning of children with HFA/AS, the review below will primarily draw from literature examining the social interactions of children rather than children and adolescents.

**Comorbid Psychological Difficulties**

Without delving too deeply into a discussion of the psychological difficulties common to children with HFA/AS, it is important to mention that individuals with ASDs often struggle to manage various forms of behavioral and emotional problems as well as associated psychological difficulties, in particular depression and anxiety (White et al., 2009; de Bruin et al., 2007; Lecavalier, 2006; Gadow et al., 2005; Klin et al., 2003b; Ghaziuddin, 2002; Ghaziuddin et al., 2002). Whether their social impairments contribute to the development of these symptoms, their social dysfunctions exacerbate these
difficulties, or their psychological symptoms are manifestations independent of comorbid psychopathology, children with HFA/AS can experience tremendous suffering in various domains of their lives. Although the current review focuses primarily on the social impairments experienced by children with HFA/AS, it is important for future work to consider how the characteristics of these children’s social interactions and behaviors may influence their psychological well-being, and vice versa.

**Core Social Deficits among Children with HFA/AS**

Several key theories attempting to explain the social deficits among children with HFA/AS have been established in recent years. First, Baron-Cohen (1995) has proposed that deficits in theory of mind (ToM), sometimes referred to as “mindblindness”, may play an important role in contributing to the social impairments observed and experienced by these individuals. As suggested by Baron-Cohen, difficulties recognizing and understanding the mental states and processes of oneself and others may lead to further difficulties in predicting others’ beliefs, feelings, and intent, especially in real-life situations, contributing to an overall lack of “social insight” considered to be intuitive for their typically developing peers (White, 2011). Not surprisingly, these deficits can lead to considerable interpersonal strain and problematic social relationships.

Another theory proposes that the social impairments among children with HFA/AS may be related to deficits in executive functions, particularly those involved in flexibility and planning (Ozonoff & Jensen, 1999). For example, these individuals may become extremely upset and respond in hostile and even aggressive ways when faced with unexpected changes and disruptions in routines that typically developing children
are better able to calmly accept (White, 2011). Third, the theory of weak central coherence (e.g., Frith, 2003) has been used to explain these individuals’ social dysfunction in terms of their inability to integrate and utilize context-dependent information in their social interactions. As just one example, an individual with HFA/AS who attends only to verbal information and neglects nonverbal social cues may fail to distinguish sincere from sarcastic remarks, and is also vulnerable to making other misinterpretations when communicating with others. Finally, Klin and colleagues’ model of the “enactive mind” (2003a) suggests that individuals with HFA/AS generally seem to be more oriented to objects and things rather than people, which may further explain their lack of attention to and awareness of important social cues such as eye gaze and facial expressions.

The theories highlighted above all strive to explain various forms of deficits that may contribute to the social deficits among children with HFA/AS. A closer look at the research examining these individuals’ actual social experiences and outcomes is vital in forming a clear depiction of the social world in which children with HFA/AS must navigate day by day. Although what constitutes successful and optimal social functioning can be defined in a variety of ways, given these individuals’ deficits in developing age-appropriate social relationships, the importance of peer interactions in children’s social development and well-being (Parker et al., 1995; Asher et al., 1990; Buhrmester, 1990), and the fact that the majority of the literature has focused on peer interactions, the following review will focus mainly on the nature and outcomes of peer relationships in children with HFA/AS. This emphasis on peer interactions is further supported by the
observation that in familiar environments within these children’s homes, deviant social behaviors may not be as apparent due to various accommodations parents may make to guide and facilitate their interactions. In the absence of such scaffolding in peer relationships, problematic social behaviors and interactions are more likely to engender trouble and conflict.

**Social Behaviors and Experiences of Children with HFA/AS**

Although individuals with HFA/AS may experience social isolation, some of these individuals tend not to withdraw in the presence of others (unlike their lower functioning counterparts), but often approach people incessantly or in inappropriate ways (Klin et al., 2003b). Despite their interest and desire for social relationships, the attempts that these individuals make to form satisfying social relationships are often unsuccessful due to their inappropriate reactions to others, their formal style of communication, and their apparent insensitivity towards others and disregard for others’ feelings. Despite being able to accurately describe others’ intentions, emotions, and social rules, as is sometimes seen in individuals with HFA/AS, their abilities to apply and utilize this knowledge is significantly impaired in real-life social situations. Furthermore, the verbosity, tangential speech, and perseveration on specific topics that characterize these individuals’ communication patterns can indeed be off-putting, frustrating, and seemingly insensitive to their peers. Hence, the social interactions that individuals with HFA/AS share with their typically developing peers can be greatly strained.

Despite the often awkward and eccentric social behavioral patterns that children with HFA/AS exhibit, it appears that many of these individuals report having at least one
friend or are involved in some type of social network (Bauminger & Kasari, 2000). Nevertheless, the number of reciprocated friendships may be fewer for these individuals (Chamberlain et al., 2007; Kasari et al., 2011), and these children are often left on the periphery of social networks, experiencing lower friendship quality such as reduced sense of acceptance, companionship, and helpfulness (Kasari et al., 2011; Locke et al., 2010; Chamberlain et al., 2007). Furthermore, the amount of time that these individuals spend engaged in peer interactions and other extracurricular social activities appears to be lower than their typically developing counterparts (Bauminger et al., 2003; Montes & Halterman, 2006). Therefore, not only are individuals with HFA/AS less involved in social relationships, especially reciprocal friendships, the quality of their friendships may also be lower than that experienced by typically developing children.

**Defining friendship and loneliness.** When typically developing children are asked to define the concept of friendship, themes and characteristics relating to companionship, affection, and intimacy are often mentioned (e.g., Parker & Gottman, 1989). However, among those with HFA/AS, these themes are discussed less frequently, suggesting that these individuals may conceptualize friendship and the roles that friends play in different ways. Research suggests that children with HFA/AS may lack a thorough understanding of the idea of reciprocity in friendships, and may have trouble understanding and using words and language to explain friendship concepts (Carrington, Templeton, & Papinczak, 2003; Filipek et al., 1999). Since individuals with HFA/AS may be less accepted and included in social groups, this reduced contact and interpersonal experiences with their peers may also prevent these individuals from
developing a comprehensive understanding of what constitutes true friendship (Hobson, 1993). Furthermore, there seems to be evidence that children with HFA/AS may hold a more impersonal view of friendship, describing friends as companions in activities and playmates rather than as close, intimate individuals in one’s life (Buaminger & Shulman, 2003).

Loneliness, on the other hand, has been conceptualized as a subjective and unpleasant experience that arises when an individual perceives his/her social network to be less satisfying and fulfilling than he/she wishes, or is deficient in some qualitative or quantitative way (Peplau & Perlman, 1982; Margalit, 1994; Asher et al., 1984). This complex state of being has been theorized to comprise two components: 1) emotional loneliness, or a subjective response resulting from a lack of close attachments that can lead to negative feelings such as sadness or emptiness, and 2) social-cognitive loneliness, or the perception that one’s social network is unsatisfying or otherwise deficient in some way (Weiss, 1973).

In comparing the understanding of loneliness and friendship among children with and without HFA, Bauminger and Kasari (2000) found that while typically developing children were able to explain the concept of loneliness in terms of the objective state of being alone as well as experiences of sadness (defining both emotional and social-cognitive loneliness), those with HFA did not incorporate an emotional component to their definitions of loneliness (reflecting a social-cognitive understanding of loneliness). Furthermore, children with HFA may lack an understanding of the relationships between friendship and loneliness, failing to appreciate the positive effects of being around friends.
and the effects of attachment and closeness in protecting against loneliness. As such, it appears that individuals with HFA/AS may not comprehend the emotional aspects of friendship and loneliness, and are unable to utilize their social networks to reduce their experiences of feeling lonely.

**Experiences of loneliness.** Historically, it has been suggested that children with HFA/AS do not experience loneliness as a result of their deficient social interactions, but instead desire to be alone, content in their solitude (Kanner, 1943). However, recent research seems to indicate the contrary. Comparing the degree of loneliness that is reported by children with HFA/AS with typically developing children, those with HFA/AS seem to experience higher levels of loneliness (Locke et al., 2010; Bauminger et al., 2003). It appears that rather than desiring aloneness over social inclusion, children with HFA/AS seem to have a desire for satisfying and fulfilling social relationships. Since the experience of loneliness is one of the most important drives towards social relationships, and since children with HFA/AS seem to experience loneliness more intensely and frequently than typically developing children, these individuals may desire and seek satisfying social relationships more fervently than others. Further, compared to lonely typically developing children, those with HFA/AS may experience comparable levels of the desire for social relationships, yet have greater difficulty fulfilling this desire than their typically developing peers. Perhaps largely due to their tendency to engage in inappropriate behaviors during social interactions, these individuals fail to develop mutually-enjoyable peer relationships, experiencing rather the painful feeling of loneliness in response to their deficient social networks. Moreover, given their limited
understanding of the constructs of friendship and loneliness, as well as their inability to grasp the relationship between these two concepts, the protective effects of friendship may not be experienced or felt by these individuals.

**Bullying and peer victimization.** Perhaps not surprisingly, compounding the relational deficits from which children with HFA/AS suffer, experiences of bullying and victimization are unfortunately highly prevalent in these individuals’ lives. Little (2001) found that up to 75% of children with AS reported experiencing bullying, and Carter (2009) found a similarly alarming rate; 65% of parents reporting their child had been bullied within the past year (compared to 17 to 19% among typically developing children; Nansel et al, 2001). In a second study conducted by Little (2002), 94% of children with AS were reported to have been victimized, with approximately 75% having been hit by their peers or siblings or bullied emotionally, and 10% having been victimized by gangs.

Because of the difficulties these children encounter when interacting with their peers in face-to-face contexts, the Internet may provide an alternative means by which these individuals can engage in more successful interactions (e.g., deficits in observing and utilizing nonverbal social cues may be less apparent). Unfortunately, the Internet may fail to serve as a safe haven for these children. Related to this increased Internet use, researchers have also suggested that in addition to being targets for traditional bullying, individuals with HFA/AS may be at greater risk to be victims of cyber bullying as well (Kowalski & Fedina, 2011).
As can be seen, the social impairments that children with HFA/AS experience have significant negative effects. Fortunately, researchers over the years have worked to develop interventions that strive to improve the lives of these individuals. In particular, various social skills training programs are being developed and used to improve these children’s social functioning.

**Social Skills Training to Improve Social Functioning for Children with HFA/AS**

Social skills interventions have been developed to teach children with HFA/AS the various skills that are necessary to form and maintain successful social relationships with others (Cappadocia & Weiss, 2011). Specific adaptive social behaviors such as conversation skills, empathy, self-regulation, and conflict management techniques are frequently presented and taught to children via direct instruction, modeling of appropriate behaviors, reinforcement, and shaping of behaviors. These social skills training programs can be categorized into *traditional* programs (training delivered in clinic or classroom settings), social skills training *plus generalization* (incorporating practice in the community and assigning homework), social skills training *with a cognitive behavioral orientation* (emphasis on the identification of feelings and self-evaluation techniques), and social skills training *with an additional parent component* (providing support and psychoeducation to parents). Peer-assisted training programs have also been developed and used (e.g., Kasari et al., 2011; Harper et al., 2008; Chung et al., 2007).

In a review conducted by Rao and colleagues’ (2008), the efficacy of ten social skills training programs targeted for children with HFA/AS were assessed. Of the six traditional social skills training studies that were examined, five seemed to demonstrate
positive treatment outcomes, including increased social engagement (Kamps et al., 1992), improvements in the use and frequency of targeted social skills (Webb et al., 2004; Sansosti & Powell-Smith, 2006), social competence (Tse et al., 2007), and emotional understanding (Solomon et al., 2004). No post-treatment differences between the treatment group and control group in social competence were detected in a 14-week training program designed to improve social skills and ToM abilities (Ozonoff & Miller, 1995). Of the four social skills training plus generalization programs that were assessed, two seemed to demonstrate success in improving skills relate to greetings and play, increasing perceived social support (Barry et al., 2003), and improving nonverbal and verbal behaviors (Bauminger, 2002). Nevertheless, improvements in social skills and behaviors were not observed in a 12-week training program (Barnhill et al., 2002) nor in an 8-week intervention created to improve more complex social behaviors (Marriage et al., 1995).

In a more recent review conducted by Cappadocia and Weiss (2011), two traditional social skills training programs (Tse et al., 2007; Webb et al., 2004), three social skills with cognitive behavioral orientation programs (Bauminger, 2007; Lopata et al., 2006; Lopata et al., 2008), and three programs incorporating a parent component (Beaumont & Sofronoff, 2008; Solomon et al., 2004; Barry et al., 2003) demonstrated positive outcomes (e.g., improved social competence, reduced emotional and behavioral problems, improved social and adaptive skills, and improved problem solving skills). Nevertheless, no significant improvements were found in two of the investigated studies (Barnhill et al., 2002; Marriage et al., 1995), consistent with the findings from Rao and

Although it is beyond the scope of this review to discuss the possible reasons for some of the inconsistent findings from various studies mentioned above, it is of note that among the studies examining the efficacy and effectiveness of the treatments of interest, different measures from different informants were used to assess treatment outcomes (Cappadocia & Weiss, 2011; Rao et al., 2008). For example, some of the studies utilized behavioral observation as their primary outcome measure (e.g., Kamps et al., 1992; Sansosti & Powell-Smith, 2006), while others used questionnaires designed specifically for their particular study (Marriage et al., 1995; Barry et al., 2003), and still others used parent-, teacher-, and self-reports from different scales and measures. Not only does this lack of consistency in measurement make the task of comparing the efficacy of treatments difficult if not impossible, one cannot draw concrete conclusions regarding the overall success of interventions in improving the social functioning of children with HFA/AS, nor is it possible to identify specific social behaviors or specific areas of social functioning that may be “resistant” to improvement by social interventions and thus should be targeted for further research.
Measures Assessing Social Functioning

A group of autism researchers convened in a meeting sponsored by the National Institutes of Health in 2002 to discuss important challenges faced by investigators conducting research on psychosocial interventions for children with ASDs. One of the recommendations ranked as high priority was the need to modify existing outcome measures or create new outcome measure to more comprehensively and meaningfully assess treatment goals and treatment effects (Lord et al., 2005). This sentiment continues to be shared by many researchers attempting to improve the social functioning of children with HFA/AS in more recent years (e.g., Cappadocia & Weiss, 2011; Reichow & Volkmar, 2010; Rao et al., 2008; Bellini & Hopf, 2007; White et al., 2007; Elder et al., 2006), suggesting the continued need for the development of measures that assess these children’s functioning within their social environments, and those that are able to capture “clinical significant, socially valid” changes (Reichow & Volkmar, 2010, p. 163) in response to interventions and treatment programs. In particular, although there are existing measures assessing specific social skills and general social functioning of children with HFA/AS, what is currently lacking are reliable and valid measures that capture these children’s actual day-to-day social interactions with their peers and family.

Various measures have been used to evaluate treatment outcomes and social functioning in children with HFA/AS; however, all have clear limitations. Direct observation is a common method used to assess intervention outcomes, and researchers have created and utilized systematic and sound coding schemes and methods in their observational work assessing social functioning in children with HFA/AS (e.g., Kasari et
al., 2011; Bauminger et al., 2003). However, while direct observation allows researchers to observe behaviors of interest in structured and/or unstructured settings, when used in larger clinical trials, this method may tax resources such as time and money, and be difficult to implement accurately and systematically (White et al., 2007). Moreover, direct observation in multiple settings (e.g., school, home, extracurricular activities settings) is often not feasible due to practical limitations (e.g., issues relating to potentially intrusive nature of observational research), and norms are typically unavailable for observational data, rendering the interpretation of results difficult (L. Lecavalier, personal communication, October 24, 2011). Hence this approach on its own may be limited in the breadth and depth of information it can provide.

The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) has been used as an outcome measure in various studies examining the effectiveness of social skills training programs for children with HFA/AS (e.g., Gresham & Elliott, 2008; Barry et al., 2003; Ozonoff & Miller, 1995; Webb et al., 2004). The SSRS assesses levels of cooperation, empathy, assertion, self-control, responsibility, various problem behaviors (internalizing/externalizing problems, hyperactivity), and academic competence via parent-, teacher-, and self-reports. Despite the broad range of behaviors assessed by the SSRS, since it was developed to measure social behavior among typically developing children with behavioral and interpersonal problems, the unique social behavior profiles of individuals with HFA/AS are not captured by this measure. For example, the lack of social reciprocity that characterizes these individuals’ social interaction patterns is not detected by the SSRS.
Another measure developed specifically to address the social deficits of children (between the ages of 4 and 18) with ASDs is the Social Responsiveness Scale (SRS; Constantino & Gruber, 2005; Tse et al., 2007). The SRS consists of parent- and teacher-reports assessing the degree of social awareness (e.g., “Is aware of what others are thinking or feeling”), social cognition (e.g., “Has a sense of humor, understands jokes”), social communication (e.g., “Is able to communicate his or her feelings to others”), social motivation (e.g., “Would rather be alone than with others”), and autism mannerisms (e.g., “Has an unusually narrow range of interests”) in children. This measure provides a clear depiction of the social impairments children with ASDs experience. However, the primary goal when developing this scale was to distinguish children with ASDs from typically developing children or those with other psychiatric disorders, hence important areas of social functioning and particular social behaviors that may be diagnostically irrelevant but practically important are not assessed by the SRS (Bellini & Hopf, 2007). For example, the frequency of play-dates an individual has within a given week or the frequency with which a child talks on the phone (or exchanges text messages) with a friend may not be relevant information for diagnostic purposes, but such details can provide clinicians and researchers with a more thorough picture of a child’s social functioning, as well as assess behavioral gains following successful intervention strategies. Furthermore, the absence of self-reported experiences provided limits a broad understanding of the social interaction patterns of children with HFA/AS that could otherwise be obtained. Interestingly, the SRS has yet been rarely used as an outcome measure in intervention studies (White et al., 2007).
Recently, Bellini and Hopf (2007) developed the Autism Social Skills Profile (ASSP) to assess the level of social reciprocity, social participation/avoidance, and detrimental social behaviors among children with ASDs. Although this parent-report measure examines a broad range of social behaviors in children with ASDs, the limited third-person perspective offered by this measure (i.e., the absence of a self-report version by a child with HFA/AS) and the lack of specificity and degree of successful execution of the assessed behaviors (e.g., asking whether a child “engages in one-on-one peer interactions” without asking about actual frequencies of peer interactions; asking whether a child “joins in activities with peers” without assessing how much a child enjoys interacting with peers) may again restrict researchers’ ability to obtain a comprehensive and detailed understanding of these individuals’ day to day social functioning.

Other measures have been used to assess social functioning outcomes in children with ASDs, though each are limited in the information they provide regarding the social interactions of children with HFA/AS. For example, the Matson Evaluation of Social Skills with Youngsters (MESSY; Matson, 1988) is a measure of appropriate and inappropriate social behaviors using both self- and parent/teacher-reports. Consisting of an Inappropriate Assertiveness/Impulsiveness scale and an Appropriate Social Skills scale, the MESSY assesses social skills among the general child and adolescent population (between the ages of 4 and 18). Although this measure asks informants to report on children’s ability to perform a wide range of behaviors and skills, it lacks items assessing the specific behaviors that children perform when engaging in everyday social interactions. Furthermore, the lack of a concrete timeframe for which informants are
asked to report on may contribute to reports describing *ideal* frequencies and success of behaviors rather than children’s *actual* performance (e.g., indicating that a child “knows how to make friends” without considering the quality and quantity of friendships that a child holds).

The Social Competence Inventory (SCI; Rydell et al., 1997; Koenig et al., 2010) is a 24-item parent-report questionnaire measuring prosocial behaviors and social initiation among typically-developing children. This measure consists of items examining an array of social competencies, including items such as “shares his/her belongings”, “hesitant with peers”, and “has capacity for generosity to peers”. However, this measure again lacks information provided by children themselves (i.e., limited third-person perspective on children’s social behaviors), and as with the MESSY, does not ask about specific social interactions in which children participate. The Social Skills Questionnaire (SSQ; Spence, 1995; Beaumont & Sofronoff, 2008; Broderick et al, 2002) is another measure assessing social competence in children. Consisting of 30 parent/teacher-reported items, this questionnaire asks informants to report on a child’s behavior with the past 4 weeks. This measure is also limited in its lack of information gathered regarding children’s own perceptions of their social interactions experiences. Moreover, the SSQ was not developed specifically for children with ASDs, and does not assess the frequency that children engage in social interactions with others.

The Loneliness and Social Dissatisfaction Questionnaire (Asher et al., 1984) and the Friendship Qualities Scale (Bukowski et al., 1994) have also been used to assess social outcomes among children with HFA/AS (e.g., Locke et al., 2010; Chamberlain et
al., 2007; Bauminger et al., 2003; Bauminger & Kasari, 2000). The Loneliness and Social Dissatisfaction Questionnaire is a 24-item self-report measure consisting of 18 primary items assessing feelings of loneliness and social dissatisfaction (e.g., “It’s hard for me to make friends”, “I feel alone”), and 8 filler items asking about children’s leisure activities and hobbies (e.g., “I like science”, “I like playing board games a lot”). The filler items are intended to promote open and honest responding in children. The Friendship Qualities Scale (Bukowski et al., 1994), on the other hand, is a 23-item self-report questionnaire measuring the quality of children’s relationships with their best friend. This theoretically-based measure assesses children’s relationships in a multidimensional way, asking questions regarding companionship (e.g., My friend and I spend all our free time together”), conflict (e.g., “My friend and I can argue a lot”), helpfulness (e.g., “My friend would help me if I needed it”), security (e.g., “If my friend or I do something that bothers the other one of us, we can make up easily”), and closeness (e.g., “I think about my friend even when my friend is not around”). Although both the Loneliness and Social Dissatisfaction Questionnaire and the Friendship Qualities Scale assess important, key aspects of children’s overall social functioning, these measures focus on the quality of children’s social relationships and lack items examining the behaviors they engage in during actual social interactions. Moreover, these measures were not developed specifically for children with HFA/AS, thus, certain social characteristics unique to those with HFA/AS (e.g., frequency of social initiation and social reciprocity) may not be captured by these two scales.
Various measures assessing adaptive behavior (e.g., conceptual, social, and practical skills that allow individuals to function in everyday life; Luckasson et al., 2010) and other problematic behaviors have also been used as outcome measures for interventions targeting social functioning in children with HFA/AS. Some of these measures include the Vineland Adaptive Behavior Scales, Second Edition (Vineland-II; Sparrow, Cicchetti, & Balla, 2005), the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 2004), the Aberrant Behavior Checklist (ABC; Aman et al., 1985), and the Nisonger Child Behavior Rating Form (N-CBRF; Aman et al., 1996). These measures undoubtedly provide valuable information regarding children’s behaviors in different domains of their lives, but for the purposes of obtaining a rich depiction of primarily social functioning, these measures may be limited in the type and depth of data they provide.

Despite the various measures that have been used to assess treatment outcomes in children with HFA/AS, there is yet a lack of consensus on definitions of social deficits and optimal measurement tools to assess social functioning in these children (e.g., Cappadocia & Weiss, 2011; Rao et al., 2008; Elder et al., 2006). As suggested in the above review, there seems to be a need for a novel measure that can detect meaningful changes in social functioning (Krasny et al., 2003; Ozonoff & Miller, 1995; Scahill & Lord, 2004). For example, Bellini and Hopf (2007) suggest that although children with HFA/AS may be improving in their overall social functioning, these improvements may not be evident when assessed by rating scales normed on typically developing samples. Moreover, the sometimes subtle treatment gains among these children may not be
revealed by measures of more general social functioning. In addition, the degree to which learned social skills generalize from the therapy setting to the social environments in which children with HFA/AS navigate can be difficult to infer using existing measures. Hence, measures that are designed specifically to assess the unique characteristics of day-to-day social interactions of children with HFA/AS seem to be greatly needed.

**Summary and Next Steps Forward**

In sum, the social deficits experienced by children with HFA/AS can be significant and greatly impairing. A variety of social skills interventions have been developed to address the social dysfunction in these vulnerable individuals, though the outcomes of studies examining the efficacy of these intervention programs have been inconsistently measured. Hence, overall conclusions regarding their efficacy cannot be solidly drawn. Furthermore, existing measures that have been developed and used appear to be limited in the information they provide. Specifically, in addition to assessing whether or not a child with HFA/AS is able to perform specific social skills, there is currently a lack of versatile measures examining how frequently and how successfully a child is generalizing or utilizing those skills in their everyday social interactions. Such a measure, alone and in conjunction with existing measures, would potentially answer important questions of: *Are the skills and strategies these children learn in various intervention programs being generalized to their everyday social relationships? Are reported levels of general social functioning consistent with and reflected in day-to-day social interactions?* When used outside the treatment evaluation context, a measure such as this can provide insights into the particular facets of a child’s social interactions that
are particularly impaired, targeting not only specific social skills to focus on addressing in treatment, but also aspects of the social environment that could be improved to facilitate successful social interactions.

**Qualitative Item Review**

The current study approached the development of a new social interactions behavior inventory in a qualitative way, with the goal of generating, revising, and refining a set of representative items to be included in the final scale, which can later, in a separate study, be quantitatively evaluated for its psychometric properties. To obtain a comprehensive picture and understanding of the social interactions of children with HFA/AS, selected recommendations and procedures from the Patient-Reported Outcome Measurement Information System (PROMIS) Qualitative Item Review protocol were loosely applied in the present study (DeWalt et al., 2007). The PROMIS project is a multisite initiative developed by the National Institutes of Health (NIH) to create and disseminate valid and precise measures of health outcomes and well-being to both clinicians and researchers alike. Utilizing rigorous qualitative and quantitative methods, PROMIS attempts to build and validate measures that are clear and acceptable to participants, and can be effectively used in research and clinical settings. The PROMIS protocol suggests six stages in the development of an item bank that can subsequently be tested using quantitative methods: 1) identifying possible items from previous research and clinical practice with input from experts in the domain of interest; 2) classifying items and selecting desired items; 3) reviewing and revising selected items; 4) conducting focus groups to obtain feedback on the breadth and depth of items; 5) implementing
cognitive interviewing strategies with participants responding to items; and 6) performing a final revision of items. For the purposes of the current study, input and feedback from experts, review and revision of items, and interviews conducted individually and in focus groups were implemented.

Upon consideration of the suggestions that Beatty and Willis (2007) propose in their synthesis of various cognitive interviewing methods, the current study implemented a retrospective verbal probing technique. After participants completed a version of the questionnaire of interest, they were probed by interviewers to explain their answers and their interpretations of answered questions. When sensitively implemented, the use of probes encourages participants to focus on relevant issues, does not interfere with participants’ responding to questions, and allows participants to provide a rich pool of verbal information that researchers may not otherwise obtain (Beatty & Willis, 2007). Two types of probes, proactive and reactive, are described by Beatty and Willis, and their use can be determined by the situations encountered by interviewers. For example, when a participant hesitates before answering a particular interview question, interviewers may ask the participant to explain his/her reasons for hesitation and the thought processes that may have led to his/her hesitation.

Although there are no specific guidelines as to what is considered an “adequate” sample size, cognitive interviews are typically conducted in rounds of 5 to 15 interviews each, where items are revised after each round to progressively eliminate problematic issues before modified items are administered in subsequent rounds. Given the small number of participants involved in such qualitative item analysis methods, the samples
that are used may not be representative of the populations these measures are designed to capture. Nevertheless, the wealth of information obtained is valuable and can provide significant insights into the actual experiences of the populations of interest. Furthermore, cognitive interviewing is based on the assumption that as long as participants are appropriately chosen with regard to the measures of interest (e.g., conducting interviews with individuals having direct experiences with ASDs when assessing a measure on ASD symptoms), the most problematic issues embedded in the questionnaire should surface and become evident, and can be addressed in subsequent item revisions.

To examine the comprehensibility of scale items, decision and response processes, and other issues that may arise during cognitive interviews, researchers in the PROMIS initiative utilize notes taken by interviewers to evaluate the characteristics and feasibility of each individual item on a measure (DeWalt et al., 2007). Beatty and Willis (2007) suggest that for cognitive interviews that are conducted with greater flexibility by the interviewers (versus strictly scripted protocols), item analysis can be focused on whether problems that participants encounter when responding to items can be attributed to characteristics of the questions of interest. For example, are there faulty assumptions embedded in items? Are items double-barreled (e.g., serving two purposes or can be interpreted in multiple ways) or difficult to comprehend? Although this qualitative approach to the development of scale items can indeed be advantageous, there are several limitations of which researchers must be aware. First, it is not possible for cognitive interviews to identify all potential problems with a developing questionnaire. Second, an element of subjectivity is inherent in such a qualitative method. Third, it is possible that
different cognitive interviewers may reach different conclusions and make different revisions even when conducting focus groups with the same groups of people. Despite these potential limitations and the increased time and expenses that are often expended to develop useful and valid scales using this qualitative method, conducting focus groups and using cognitive interviewing techniques can enrich researchers and clinicians’ understanding of the experiences of individuals in their populations of interest, fostering the development of measures that comprehensively and accurately assess their actual functioning and well-being.

The Current Study

In response to the need for the development of new measures to assess the social functioning of children with HFA/AS, the current study describes the development of a novel instrument that attempts to measure the social interactions behavior of children with HFA/AS while addressing the concerns and limitations of currently available social functioning measures. The primary goal of this study was to develop the Social Interactions Behavior Inventory (SIBI), which: 1) assesses social behaviors in school, family, and community settings; 2) assesses specific social behaviors using both parent- and self-report formats; 3) consists of clear items with high face and content validity that are neutral in tone to prevent defensiveness in responding; and 4) asks for reporting of recent behaviors to avoid the reporting of ideal rather than actual behavioral patterns. Such a measure that incorporates and integrates both self- and parents’ perceptions of social functioning can undoubtedly provide a richer portrayal of the social functioning of
children with HFA/AS. In addition, preliminary analyses assessing internal consistency and convergent validity of items on this novel measure were completed.

**Analyses Completed**

First, I computed descriptive statistics for subscales on 2 parent- and teacher-report instruments that examine children’s social functioning (the Autism Spectrum Rating Scales [ASRS; Goldstein & Naglieri, 2009] and the Social Responsiveness Scale [SRS; Constantino & Gruber, 2005]). Next, I provided a summary of parents’ and children’s feedback regarding each version of the SIBI, as well as a description of the modifications that were made to the SIBI and to administration procedures following each round of focus groups and individual interviews. Third, I examined the internal consistency of the Composite Scores on each version of the SIBI by computing Cronbach’s alpha for each Composite Score and examining item-total and inter-item correlations for the Composite Scores. Finally, since both the ASRS and SRS assess various aspects of children’s social functioning, I computed Pearson product-moment correlations between the SIBI Composite Scores and the ASRS and SRS Scaled Scores for each version of the SIBI to preliminarily examine the SIBI’s convergent validity.
Chapter 2: Methods

Participants

Thirteen children and their parents presenting to the Nationwide Children’s Hospital’s Center for Autism Spectrum Disorders (NCH-CASD) to participate in the Multi-Family Psychoeducational Psychotherapy (MF-PEP) for HFA/AS groups participated in this study. The CASD consists of physicians, psychologists, and staff providing a broad range of services to children and adolescents with ASDs and their parents, striving to address the various needs accompanying ASDs and other developmental disabilities. Integrating evidence-based treatments, research, education, and advocacy, the CASD aims to provide high-quality, comprehensive care for children and adolescents with ASDs. Specifically for children with HFA/AS, individual counseling, school, home, and community support, and group services (social competence groups, MF-PEP) are provided.

MF-PEP for HFA/AS. Originally developed as an adjunctive treatment for children with mood disorders (depressive and bipolar spectrum: Fristad et al., 2002, 2003, 2009) and later adapted for children with HFA/AS, MF-PEP consists of 9 weekly sessions of approximately 1.5 hours each, during which parents and children complete an assessment, then receive psychoeducation, social support, and develop emotion-regulation, problem-solving, communication, and symptoms-management skills in
separate (i.e., child group and parent group) and joint sessions. Table 1 provides a summary of the session-by-session content for both the parent and child groups. Four pilot groups were initially conducted to inform improvements and adjustments that could be made to MF-PEP (Chung, Guiou, Butter, & Fristad, 2012). Two MF-PEP groups have been completed since then, and participants from these two groups participated in the present study.

The inclusion criteria for this study were the same as those for MF-PEP. Specifically, child participants in this study were required to: 1) be between the ages of 8 and 12 (inclusive); 2) have a Full Scale Intelligence Quotient (FSIQ) ≥ 70; 3) have a diagnosis of Autistic Disorder, AS, or Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) as determined by a thorough intake assessment by clinicians at the CASD (based on the DSM-IV diagnostic criteria), and a majority of these diagnoses were confirmed by the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 1999); 4) speak English; and 5) be willing to participate in a 30-minute focus group or individual interview held during and/or after Sessions 1 and 9 of MF-PEP. Parent participants in this study were required to: 1) speak English; 2) have a valid phone number and address that could be used for contacting purposes; and 3) be willing to participate in a 30-minute focus group held during and/or after Sessions 1 and 9 of MF-PEP.

Families from two MF-PEP groups were invited to participate in the current study. Three male and three female children and at least one of their parents from the first MF-PEP group (Fall, 2011) participated, and 7 male children and at least one of their parents from the second MF-PEP group (Winter, 2012) participated.
**Child participants.** The overall child sample consisted of 13 Caucasian children (mean age = 9 years, 9 months; SD = 13 months; range = 8 years, 3 months to 11 years, 5 months) with a prior diagnosis of HFA (n = 1), AS (n = 4), or PDD-NOS (n = 8). The ADOS (Lord et al., 1999) was administered to 8 of the child participants to verify their ASD diagnoses; no ADOS scores were available for the other 5 children. For two of the children with an available ADOS score, although their scores were below the ASD cut-off, a diagnosis of PDD-NOS and AS, respectively, was assigned based on clinical observations that were consistent with these diagnoses. Four children had ADOS scores above the Autism cut-off, and two children had scores above the ASD cut-off. The sample’s mean Full Scale IQ (FSIQ) score, as assessed by the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV; Wechsler, 2003), Stanford-Binet, Fifth Edition (SB-5; Roid, 2003a), or the Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III; Wechsler, 2002a), was 93.5 (SD = 17.1, range = 72 to 130), and the mean Verbal IQ (VIQ) score was 94.5 (SD = 14.50, range = 65 to 121). The IQ scores from participants in the 2 MF-PEP groups were not significantly different from one another (p > .05), and there were also no significant differences in IQ scores as measured by different instruments (p > .05).

Children’s adaptive functioning was measured by either the Vineland Adaptive Behavior Scales, Second Edition (Vineland-II; Sparrow, Cicchetti, & Balla, 2005), or the Scales of Independent Behavior – Revised (SIB-R; Bruininks et al., 1997). Adaptive functioning scores were available for 9 child participants. For those who were administered the Vineland-II (n = 7), their: mean Adaptive Behavior Composite score
was 78.9 (SD = 11.5), mean Communication score was 79.9 (SD = 9.5), mean Daily Living score was 80.0 (SD = 8.8), and mean Socialization score was 68.7 (SD = 18.2). For those who were administered the SIB-R (n = 2), their: mean Broad Independence score was 88.0 (SD = 5.7), mean Social/Communication score was 92.0 (SD = 14.1), mean Personal Living score was 75.0 (SD = .71), and mean Community Living score was 88.5 (SD = 13.4). The adaptive functioning scores measured by these two instruments were not significantly different from one another (p > .05), and adaptive functioning did not differ between participants in the first and second MF-PEP groups (p > 0.05). Scores on the Vineland-II did not differ significantly from scores on the SIB-R (p > 0.05). Table 2 provides the demographic variables, IQ scores, and adaptive functioning scores for the child participants in the two MF-PEP groups.

It is important to note that although the mean IQ scores in the two MF-PEP groups were not significantly different from one another, the mean FSIQ in the Fall, 2011 group was approximately 1 standard deviation below that of the Winter, 2012 group (84.0 and 101.7, respectively). The mean VIQ was also approximately 10 points lower in the Fall, 2011 group than the Winter, 2012 group (89.2 and 99.0, respectively). With regards to adaptive functioning, scores on the Vineland-II for children in the Fall, 2011 group ranged from 8.7 to 15.0 points lower than scores for children in the Winter, 2012 group. As such, the child participants in the Fall, 2011 MF-PEP group overall appeared to be lower functioning than those in the Winter, 2012 MF-PEP group. These differences in cognitive and adaptive functioning between the two groups may have influenced their
levels of comprehension of MF-PEP content, as well as the quality and depth of information they provided during the focus groups and individual interviews.

With regards to documented comorbid diagnoses, 3 children were diagnosed with Attention-Deficit Hyperactivity Disorder (ADHD) alone (in addition to their ASD diagnosis), 1 child was diagnosed with a Disorder of Written Expression, and 1 child was diagnosed with ADHD, Oppositional Defiant Disorder, and a depressive disorder. These comorbid diagnoses were not determined by a structured interview or other standardized method; it is possible that more comorbid diagnoses were presented but undocumented. All child participants had one or more siblings, with the mean being 1.8 (SD = 1.1, range = 1 to 5). Two children were homeschooled, 2 attended a regular classroom, 7 attended a regular classroom but also received special education services, 1 child received pull-out services in a regular classroom, and 1 child received both special education and pull-out services in a regular classroom.

**Parent participants.** Eleven (84.6%) mothers and 2 (15.4%) fathers served as the primary parent informant for the child participants. The mean age of parent informants was 41 years, 4.6 months (SD = 9.2 months; range = 33 to 55 years), and all were Caucasian. Twelve (92.3%) of the parent participants were married, and 1 (7.7%) was widowed. One parent had received some college education (7.7%), 9 had received a Bachelor’s degree (69.2%), 1 had received some post-college education (7.7%), and 2 had received a Master’s degree (15.4%). Four (30.8%) parent participants identified themselves as being full-time homemakers, 6 (46.2%) were employed full-time, 2 (15.4%) were employed part-time, and 1 (7.7%) was temporarily unemployed. Table 3
provides the demographic variables for the parent participants in the two MF-PEP groups.

Measures

Each child involved in MF-PEP underwent routine intake procedures at the CASD, and data obtained at intake were used for analyses in the present study. An intake assessment at the CASD utilizes some or all of the following: standardized tests to document intelligence, autism diagnosis, and adaptive functioning. If a child had been assessed with standardized measures within the past two years, records from those tests are used. Otherwise, or if the validity of those results are of suspect, a complete evaluation may be completed at intake.

Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV; Wechsler, 2003), Stanford-Binet, Fifth Edition (SB-5; Roid, 2003a), or the Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III; Wechsler, 2002a). One of the WISC-IV, SB-5, and WPPSI-III was administered to each child participant as an assessment of intelligence. The WISC-IV (Wechsler, 2003) is an intelligence measure assessing the cognitive ability of children between the ages of 6 and 16. Individually-administered, the WISC-IV consists of 10 core subtests that provide 5 composite scores: the Full Scale IQ (FSIQ), Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI), Processing Speed Index (PSI), and Working Memory Index (WMI). These standard scores have a mean of 100 with a standard deviation of 15. The WISC-IV has been standardized in two large samples of children in the United States (N = 2200) and the United Kingdom (N = 780), and its reliability and validity has been
evaluated and demonstrated in various studies using both nonclinical and clinical children (Williams et al., 2003a, 2003b; Drozdick et al., 2005; Raiford et al., 2005). Only the FSIQ and VIQ scores were used in analyses in the present study.

The SB-5 (Roid, 2003a) is another measure of intelligence for individuals from the age of 2 to over 85. The SB-5 consists of 10 subtests, assessing fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory, and provides indices of FSIQ, Verbal, and Nonverbal IQ (all the standard scores have a mean of 100 and a standard deviation of 15). The SB-5 has been normed on a large sample of 4800 individuals between the ages of 2 and 85+, and evaluations and demonstrations of the test’s reliability (e.g., internal consistency, test-retest reliability) and validity have been conducted (Roid, 2003b; Becker, 2003; Pomplun & Custer, 2005). As with the WISC-IV, only the FSIQ and VIQ scores were used in subsequent analyses.

The WPPSI-III (Wechsler, 2002a) is an intelligence measure that assesses the cognitive ability of children between the ages of 2 and 6 months and 7 and 3 months. For children between the ages of 2 and 6 months and 3 and 11 months, 4 core subtests give rise to 3 composite scores: Full Scale IQ (FSIQ), Verbal IQ (VIQ), and Performance IQ (PIQ). For children between the ages of 4 and 7 and 3 months, 7 core subtests are used to calculate these 3 composite scores. A Processing Speed Quotient and General Language Composite can also be calculated. All composite scores have a mean of 100 and a standard deviation of 15. The WPPSI-II has been standardized on a sample of 1700 children, and its internal consistency, test-retest reliability, criterion validity, and
construct validity have been demonstrated (Wechsler, 2002b). Only the FSIQ and VIQ scores were used in the analyses.

**Autism Diagnostic Observation Schedule (ADOS; Lord et al., 1999; Lord et al., 1989).** The ADOS (Lord et al., 1999) is a semi-structured observational assessment widely used to evaluate individuals suspected to have an ASD. Depending on the individual’s chronological age and level of expressive language, the test administrator selects one of four available modules to observe social and communication behaviors. For example, children who are nonverbal or are not verbally fluent would be administered modules 1 or 2, and adolescents and adults or children who are more fluent would be administered modules 3 or 4. Some of the structured and semi-structured activities that children are asked to complete may include engaging in make-believe play, telling a story from a story book, responding to questions about social difficulties and annoyance, friendship, and loneliness, or creating a story. During this 30- to 60-minute observation period, examiners record their observations, which are later coded and used to formulate a diagnosis. Cut-off scores for potential ASD and PDD diagnoses are also provided. A revised diagnostic algorithm has been created to improve diagnostic validity (Kamp-Becker et al., 2011). The non-Autism ASD cut-off score using both the original and revised algorithms is 7, while the overall Autism cut-off using the original algorithm is 10, and that using the revised algorithm is 9. Evaluations and demonstrations of inter-rater reliability, test-retest reliability, and internal validity for the ADOS have been performed (Gotham et al., 2009; Gotham et al., 2008; Gotham et al., 2007). As discussed
above in the description of child participants, ADOS scores were used by clinicians at the CASD to verify ASD diagnoses.

**Vineland Adaptive Behavior Scales, Second Edition (Vineland-II; Sparrow, Cicchetti, & Balla, 2005).** The Vineland-II (Sparrow, Cicchetti, & Balla, 2005) structured interviews and rating forms (parent ratings and teacher ratings) are used to assess adaptive behavior among individuals with ASDs, intellectual disabilities, attention-deficit hyperactive disorder, and other special needs populations. The Vineland-II consists of 4 core domains (Communication, Daily Living Skills, Socialization, Motor Skills) and 1 optional domain (maladaptive behavior). An Adaptive Behavior Composite score is also provided. The composite score and all domain scores have a mean of 100 and a standard deviation of 15. Norms have been established for both the parent rating form (from birth to age 90) and the teacher rating form (from the age of 3 to 22). Demonstration of the Vineland-II’s reliability and content and concurrent validity has been performed (de Bildt et al., 2005). Only the rating forms were administered in the present study. Scores from the Vineland-II were used to document adaptive functioning of the child participants.

**Scales of Independent Behavior – Revised (SIB-R; Bruininks et al., 1997).** The SIB-R is a measure of adaptive and maladaptive behavior among individuals from infancy to over 80 years of age. A full scale Broad Independence score is provided as a measure of overall level of adaptive behavior, and four adaptive behavior clusters scores – Communication, Personal Living, Community Living, and Motor – are also provided. These composite scores all have a mean of 100 and a standard deviation of 15. The SIB-
R has been normed on 2182 individuals, and its split-half reliability, test-retest reliability, interrater reliability, construct validity, and criterion validity have been demonstrated (Reynolds & Kamphaus, 2003). Scores from the SIB-R were used to document adaptive functioning of the child participants.

**Autism Spectrum Rating Scales (ASRS; Goldstein & Naglieri, 2009).** The ASRS assesses symptoms and behaviors associated with ASDs among children and youth between the ages of 2 and 18. Consisting of 71 items on the full-length version of the parent- and teacher forms, the ASRS generates a Total Score, ASRS Scales Scores (Social/Communication, Unusual Behaviors, Self-Regulation), a DSM-IV-TR Scale Score, as well as various Treatment Scales Scores (e.g., Peer Socialization, Adult Socialization, Social/Emotional Reciprocity) from the reporting of children’s behaviors in the previous 4 weeks. *T*-scores of 70 and above suggest an elevated score and that the child is exhibiting many more concerning ASD behaviors than otherwise typically developing children. *T*-scores between 65 and 69 are elevated, those between 60 and 64 are slightly elevated, and those between 40 and 59 are within the average range and suggest that the child is exhibiting typical levels of concerning behaviors. The ASRS has been normed on a sample of 960 children and youth for the Parent and Teacher Rating Scales, and its internal consistency, test-retest reliability, interrater reliability, content validity, construct validity, discriminant validity, and convergent validity have been demonstrated (Simek & Wahlberg, 2011; Goldstein & Naglieri, 2010). Parents in the current study were asked to complete the ASRS at the first and final sessions of MF-PEP, and for children who were not homeschooled, one of each child’s teachers was asked to
complete the teacher report form after the first and final sessions of MF-PEP. Only the Total, Social/Communication, and Treatment Scales Scores were used in the current study in preliminary analyses of convergent validity.

**Social Responsiveness Scale (SRS; Constantino & Gruber, 2005).** As discussed above, the SRS is a 65-item rating scale that assesses ASD symptoms (primarily in the social domain) among children aged 4 to 18. Consisting of parent- and teacher-report forms, the SRS provides a Total Score, as well as scores on Social Awareness, Social Cognition, Social Communication, Social Motivation, and Autistic Mannerisms from the reporting of children’s behaviors in the previous 6 months. $T$-scores of 76 or higher indicate a severe score and that the child’s behaviors are strongly associated with an ASD diagnosis. $T$-scores between 60 and 75 indicate a mild to moderate score and suggest that the child is exhibiting behaviors typical of children with a mild ASD. $T$-scores of 59 or lower are suggestive of the absence of ASD symptoms. The SRS has been normed on a standardization sample of 1636 children between the ages of 4 and 18, and its psychometric properties including reliability and diagnostic validity have been evaluated (e.g., Charman et al., 2007; Constantino & Gruber, 2005; Constantino & Todd, 2003; Constantino et al., 2003; Constantino et al., 2000). Parents in the current study were asked to complete the SRS at the first and final sessions of MF-PEP, and for children who were not homeschooled, one of each child’s teachers was asked to complete the teacher report form after the first and final sessions of MF-PEP. Each of these scores was used in analyses of convergent validity in the current study.
Demographic form. An experimenter-created demographic form was completed by each child’s parent at Session 1 of MF-PEP (please see Appendix A). This form contains basic demographic information questions about the child and parent (e.g., age, gender, race and ethnicity), as well as questions regarding the parent’s education achievement and employment status.

Social Interactions Behavior Inventory (SIBI). Consisting of both parent- and self-report rating forms, the SIBI is an experimenter-devised questionnaire assessing the frequency with which children with HFA/AS engage in various social interactions in school, community, and family settings. Drawing from the social functioning literature on children with HFA/AS as well as expert opinion and guidance from psychologists and clinicians, a pool of items assessing children’s social interaction behaviors was initially created. As discussed in the next section, the SIBI was continually revised throughout the course of the study, based on respondents’ feedback, expert opinion, and direct observations by the administrator. The five versions of the parent and child SIBIs can be found in Appendices B to K. The final version of the parent rating form consists of 28 items. Both the parent and child forms of the SIBI took approximately 10 to 15 minutes to complete. Parents are asked to report on social interactions their child had during the previous two weeks on a 5-point Likert scale (ranging from “Not at all” to “Very Often”; “Not at all successful” to “Very successful”) or a 2-point rating system (i.e., “Yes” or “No”), depending on the type of question asked. The final version of the child rating form consists of 31 items, and Composite Scores in each of the 3 domains assessed are provided (school, community, home). Four additional items provide further information.
on children’s social interactions behavior and can inform treatment planning and goals, but are not included in the calculation of three Composite Scores. As with the parent form, children are asked to report on their relationships with other children and family members during the previous two weeks. The response options on the child form are also on a 5-point Likert scale (ranging from “No” to “A lot”; “We’re definitely not friends” to “We’re definitely friends”) or a 2-point rating system (i.e., “Yes” or “No”), depending on the type of question asked. Although the first two versions of the child form consisted of several questions assessing for social desirability, these items were eliminated from the final two versions due to the child participants’ reported difficulty with comprehending and responding to the items, and the use of alternate ways to reduce potential desirability bias in responding. A more detailed description of the items on the final parent and child versions of the SIBI is provided in the “Results” section.

Procedures

The purpose of the current study was to obtain feedback from children with HFA/AS and their parents regarding items on the SIBI, which was in the process of being developed, and to utilize this information to inform refinements made to revised versions of the SIBI (e.g., changing wording of items, clarifying items with additional questions, adding items to more comprehensively capture children’s social functioning). Feedback from children and parents were gathered via focus groups and individual interviews at their first and last MF-PEP sessions. This process occurred with the Fall, 2011 and Winter, 2012 MF-PEP groups, thus, four iterations of both the child and parent forms were completed.
**Obtaining consent.** As part of the consenting procedure for MF-PEP, children and parents were informed of the opportunity to participate in two 30-minute focus groups or individual interviews discussing the social interaction behaviors of the participating child using a newly-developed measure. They had the option of participating in both MF-PEP and the focus group or interviews, or only participating in MF-PEP and not the focus group or interviews. Each parent and child agreed to participate in the focus groups or individual interviews in addition to MF-PEP.

**Fall, 2011 MF-PEP Group.**

**Session 1.** After initial introductions of group leaders and group participants, and after consent and assent were obtained from the parent and child participants, a parent-only focus group was first conducted to elicit parents’ feedback and thoughts on the initial parent version of the SIBI (see Appendix B).

**Parent focus group.** Parents were first given an introduction to the SIBI, then instructions were reviewed and clarifications were provided. Parents were asked to complete the SIBI, noting queries or comments they may have had about specific items or the overall measure. After the SIBI was completed, a graduate student and psychologist from the CASD facilitated a discussion regarding parents’ perceptions of the SIBI. Using open-ended questions and striving to maintain a supportive, non-judgmental, and non-directive stance, the group facilitators elicited input from participants regarding: 1) wording of items (e.g., *Would you change the way that any of these questions are asked/worded*?); 2) comprehensibility of items (e.g., *Were any of the questions difficult to understand*?); 3) difficulty of items (e.g., *How easy or difficult was it for you to complete*...
this questionnaire? Which item was more/less difficult?); 4) response choices (e.g., Would you change any of the response options?); and 5) time frame (e.g., Which days did you think of when you read “In the past two weeks”?). With regards to specific content of items, discussions on parents’ perceptions of the meaning of behaviors were facilitated. Before concluding the group, variations of the following were asked: Were you comfortable answering all of the questions? Are there other important questions we should ask to better capture your child’s social interaction behaviors? Do you have suggestions as to how we can improve this questionnaire in any way? Parents also had the option of providing additional written comments at the end of the questionnaire.

Child focus group. A separate child-only focus group was also held to obtain the child participants’ feedback and thoughts on the initial child version of the SIBI (see Appendix C). As with the parent-only focus group, instructions were first reviewed with the child participants, and they were asked to complete the SIBI, noting any questions or confusion they may have had with the items. At the request of two child participants, the items and response options were read aloud to them. Using age-appropriate questions, the group facilitator again elicited input from the child participants regarding the same aspects of the SIBI as those asked of parents: 1) wording of items; 2) comprehensibility of items; 3) difficulty of items; 4) response choices; and 5) time frame. A discussion regarding children’s perceptions of the meaning of behaviors addressed on the SIBI was also encouraged. Before the end of the focus group, child participants were asked to provide feedback on ways by which the SIBI may be improved for children who will complete the questionnaire in the future. As with the parent version, children had the
opportunity to provide written comments at the end of the questionnaire. Throughout the parent and child focus groups, one of the facilitators recorded observations and relevant responses that were subsequently used to guide a consultation meeting with a psychologist and to inform revisions that were made to the initial version of the SIBI.

Session 8. Due to therapists’ scheduling conflicts, the final two content sessions of MF-PEP were combined into one session (i.e., Session 8). During this final session, parent and child participants were again given the opportunity to provide feedback on a revised version of the parent (see Appendix D) and child forms of the SIBI (see Appendix E). Due to time constraints, a focus group was held with the parent participants, while individual interviews were conducted with the child participants.

Parent focus group. For this parent focus group, the discussion was facilitated by a psychologist from the CASD, and an undergraduate student recorded observations and relevant notes that were later used to inform revisions made to this version of the SIBI. Instructions were first reviewed with the parent participants. After completing Version 2 of the SIBI, Parent Form, similar questions and issues as those raised in the first parent focus group were discussed, and parents again had the opportunity to provide additional written comments at the end of this second version of the SIBI.

Child interviews. Individual interviews with the child participants were conducted to elicit their feedback on Version 2 of the SIBI, Child Form. Throughout this MF-PEP session, each child participant met with a graduate student one at a time in an adjacent room to discuss their understanding of and thoughts regarding this revised version of the SIBI. In addition to time limitations, individual interviews were conducted to encourage
each child to freely and actively participate in providing feedback, and to minimize the amount of time participants spent removed from the core content session of MF-PEP. Upon returning to the core MF-PEP session, one of the therapists in the child group reviewed any material and content the child may have missed while completing and discussing the SIBI.

The instructions to the SIBI were first read aloud and reviewed with each child. Each participant completed Version 2 of the SIBI with the graduate student reading each item aloud, providing clarification when needed, and asking follow-up questions when uncertainty or confusion was noted or expressed by the child. This was done to ensure that the child was attending to the questions being asked, to facilitate and assess their comprehension questions, and to probe for additional information with the aim of increasing the accuracy of their responses. Relevant notes and observations were recorded by the graduate student during and immediately after each child interview. Incorporating the feedback provided by the parent and child participants, revisions to the second version of the SIBI were made.

**Winter, 2012 MF-PEP Group.**

**Session 1.** As with the first MF-PEP group, a parent-only focus group to discuss the third version of the SIBI was held after initial introductions of MF-PEP group leaders and participants were made. Rather than holding a child-only focus group, individual interviews with the child participants were again conducted to elicit their feedback on Version 3 of the SIBI (See Appendices F and G).
Parent focus group. A psychologist from the CASD facilitated this parent focus group, and an undergraduate again recorded observations and notes that were used to inform revisions later made to this version of the SIBI. The structure of this focus group and the content discussed was the same as that of the previous two parent focus groups.

Child interviews. As with the child interviews conducted during Session 8 of the first MF-PEP group, child participants met with a graduate student one at a time to discuss their thoughts and understanding of Version 3 of the SIBI, Child Form. Items on the SIBI were read to all child participants except for one, who insisted on completing the SIBI on his own without assistance from the graduate student. Notes and observations were recorded by the graduate student, and these combined with notes from the parent focus group were incorporated into changes made to this version of the SIBI.

Session 9. During this final session of MF-PEP, a parent focus group and individual child interviews were again held to elicit participants’ feedback on the revised version of the SIBI (see Appendices H and I). Procedures for conducting this current parent focus group and these child interviews were the same as those followed in Session 1 of this second MF-PEP group. However, items on the child version of the SIBI were read aloud to all child participants. Upon reviewing the notes and observations from the focus group and interviews, minor revisions to the SIBI were made and reviewed with a psychologist and clinician. The final parent and child versions of the SIBI can be found in Appendices J and K.
Chapter 3: Results

Parent and Teacher Ratings of Social Impairment

**ASRS.** The ASRS was completed by parents twice – during the first introductory session and final session of MF-PEP. Parents who were unable to complete the ASRS during the final MF-PEP session were asked to complete it at home and return the measure at an individual feedback session that was held 1 to 4 weeks following the conclusion of MF-PEP. One of each child’s school teachers was also asked to complete the teacher rating form of the ASRS after the first and final sessions of MF-PEP. Teacher reports were not completed for children who were homeschooled ($n = 2$). In the first MF-PEP group, one child’s parent failed to return both parent and teacher forms of the post-group ASRS. In the second MF-PEP group, 1 parent failed to complete the pre-group ASRS parent form. Three parents failed to return the parent form of the post-group ASRS, and 3 failed to return the post-group teacher form. The mean and standard deviation of the ASRS scaled scores for each of the two MF-PEP groups are presented in Table 4. Child participants in the first and second MF-PEP groups did not differ significantly in their ASRS scores.

**SRS.** The SRS was completed by parents twice – during the first and final sessions of MF-PEP. Parents who were unable to complete the SRS during the final MF-PEP session were asked to complete it at home and return the measure at an individual
feedback session that was held 1 to 4 weeks following the conclusion of MF-PEP. One of each child’s school teachers was also asked to complete the teacher rating form of the SRS after the first and final sessions of MF-PEP. Teacher reports were not completed for children who werehomeschooled (n = 2). In the first MF-PEP group, one parent failed to return both parent and teacher forms of the post-group SRS. In the second MF-PEP group, pre-group teacher reports were not obtained for 2 additional children. Three parents failed to return the post-group parent form of the SRS, and 3 failed to return the teacher form. The mean and standard deviation of the SRS scaled scores for each of the two MF-PEP groups are presented in Table 5. The only SRS score that was significantly different between child participants in the first and second MF-PEP groups was parent-reported Autistic Mannerisms at Session 1 (t(11) = 2.31, p = 0.04), with child participants in the first MF-PEP group exhibiting higher levels (mean = 85.00, SD = 8.15) than those in the second group (mean = 71.43, SD = 12.25).

Content Analysis of the SIBI

First iteration.

Parent form. During the first focus group, 6 parents provided feedback regarding the wording, comprehensibility, and difficulty of items, response choices, and the two-week time frame on which parents were asked to report. Overall, parents expressed having difficulty responding to items related to their child’s school behaviors, with some stating they were unaware of their child’s activities during recess and their child’s relationships with other children at school. One parent whose child was being homeschooled was uncertain as to how to respond to items related to school functioning.
and instead reported on her child’s social interactions in other structured settings such as at Scouts or a church’s children’s group. For some items (e.g., “Your child is more comfortable talking to kids in online games than to kids at school”; “Your child wants/has a social networking account”), parents suggested including a “Not applicable” option for parents of children who are not yet permitted to play online games or have social networking accounts. Parents also indicated desiring a greater number of response options for each item to facilitate increased accuracy of their responses. Although parents reported little difficulty recalling their child’s behaviors in the previous two-week period, they expressed concern regarding their child’s ability to remember and report on their social interactions in the previous two weeks. Several parents also suggested adding an item assessing children’s desire for friendship to more comprehensively depict these children’s social interactions. Furthermore, several parents commented that they “almost did not want to respond accurately” to items on the SIBI because they “did not want to face the reality of [their] child’s social difficulties”.

**Child form.** The feedback provided by the 6 children in this first focus group pertained largely to their difficulty comprehending specific items on the SIBI. Particularly, children reported having trouble understanding the social desirability items and their responses (e.g., “I never get upset at anybody”, “Sometimes I don’t tell the truth”), expressing confusion over whether responding in the affirmative indicated agreement with the concept of the item or agreement with the behavior in the item. Further, the items “I played near other kids at recess but not with them” and “I felt close to kids at school” were reportedly difficult to understand. When asked to explain the
meaning of “feeling close to kids at school”, the children used their fingers to indicate an understanding of physical proximity, rather than emotional closeness as intended by the item. Despite various prompts given by the group facilitator in attempts to elicit further feedback from the children regarding their thoughts on the SIBI, no additional comments were provided by these participants.

**Revisions to Version 1 of the SIBI.** Integrating the feedback obtained from the parent and child focus group participants, as well as advice and expertise from two psychologists and clinicians, revisions to Version 1 of the SIBI were made. In the parent version, an additional sentence was added to the instructions to advise parents that some of the items on the questionnaire may not be applicable to their child but that they should try to provide a response that is most characteristic of their child. This was done to encourage parents to answer all items regardless of whether or not their child engages in certain activities (e.g., social networking, playing online games) or whether or not parents view certain activities as appropriate for their child. In accordance with parents’ feedback, a question assessing children’s desire for social interactions was added. To partially address parents’ desire for additional response options, the response choices were clarified and modified for several items (please see Appendices B and D).

For the child form, we decided that subsequent administrations of the SIBI should more appropriately be done orally and in an individual format. Not only would this allow administrators to more readily provide clarifications to specific items that a child has difficulty comprehending, but may also encourage children to provide feedback regarding the SIBI in a relaxed, conversational context. As an attempt to reduce children’s
confusion regarding the social desirability items, the response options were modified such that children were asked to select “True/Not True” rather than “Yes/No” for each item. Given the apparent difficulty children had in comprehending the emotional closeness aspect in the item regarding “feeling close” to other children, this item was dropped from the scale, and several other items were added to assess the emotional quality of their social interactions (e.g., “I liked other kids at school”, “I felt I could trust other kids at school”). Although children reported no difficulty recalling their behaviors in the past two weeks, they were unable to provide specific days they were considering when responding to the items. For subsequent administrations, we decided that it would be helpful to verbally “anchor” the previous two weeks for each child, such as by reminding them of a particular school or family event that took place approximately two weeks prior to the administration of the SIBI. Please see Appendices C and E for other changes that were made following consultation and discussion with clinicians.

Second iteration.

Parent form. Regarding Version 2 of the SIBI, the 6 parent participants again indicated desiring a greater number of response options for each item, and also expressed having difficulty recalling the specific number of times that certain behaviors took place or were observed in the previous two weeks. Further, parents reiterated being unaware of their child’s social interactions at school, and expressed some concern as to whether the scale may be too lengthy for their child to complete (e.g., issues related to attention, interest, and motivation). One parent also mentioned experiencing sadness while
completing the measure for her child, as the items reportedly “highlighted” the social difficulties that her child experiences.

**Child form.** During individual interviews conducted with the 6 child participants, these children again reported having difficulty responding to the social desirability items. For example, rather than selecting “True/Not True”, several children insisted on responding with “Sometimes”, and when asked to select the best option from “True/Not True”, they refused to provide a response. Given parents’ concern that the scale may be too lengthy, children were explicitly asked about their thoughts on the length of the questionnaire. Although children did report that the questionnaire was “too long”, each child completed the questionnaire without complaints, and for those who became distracted during the administration, they were easily redirected. One child indicated that completing the questionnaire in an individual, interview format was “better” than completing the questionnaire by himself.

**Revisions to Version 2 of the SIBI.** Incorporating feedback from parents, children, and expert opinion, revisions to Version 2 of the SIBI were made (please see Appendices F and G). In response to parents’ desire for a greater number of response choices, and to maintain consistency between the parent and child forms, response options were modified and a 5-point Likert scale was used for both the parent and child versions of the SIBI. In subsequent administrations of the SIBI to parents, we decided to verbally encourage parents to provide an “educated guess” for school-related items about which parents are unsure (e.g., based on their child’s or teachers’ reports). Given the consistent difficulties that the child participants reported having in responding to the
desirability items, we decided to remove these items from the scale, and instead monitor for potential desirability in responding in different ways, such as through continued administration of the SIBI via an interview format (e.g., probing for additional information and clarification when suspecting inaccurate responding). Furthermore, there was limited evidence of desirability in responding observed in the child participants, rather, these children were quite candid in reporting on and discussing their negative social experiences (e.g., being bullied, being excluded by peers). Nevertheless, it is essential to be mindful of potential responding biases that may be present. Several additional modifications to both parent and child forms of the SIBI can be found in Appendices G and H.

Third iteration.

Parent form. The parents and children involved in the third and fourth iterations of the SIBI were participants in the Winter, 2012 MF-PEP group. One child was homeschooled; the group facilitator advised that child’s parent to respond to the school-related items according to her child’s behaviors in other structured settings, such as at Scouts or at their church’s children’s group. Another parent reported her child does not participate in “regular recess” (he participates in “individual recess”), and she was instructed to respond to the school-related items according to his interactions with his peers during other times in a school day. Despite being encouraged to provide an educated estimate for school-related behaviors of which parents are uncertain, parents again expressed having difficulty to some school-related items because they are simply unaware of their child’s behaviors at school and their interactions with peers. Several
parents in this focus group again communicated that their child was not permitted to access social networking accounts, and some were not permitted to use a phone. As such, they reported having trouble responding to items such as “Your child uses or indicated wanting a social networking account” and “Your child called or texted this friend”. One parent also suggested including items related to a child’s interactions with a sibling to more comprehensively assess children’s social functioning.

**Child form.** Feedback from the 7 child participants during the individual interviews was minimal. The only confusion one child expressed was whether “another kid” in the community-related items could refer to the specific friend they were asked to report on, or whether this must be a child other than that specific friend.

**Revisions to Version 3 of the SIBI.** An additional sentence was added to the instructions and introduction to the scale, asking parents to answer each question as best as they can, based on their direct observations of their child, their child’s disclosure to them, or other indirect sources of information such as teachers’ reports. As well, instructions for reporting on a child who is homeschooled were added (e.g., to report on a homeschooled child’s behaviors in other organized or structured settings). To address parents’ repeated statements of being unaware of their child’s behaviors at school, a “Don’t know” response option was provided for the school-related items on the parent form. As well, for items related to online games and phone use, additional response options were added (e.g., “Not allowed/No phone”) to both the parent and child forms. On the parent form, an item asking whether a child was allowed to access social media was also added to the SIBI to preface an item asking about a child’s desire to utilize such
forms of social networking. This was done to encourage parents to provide a response regarding their child’s desire to utilize social media, whether or not he or she was permitted to do so. Although it would be immensely informative to directly assess children’s interactions with their siblings, since not all children with HFA/AS necessarily have siblings, items related to children’s interactions with family members in general were retained on the SIBI.

With regards to the child form, instructions for children who are homeschooled were added to preface the school-related items. Overall, the order of the items was altered (this was also done for the parent items), such that more “general” items (e.g., those asking about other children in a child’s neighborhood) were moved to precede more specific questions (e.g., those asking about a child’s specific friend). This was done to reduce confusion regarding the meaning of items, and to prevent responses to specific items from influencing their responses to more general items (e.g., whether or not a child reports being bullied or teased early in the SIBI may influence their response to how much fun they had playing with other children later in the questionnaire). Furthermore, to aid children in remembering the domain and time period they are asked to report on throughout the SIBI, domain-related images (e.g., picture of a school, picture of a house) and the prompt “In the past two weeks…” were inserted at the top of each page.

Additional modifications to Version 3 of the SIBI can be found in Appendices H and I.

**Fourth iteration.** One child was ill and he and his parent did not attend the final session of this MF-PEP group. As well, due to scheduling conflicts, the grandparent of another child attended this final MF-PEP session instead of his parent. Thus, 5 parents
participated in this final focus group, and individual interviews were conducted with 6 children.

*Parent form.* In this final focus group conducted with parents, one parent reported having trouble differentiating between “Not really” and “Sometimes”. This same parent also commented that the item “Your child had a conversation with a friend about things he/she wasn’t interested in because his/her friend was interested in those things” was confusing and difficult to understand. Parents in this focus group again expressed being unaware of their child’s social interactions at school, and even though a “Don’t know” option was provided, one parent expressed feeling “bad” that she had to respond in such a way repeatedly. One parent also suggested clarifying whether “another child” in the item “Your child had a conflict or argument with another child” referred to a peer or sibling.

*Child form.* Feedback obtained from the child participants during these individual interviews was again minimal. One child reported having difficulty comprehending the meaning of joining another child’s game at recess. However, after providing a brief example, the child indicated he understood the item and provided a response. Curiously, although versions of the item “I talked to my friend about stuff I didn’t want to talk about because he/she likes to talk about it” had been present in all previous versions of the SIBI, only the child participants this final set of interviews reported having difficulty understanding the meaning of the question. After the administrator attempted to clarify the item, several children indicated grasping the meaning of the item, though others appeared to remain confused. It is interesting to mention that this item was analogous to the item that one parent in this session’s focus group also had trouble comprehending.
Revisions to Version 4 of the SIBI. The feedback provided by the parent and child participants was integrated and revisions to Version 4 of the SIBI were made. The response options for the parent form were slightly altered, such that the response “Not really” was replaced by “Seldom” to facilitate differentiation among options on the 5-point Likert scale. In addition, the item regarding a child having conflict or argument with another child was modified, such that “another child” was replaced by “peer or sibling”. Finally, the item that was confusing for one parent and the child participants was reworded on both the parent and child forms to improve its clarity and facilitate comprehension and ease of responding. Given the minimal changes that were made to Version 4 of the SIBI, no additional parent focus groups or individual child interviews were conducted, and the final version of the SIBI that was created after consultation with experts is described below.

Final version of the SIBI. The final parent version of the SIBI (Appendix J) consists of 32 items: 10 items pertaining to children’s social interactions at school, 13 pertaining to their social interactions in the community, 5 pertaining to their social interactions at home, and 4 providing additional information regarding other aspects of children’s social functioning. All of the school, community, and home-related items are rated on a 5-point Likert scale (e.g., “Not at all – Seldom – Sometimes – Often – Very often”), and a “Don’t know” and “Not applicable” response option is provided for all of the school-related items and 2 community-related items. Several open-ended items allow parents to provide further clarification and information regarding their child’s social interactions. The 4 additional items that are not directly related to children’s social
functioning at school, in the community, and at home serve to briefly assess children’s conflict-resolution skills and conversation etiquette. These items are not included in the calculation of Composite Scores, but may inform treatment planning and goal setting by highlighting important areas of children’s social functioning and specific skills that can be addressed and focused on in treatment.

The final child version of the SIBI consists of 35 items: 16 items pertaining to children’s social interactions at school, 11 pertaining to their social interactions in the community, 5 pertaining to their social interactions at home, and 4 providing additional information regarding their conflict-resolution skills and conversation etiquettes (these 4 items were again not included in the calculation of Composite Scores). Two of the school-related items are open-ended and allow children to describe the activities they enjoy playing at recess. Several other open-ended questions throughout the SIBI give children opportunities to provide additional information about their friends and leisure activities. Other than these open-ended items, children are asked to report on their social interactions in the school, community, and home settings using a 5-point Likert scale (e.g., “No – Not really – Sometimes – Often – A lot). The final parent and child versions of the SIBI can be found in Appendices J and K.

Descriptive Statistics, Internal Consistency, and Validity of the SIBI

Version 1.

Descriptive statistics. School and Community Composite Scores were calculated for both the parent and child forms of Version 1 of the SIBI. A Desirability Composite
Score was calculated for the child participants. Composite scores were calculated as percentage scores:

\[
100 \times \frac{\text{Individual’s Total Score}}{\text{Total Possible Score Given the Number of Items Answered}}.
\]

Since there were only 2 home-related items, a composite score for this domain was not calculated.

In our sample of 6 parents, the mean School Composite Score was 68.5 (SD = 10.5; range = 52.0 to 85.0), and the mean Community Composite Score was 46.4 (SD = 11.2; range = 35.7 to 64.3). In our sample of 6 children, the mean School Composite Score was 67.1 (SD = 3.8; range = 61.5 to 71.8), and the mean Community Composite Score was 60.1 (SD = 19.0; range = 42.9 to 92.9). The mean Desirability Composite Score for the child participants was 64.6 (SD = 6.4; range = 60.0 to 75.0).

**Internal consistency.** Cronbach’s alpha was calculated for each of the School and Community Composite Scores to assess the internal consistency of these domain scores. Since Cronbach’s alpha applies to items with any response scale (Cortina, 1993), although each of these domains consists of both dichotomous items and items rated on a 3-point scale, Cronbach’s alphas were calculated. As these cursory analyses were done with a small sample, a thorough treatment and exploration of missing data was not completed. Rather, the mean value from individuals who answered a particular item was substituted for an individual’s unanswered item. Table 6 lists the Cronbach’s alphas for each of the Composite Scores.
Parent Form. With regards to the school-related items, 5 parents completed 10 of the 11 items, and 1 completed 9 of the 11 items. The item “Your child knew how to play a game other kids played” was excluded from the analyses due to the lack of variance in this item’s scores. The item “Your child is more comfortable talking to kids in online games than to kids at school” was also not included in the analyses because no responses were provided for this item. When missing data were replaced with the specific variable’s mean, the Cronbach’s alpha was 0.55. After removing the item “Other kids bullied or teased your child” (reverse scored), Cronbach’s alpha increased to 0.80. The lowest inter-item correlation was -0.78 (between “Other kids bullied or teased your child” [reverse scored] and “Your child felt close to kids at school”) and the highest inter-item correlation was 0.78 (between “Your child asked other kids if he/she could join in their games at recess” and “Your child felt close to kids at school”).

All parents completed every (10) community-related item, and the Cronbach’s alpha was 0.78. When the item “Your child is a member of a club or sports team” was deleted, Cronbach’s alpha increased to 0.83. The lowest inter-item correlation was -0.32 (between “Your child is a member of a club or sports team” and “This [specified] friend called or texted your child”/“Your child called or texted this [specified] friend”), and the highest inter-item correlation was 0.79 (between “This [specified] friend came to play at your house” and “This [specified] friend called or texted your child”/“Your child called or texted this friend”).

Child Form. Each child completed every school- (13) and community-related (10) items. Cronbach’s alpha for the school-related items was unable to be calculated because
the average covariance among these items was negative. The Cronbach’s alpha for the community-related items was 0.91. When the item “A kid came to play at my house” was deleted, Cronbach’s alpha increased to 0.92. The lowest inter-item correlation was -0.10 (between “I played at another kid’s house” and “A kid came to play at my house”), and the highest inter-item correlation was 0.88 (between “I am a member of a club or sports team” and “This [specified] friend came to play at my house”).

Missing values among the 5 Desirability items were not replaced, and individuals with a missing value were excluded from the internal consistency analysis for the Desirability Composite Score. Four children were included. However, Cronbach’s alpha for the Desirability items was unable to be calculated because the average covariance among these items was negative.

**Correlations between parent and child Composite Scores.** A total of 15 Pearson product-moment correlations were calculated between the parent and child Composite Scores. Due to the exploratory nature of the correlations completed and the small sample size examined in the current study, although multiple correlations were computed, correction methods such as the Sidak-Bonferroni correction (Keppel & Wickens, 2004) to reduce rates of Type I error (false positives) were not implemented, and a significance level of 0.05 was used. If a Sidak-Bonferroni correction with a family-wise alpha of 0.1 had been used, the significant level for each of these correlations would have been 0.007. At the 0.05 alpha level, the only significant correlation was that between the Community Composite Scores of the parents and children ($r = 0.90, p = 0.01$).
**Correlations with ASRS and SRS Scaled Scores.** Pearson product-moment correlations were calculated between the parent and child Composite Scores and the Scaled Scores on the ASRS and SRS to examine the convergent validity of the SIBI. A total of 156 correlations were computed between SIBI Composite Scores and the ASRS and SRS Scaled Scores (42 correlations were computed for the parent form of the ASRS, 42 were computed for the teacher form of the ASRS, 36 were computed for the parent form of the SRS, and 36 were computed for the teacher form of the SRS). Again, due to the exploratory nature of these correlations and the small sample size used, no correction methods were implemented. If a Sidak-Bonferroni correction with a family-wise alpha of 0.1 had been used, the significant level for each of these correlations would have been 0.0007. At the 0.05 alpha level, the parent School Composite Score was significant associated with the ASRS’ Adult Socialization Scaled Score (teacher report: \( r = -0.96, p = 0.01 \)). The parent Community Composite Score was significant related to the ASRS’ Social/Emotional Reciprocity (parent report: \( r = -0.87, p = 0.02 \); teacher report: \( r = -0.90, p = 0.04 \)) and Adult Socialization (teacher report: \( r = -0.89, p = 0.05 \)) Scaled Scores. The child Community Composite Score was also significantly related to the ASRS’ Adult Socialization (teacher report: \( r = -0.93, p = 0.02 \)) and Social/Emotional Reciprocity (teacher report: \( r = -0.89, p = 0.04 \)) Scaled Scores. No significant correlations between the SIBI Composite Scores and the SRS Scaled Scores were detected.

**Version 2.**

**Descriptive statistics.** School and Community Composite Scores were calculated in the same way as in Version 1. Again, since there were only 2 home-related items on
each of the parent and child forms, a composite score for this domain was not calculated. A Desirability Composite Score was calculated for the child participants.

In this sample of 6 parents, the mean School Composite Score was 72.5 (SD = 9.0; range = 60.0 to 81.0), and the mean Community Composite Score was 57.4 (SD = 12.1; range = 41.9 to 74.2). In this sample of 6 children, only 5 completed the school-related items because one child was home-schooled and did not report on his experiences in other structured settings. The mean School Composite Score was 67.4 (SD = 3.4; range = 64.0 to 73.0), and the mean Community Composite Score was 53.8 (SD = 10.4; range = 39.3 to 64.3). The mean Desirability Composite Score was 57.9 (SD = 13.5; range = 40.0 to 75.0).

**Internal consistency.** Cronbach’s alpha was calculated for each of the School and Community Composite Scores to assess the internal consistency of these domain scores. Missing data was handled in the same way as in Version 1. Table 6 lists the Cronbach’s alphas for each of the Composite Scores.

**Parent Form.** Five parent participants completed every school-related item, one parent completed 9 of the 11 items. The Cronbach’s alpha when missing items were replaced by the specific variable’s mean was 0.54, and when the item “Other kids bullied or teased your child” (reverse scored) was removed, Cronbach’s alpha increased to 0.73. The lowest inter-item correlation was -0.93 (between “Other kids bullied or teased your child” [reverse scored] and “Your child is more comfortable talking to kids in online games than to kids at school” [reverse scored]), and the highest inter-item correlation was
0.98 (between “Your child played by him/herself more than with other kids” and “Your child had fun playing with other kids”).

For community-related items, 5 parents completed every item, and 1 parent completed 9 of the 11 items. The Cronbach’s alpha was 0.86; when the item “Your child has a friend outside of school” was removed, Cronbach’s alpha increased to 0.89. The lowest inter-item correlation was -0.55 (between “Your child has a friend outside of school” and “Your child indicated desiring more/better social interactions with other kids” [reverse scored]); the highest inter-item correlation was 0.87 (between “Your child played outside with other kids” and “Your child indicated desiring more/better social interactions with other kids” [reverse scored]).

*Child Form.* Four of the 5 children who completed the school-related items responded to every question, one child responded to 9 of the 12 items. A Cronbach’s alpha for the school-related items again was unable to be calculated due to a negative average covariance among these items. Five of the child participants completed every community-related item, and 1 child completed 7 of the 8 items. The Cronbach’s alpha for the community-related items was 0.63; when the item “I am a member of a club or sports team” was removed, Cronbach’s alpha increased to 0.77. The lowest inter-item correlation was -0.93 (between “I am a member of a club or sports team” and “A kid came to play at my house”), and the highest inter-item correlation was 0.71 (between “I played at this [specified] friend’s house” and “I have a friend in my neighborhood”/“I played outside with other kids”).
Missing values among the 5 Desirability items were again not replaced, and individuals with a missing value were excluded from the reliability analysis. Five children were included. The items “I am always right” and “I always agree with everything my parents say” were excluded from the analysis due to a lack of variability in these items’ responses. The Cronbach’s alpha for the remaining 3 items was 0.33, and when the item “Sometimes I don’t tell the truth” (reverse scored) was removed, Cronbach’s alpha increased to 0.79. The lowest inter-item correlation was -0.26 (between “I always think positively about other kids” and “Sometimes I don’t tell the truth” [reverse scored]), and the highest inter-item correlation was 0.53 (between “I always think positively about other kids” [reverse scored] and “I never get upset at anybody”).

Correlations between parent and child Composite Scores. A total of 15 Pearson product-moment correlations were calculated between the parent and child Composite Scores. As with Version 1 (and for all subsequent versions), no correction methods were implemented despite the multiple correlations computed, and an alpha level of 0.05 was used. The parent School Composite Score was significantly related to the parent Community Composite Score \( (r = 0.82, p = 0.047) \), and the parent Community Composite Score was significantly related to the Child Community Composite Score \( (r = 0.82, p = 0.045) \).

Correlations with ASRS and SRS Scaled Scores. A total of 156 Pearson product-moment correlations were calculated between the parent and child Composite Scores and the Scaled Scores on the ASRS and SRS (parent and teacher forms). As with Version 1 (and for all subsequent versions), no correction methods were implemented despite the
multiple correlations computed, and an alpha level of 0.05 was used. The parent School Composite Score was significantly related to the ASRS’ Social Communication Scaled Score (parent report: \( r = -0.91, p = 0.03 \)) and the SRS’ Social Motivation Scaled Score (parent report: \( r = -0.98, p = 0.003 \)). The Parent Community Composite was significantly associated with the ASRS’ Social Communication Scaled score (parent report: \( r = -0.99, p = 0.002 \)) and the SRS’ Social Motivation Scaled Score (\( r = -0.89, p = 0.045 \)). The child School Composite was also significantly associated with the SRS’ Total Score (parent report: \( r = -0.96, p = 0.04 \)), Social Communication (parent report: \( r = -1.00, p = 0.002 \)), and the Autistic Mannerisms Scaled Score (parent report: \( r = -0.98, p = 0.02 \)). Next, the child Community Composite was significantly related to the ASRS’ Adult Socialization Scaled Score (teacher report: \( r = 0.99, p = 0.01 \)) and the SRS’ Social Motivation Scaled Score (parent report: \( r = -0.93, p = 0.02 \); teacher report: \( r = 0.96, p = 0.04 \)).

Version 3.

Descriptive statistics. School, Community, and Home Composite Scores were calculated for both the parent and child forms of Version 3 of the SIBI. Since every item was rated on a 5-point Likert scale, rather than calculating percentage scores, Composite Scores were calculated as follows:

\[
(\text{Number of items in domain}) \times (\text{Total score from domain} / \text{Number of answered items in domain}).
\]

For example, there are 11 school-related items on the parent version of the SIBI. If a parent answered 8 items and obtained a total score of 32 for those 8 items, the School Composite would be: \( 11 \times (32/8) = 44 \). In our sample of 7 parents, 2 had more than 3
missing values in their responses, and were thus excluded from the analyses on the School Composite Scores. The mean School Composite Score was 36.1 ($SD = 7.4$; range = 28.0 to 48.0), the mean Community Composite Score was 28.4 ($SD = 5.5$; range = 19.0 to 36.0), and the mean Home Composite Score was 11.9 ($SD = 2.0$; range = 9.0 to 14.0).

In our sample of 7 children, the mean School Composite Score was 49.7 ($SD = 11.0$; range = 34.0 to 64.0), the mean Community Composite Score was 26.7 ($SD = 8.4$; range = 13.0 to 36.0), and the mean Home Composite Score was 9.6 ($SD = 2.5$; range = 4.0 to 11.0).

**Internal consistency.** Cronbach’s alpha was calculated for each of the School, Community, and Home Composite Scores to assess the internal consistency of these domain scores. Missing values were handled in the same as in previous versions of the SIBI. Table 6 lists the Cronbach’s alphas for each of the Composite Scores.

**Parent Form.** Four of the included parent participants completed every school-related item, and 1 completed 9 of the 10 items. The Cronbach’s alpha for this domain was 0.92, and after deleting the item “Your child is more comfortable talking to children in online games than to children at school”, Cronbach’s alpha increased to 0.94. The lowest inter-item reliability was -0.58 (between “Your child knew how to play a game other children played at recess” to “Your child is more comfortable talking to children in online games than to children at school”), and the highest inter-item reliability was 0.99 (between “Your child maintained a friendship with another child at school” and “Your child felt close to other children at school”).
Each parent completed every (11) community-related item, and Cronbach’s alpha was 0.64. When the item “Your child participated in a club or sports team” was removed, Cronbach’s alpha increased to 0.67. The lowest inter-item correlation was -0.82 (between “This [specified] friend came to play at your house” and “Your child indicated desiring more/better social interactions with other children” [reverse scored]), and the highest inter-item correlation was 0.82 (between “Your child played at another child’s house” and “Your child played outside with other children”). With regards to the home-related items, every parent responded to each of the 3 items. The Cronbach’s alpha for items in this domain was 0.49, and when the item “Your child had fun playing with his/her family” was removed, Cronbach’s alpha increased to 0.75. The lowest inter-item correlation was -0.32 (between “Your child had fun playing with his/her family” and “Your child only played by him/herself” [reverse scored]), and the highest inter-item correlation was 0.60 (between “Your child asked a family member to play games with him/her” and “Your child only played by him/herself [reverse scored]).

**Child Form.** Each child completed every school- (14), community- (8), and home-related (4) items. For the school-related items, Cronbach’s alpha was 0.80, and when the item “I talked to kids in online games more than I talked to kids at school” (reverse scored) was removed, Cronbach’s alpha increased to 0.85. The lowest inter-item correlation was -0.78 (between “A kid at school asked me to play at recess” and “I was teased or bullied [reverse scored]”), and the highest inter-item correlation was 0.90 (between “A kid picked me to be on a team for games” and “I wish I had friends at school” [reverse scored]).
For the Community Composite Score, the items “This [specified] friend called me or texted me” and “I called or texted this [specified] friend” were excluded from the reliability analysis due to a lack of variance in the responses. Cronbach’s alpha was 0.78, and when the item “I played at this [specified] friend’s house” was removed, Cronbach’s alpha increased to 0.79. The lowest inter-item correlation was -0.37 (between “I played at this [specified] friend’s house” and “I played at another kid’s house”), and the highest inter-item correlation was 0.87 (between “I played at another kid’s house” and “A kid came to play at my house”). With regards to the home-related items, Cronbach’s alpha was unable to be calculated because the average covariance among these items was negative.

**Correlations between parent and child Composite Scores.** A total of 15 Pearson product-moment correlations were calculated between the parent and child Composite Scores, and the only significant correlation was that between the School Composite Scores of the parents and children ($r = 0.96, p = 0.009$).

**Correlations with ASRS and SRS Scaled Scores.** A total of 156 Pearson product-moment correlations were calculated between the parent and child Composite Scores and the Scaled Scores on the ASRS and SRS. The parent Home Composite Score was significantly related to the ASRS’ Adult Socialization Scaled Score (teacher report: $r = 0.94, p = 0.02$). The child Community Composite Score was significantly related to the SRS’ Autistic Mannerisms Scaled Score (teacher report: $r = -0.95, p = 0.048$), and the

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1 Only correlations performed on more than 2 individuals are reported.
child Home Composite Score was significantly related to the ASRS Adult Socialization (parent report: \( r = 0.83, p = 0.04 \)) and Peer Socialization (teacher report: \( r = -0.98, p = 0.004 \)) Scaled Scores.

**Version 4.**

**Descriptive statistics.** School, Community, and Home Composite Scores were calculated as in Version 3. In our sample of 5 parents, 3 had more than 3 missing values among the school-related items, and were thus excluded from analyses on the School Composite Scores. The mean School Composite Score for the remaining 2 parents was 34.4 (\( SD = 7.9 \) range = 28.9 to 40.0). The mean Community Composite Score was 32.8 (\( SD = 5.5 \); range = 24.0 to 39.0), and the mean Home Composite Score was 13.2 (\( SD = 3.3 \); range = 8.0 to 16.0). For our 6 child participants, the mean School Composite Score was 51.6 (\( SD = 16.5 \); range = 27.0 to 69.0), the mean Community Composite Score was 34.1 (\( SD = 16.0 \); range = 12.0 to 53.8), and the mean Home Composite Score was 12.0 (\( SD = 5.3 \); range = 5.0 to 19.0).

**Internal consistency and validity.** Cronbach’s alpha was calculated for each of the School, Community, and Home Composite Scores to assess the internal consistency of these domain scores. Table 6 lists the Cronbach’s alphas for each of the Composite Scores.

**Parent Form.** Although there were only 2 parents who completed most (9 of 10) of the school-related items (i.e., less than 3 missing values), Cronbach’s alpha was calculated for these items to obtain a preliminary sense of the reliability for this set of items. The items “Other children played with your child at recess” and “Your child is
more comfortable talking to children in online games than to children at school” [reverse scored]” were not included in this analysis due to a lack of variance in responses to these items. Cronbach’s alpha for the remaining items was 0.91, and when the item “Your child played by him/herself more than with other children” (reverse scored) was removed, Cronbach’s alpha increased to 0.98. Since only 2 parents were included in this analysis, the inter-item correlations ranged from -1 to +1.

Every parent completed each of the 10 community-related items. Cronbach’s alpha was 0.76, and when the item “Your child participated in a club or sports team” was removed, Cronbach’s alpha increased to 0.92. Since this item has repeatedly demonstrated the lowest item-total correlation for the Community Composite Scores (i.e., Versions 1, 2, and 4), this item was removed in the calculation of the Community Composite. The new mean of the parent Community Composite was 28.8 ($SD = 6.0$, range = 19.0 to 34.0). The lowest inter-item correlation was -0.82 (between “Your child participated in a club or sports team” and “Your child maintained a friendship with another child outside of school”), and the highest inter-item correlation was 0.92 (between “Your child went to play at this [specified] friend’s house and “Your child played at another child’s house”/“A child invited your child to play at his/her house”).

For the home-related items, each parent responded to every item. The Cronbach’s alpha for scores in this domain was 0.70. When the item “Your child asked a family member to play games with him/her” was removed, Cronbach’s alpha increased to 0.76. The lowest inter-item correlation was -0.21 (between “Your child had fun playing with his/her family” and “Your child only played by him/herself” [reverse scored]), and the highest
absolute inter-item correlation was 0.87 (between “Your child had fun playing with his/her family” and “Your child asked a family member to play games with him/her”).

Child Form. Four children provided a response to every school-related item, and 2 children responded to 13 of the 14 school-related items. Cronbach’s alpha was 0.91, and when the item “I talked to kids in online games more than I talked to kids at school” (reverse scored) was removed, Cronbach’s alpha increased to 0.93. The lowest inter-item correlation was -0.48 (between “I was teased or bullied” [reverse scored] and “I talked to kids in online games more than I talked to kids at school”), and the highest inter-item correlation was 0.99 (between “I liked other kids at school” and “I joined another kid in his/her game at recess”).

Three of the children provided a response to every community-related item, and three responded to 9 of the 11 items. Cronbach’s alpha was 0.93, and when the item “I participated in a club activity, Scouts, or a sports team like soccer” was removed, Cronbach’s alpha increased to 0.95. The lowest inter-item correlation was -0.45 (between “I participated in a club activity, Scouts, or a sports team like soccer” and “This [specified] friend called me or texted me”), and the highest inter-item correlation was 0.97 (between “I had fun playing with other kids after school” and “I played outside with other kids”).

Each child provided a response to each of the 5 home-related items. The Cronbach’s alpha for scores in the Home Composite was 0.64. When the item “I asked my family to play games with me” was removed, Cronbach’s alpha increased to 0.77. The lowest inter-item correlation was -0.43 (between “I asked my family to play games
with me” and “I played this [specified activity] mostly by myself” [reverse scored]), and
the highest inter-item correlation was 0.93 (between “I played mostly by myself” [reverse
scored] and “I played this [specified activity] mostly by myself [reverse scored]).

**Correlations between parent and child Composite Scores.** A total of 15
correlations\(^2\) between each of the parent and child Composite Scores were calculated, and
only parents’ Home Composite Scores were significantly correlated with children’s
Community Composite Scores \((r = -0.89, p = 0.04)\).

**Correlations with ASRS and SRS Scaled Scores.** A total of 156 Pearson product-
moment correlations\(^3\) were calculated between the parent and child Composite Scores
and the Scaled Scores on the ASRS and SRS. The parent Community Composite Score
was significantly related to the SRS’ Total Score (teacher report: \(r = 1.00, p < 0.001\)) and
Autistic Mannerisms Scaled Score (parent report: \(r = 1.00, p = 0.0049\); teacher report: \(r =
1.00, p < 0.001\)). The child Community Composite Score was significantly related to the
ASRS’ Total Score (parent report: \(r = 0.96, p = 0.037\), the ASRS’ Adult Socialization
Scaled Score (parent report: \(r = 0.97, p = 0.04\), and the ASRS’ Social/Emotional
Reciprocity Scaled Score (parent report: \(r = 1.00, p = 0.003\)).

\(^2, 3\) Only correlations performed on more than 2 individuals are reported.
Chapter 4: Discussion

**Summary**

Children with HFA/AS experience considerable impairment in various domains of their everyday lives. In particular, some of these children suffer from significant deficits in social skills, and many lack the social insight and knowledge that allows otherwise typically developing children to successfully form and maintain satisfying social relationships. As such, children with HFA/AS may be particularly vulnerable to experiencing social isolation and loneliness, and regrettably, being targets for bullying and other forms of victimization. Social skills training is one form of intervention that has been developed and implemented with the aim of ameliorating some of the social deficits and related impairment children with HFA/AS experience. Although such interventions have demonstrated some success in improving these children’s functioning, results have been limited, and the development and use of ecologically valid outcome measures of children’s social functioning has been identified as a priority for research. While existing measures of these children’s social functioning have largely focused on specific social skills, there is currently a dearth of measures assessing the frequency and success with which children utilize and generalize such skills in their daily social interactions with peers and with their family.
The current study aimed to develop a novel instrument, the SIBI, to measure the social interactions of children with HFA/AS while addressing some of the limitations that exist in currently available social functioning measures. This novel instrument is intended to: 1) assess children’s social interactions in the school, family, and community settings; 2) utilize both parent- and self-reports; 3) consist of items with high face and content validity and are neutral in tone; and 4) examine recent, actual social interactions behavior in children with HFA/AS. A qualitative approach was taken to develop and refine a pool of clear and comprehensive items that assesses children’s social interactions across different domains of their lives and from both parents’ and children’s perspectives. Focus groups and individual interviews were conducted to obtain parents’ and children’s feedback on the items in four different versions of the parent and child forms of the SIBI, and through consultation with psychologists and clinicians, adjustments and modifications were made to the SIBI after each iteration. When minimal suggestions were provided by parent and child participants, and only slight changes were made to the fourth version of the SIBI, a final version of the SIBI was generated.

Parent participants’ feedback. Across the four different focus groups that were conducted, the primary concerns regarding the SIBI that were expressed by parent participants include: 1) difficulty reporting on their child’s school behaviors, 2) the relevance of items to their child’s behaviors, and relatedly, 3) the nature and number of response options for each item. In each focus group, some parents expressed being unaware of their child’s social interactions and social groups at school, and indicated that it was thus difficult to provide an accurate and informed response to some of the school-
related items. Despite being encouraged to utilize and incorporate various sources of information (e.g., from their child’s own reported experience or from teachers’ reports), some parents maintained that it was difficult to respond to some of the school-related questions. In addition, parents of children who were homeschooled reported being unclear as to how to respond to school-related items.

With regards to response options, parents in the first two focus groups indicated desiring a greater number of response options (than the 2- to 3-point rating system initially used) for each item. Some of the response options in the first two versions of the SIBI asked about specific frequencies of various social interactions, and parent participants in the first two focus groups conveyed having trouble remembering the number of times their child had engaged in those behaviors in the previous two weeks. Further, parents suggested including a “Not Applicable” option for specific items that may not be relevant to every child’s social experiences (e.g., accessing social media, playing online games).

Parents also provided suggestions regarding additional items that could be included in the SIBI to more comprehensively capture children’s social interactions behaviors, such as asking about children’s desire for friendship and their relationships with siblings. In addition, some parents also expressed concern regarding whether the SIBI may be too lengthy for children to complete, and whether children would be able to accurately recall their behaviors in the two weeks prior to the administration of the SIBI.

**Modifications made to Parent Form of the SIBI.** In response to these and other concerns raised by the parent participants in our 4 focus groups, modifications to the SIBI
were made. Parents were encouraged to utilize multiple sources of information when responding to school-related items, and were asked in the instructions to provide a response to each item as best as they can. Due to continued reported difficulty in responding to these items, a “Don’t know” option was provided for each school-related item. In terms of response options, items on the final version are anchored on a 5-point Likert scale, and rather than asking parents to report on the number of times specific social behaviors occurred, response options range from “Not at all” to “Very Often”. Furthermore, for several behaviors that parents indicated may not be applicable to every child, a variation of a “Not Applicable” option was provided. Although not a modification made directly to the Parent Form, in order to facilitate children’s recall of their behaviors in the previous two weeks, we asked children to describe any important events that took place approximately two weeks prior to the administration of the SIBI, and encouraged them to consider their behaviors from that day until now. In future administrations, it may be helpful to use a calendar to prompt children’s recall of the previous two weeks. Overall, parents in the final focus group seemed satisfied with the SIBI, and other than several minor suggestions, provided minimal feedback and critiques.

**Child participants’ feedback and modifications made to the Child Form of the SIBI.** From the first child focus group and subsequent individual interviews that were conducted, the primary feedback related to the SIBI that the child participants provided include: 1) difficulty comprehending and responding to Desirability items, 2) difficulty comprehending other individual items, and 3) preference for completing the SIBI in an interview format than by themselves. Overall, the comments that the child participants
expressed illumined for us the specific items that could be more clearly worded and phrased. As just one example, more abstract concepts such as emotional closeness may not be grasped or understood by some children with HFA/AS. Relatedly, items that are complex or negatively worded (e.g., “Sometimes I don’t tell the truth”) may be particularly difficult for these children to comprehend and respond to. In addition, the forced-choice (“Yes/No”) format of the Desirability items seemed unpalatable to the child participants, and combining their reported difficulty in comprehending these items, we decided to remove the Desirability items from the SIBI and address potential issues of social desirability in alternate ways (e.g., with the use of follow-up and clarification questions as afforded by administration via an individual interview format). Children in the final set of interviews also provided minimal feedback and seemed satisfied with the SIBI.

**Preliminary evidence of reliability and validity of the SIBI.** The internal consistency and convergent validity of each version of the SIBI was evaluated. Due to the small sample sizes used for each evaluation, the indices of internal consistency and convergent validity that have been provided should not be unreservedly interpreted as being indicative of how the SIBI items would perform in larger, more representative samples of children with HFA/AS and their parents. Further evaluations of the SIBI’s psychometric properties must be conducted in future work. Nevertheless, highlighting some key conclusions from the reliability and validity indices in our current samples is warranted.
Internal consistency. Overall, Cronbach’s alpha remained consistent or increased across iterations of the SIBI (see Table 6). Typically, Cronbach’s alphas greater than 0.70 are considered minimally acceptable (Nunnaly, 1978). For Version 4 of the SIBI, the Cronbach’s alphas ranged from 0.64 to 0.92. Future psychometric studies on larger samples of children with HFA/AS and their parents would help inform whether removal of items identified in the current study to increase Cronbach’s alpha is justified. The greatest increase in Cronbach’s alpha occurred between the parent School Composite Scores from Version 2 (0.54) and Version 3 (0.92). Despite parents’ expressed unawareness of their child’s social behaviors at school, perhaps the increased number of response options (from 2 or 3 choices to a 5-point Likert scale) and a more general assessment of frequency (i.e., from asking about specific number of times behaviors occurred to options ranging from “Not at all” to “Very often”) facilitated parents’ ability to provide a “best” response of their child’s social behaviors at school. With regards to the parent Home Composite, adding an item assessing children’s conflict with their family members and re-ordering the presentation of items (such that the more general item “Your child had fun playing with his/her family” preceded more specific items) increased Cronbach’s alpha from 0.49 (Version 3) to 0.70 (Version 4).

As expected, children’s responses to the Desirability items in Versions 1 and 2 of the SIBI were low in reliability (Cronbach’s alpha could not be calculated for Version 1, and Cronbach’s alpha was 0.33 for Version 2). As such, the decision to remove these Desirability items from the final versions of the SIBI and instead assess for social desirability and other response biases through the use of individual interviews seems
supported and justified. Cronbach’s alphas for the child School Composite Scores for Versions 1 and 2, and the child Home Composite Score for Version 3 were unable to be calculated due to a negative average covariance among responses to items in those domains, suggesting that there was greater variability within individual items than the scale’s variability. This issue did not arise in Versions 3 and 4 (which demonstrated relatively higher Cronbach’s alphas: 0.80 and 0.92, respectively), and given the remarkably similar set of school-related items presented in each of these versions, the observed negative average covariance in responses for the first 2 versions may have resulted from sampling error (the child participants who completed the first 2 versions were also from the first MF-PEP group, while those who completed the last 2 versions were from the second MF-PEP group). Improvements to Version 3 of the child Home Composite (i.e., added item “I asked my family to play games with me” in Version 4) may explain the improved calculation of Cronbach’s alpha from Version 3 to Version 4 of this Composite.

Several observations were noted when examining item-total correlations for items in each of the Composite Scores. Specifically, there appeared to be some consistency in terms of the specific items that led to an increase in Cronbach’s alpha when removed from the scale in question. For example, among parents in the first 2 focus groups, the item assessing the degree to which their child was bullied or teased at school exhibited the lowest correlation with the other items in the School Composite. This is contrary to the intuitive prediction that being bullied or teased would be indicative of and related to negative social interactions with other children at school, yet after double-checking to
ensure that responses to this item were reverse-scored, the low correlations remained. This finding may be partially explained by parents’ expressed unawareness of children’s social interactions at school. Presumably, instances of bullying would more likely be made known to parents by the child or by teachers at school, whereas other more “subtle” social exchanges may not be as readily reported to parents. As such, their reporting of those behaviors may be based on other sources of information (e.g., their observations of their child in other settings) that are independent of those they used to describe their child’s experiences of bullying or teasing. Since the low item-total correlation for this item was not repeatedly observed across iterations (i.e., 3 out of 4 iterations), this item was retained in the calculation of parent School Composite Scores.

Next, among parents who completed Version 3 of the SIBI and children who completed Versions 3 and 4 of the SIBI, the item assessing whether children talked with other children in online games more than to children at school demonstrated the lowest correlation with other school-related items. Perhaps because this item did not directly assess children’s social interactions at school (i.e., it was a comparison of their behavior at school and outside of school), its relationship to other school-specific behavior was low. Whether or not this item should best be retained or removed from the school-related items would be better informed by future psychometric studies on the SIBI. Interestingly, among the parent and child participants who completed Version 4 of the SIBI, the item assessing the degree to which children asked their family members to play games with them exhibited the lowest correlation with other home-related items. At least among these families, the frequency with which children initiated interactions with their family
members was less related to the overall quality and quantity of their social interactions at home. Future psychometric studies will provide greater information regarding the value and contribution of this item to understanding children’s social functioning at home.

Finally, the item examining children’s participation in clubs or sports teams exhibited the lowest correlation with other community-related items for 3 parent Community Composites and 2 child Community Composites across the 4 SIBI versions. This suggests that whether or not and how frequently children participate in extracurricular activities may not be closely-related to their overall social functioning in the community. One may expect that the more club and team activities children engage in, the greater their social interactions with other children would be. However, as suggested by our results, it appears that participation in such activities does not necessarily predict the frequency with which children communicate and play with other children outside of school, nor does it seem to be associated with the quality of the social interactions that they do have. While this item has been removed from the calculation of the Community Composite Score for the parent form, this item was retained in the SIBI to provide administrators and clinicians with additional information regarding a child’s extra-curricular activities and potential targets for treatment. Future psychometric studies would inform the utility of including this item in the calculation of the Community Composite Score on the child form.

**Correlations between parent and child Composite Scores.** Correlations computed between parent and child Composite Scores suggest that parents and children are more likely to agree on children’s social functioning in the community setting than in the
school or home settings (Versions 1 and 2). Parents and children completing Version 3 of the SIBI, however, exhibited high agreement regarding children’s social interactions at school. Interestingly, parents’ Home Composite Scores and children’s Community Composite Scores in Version 4 were negatively correlated, suggesting that higher ratings by parents regarding children’s social interactions at home was associated with lower ratings by children regarding their own social interactions in the community, or vice versa. Although this may indicate that children’s social functioning is in fact different across settings, this may also be a spurious finding resulting from our small sample size.

Considering that parent and child reports typically have low agreement (e.g., Achenbach, McConaughty, & Howell, 1987), the lack of consistent agreement between parent and child reports in each of the school, community, and home domains is not entirely surprising. What is interesting is the lack of significant relationships among parents’ and children’s own Composite Scores (with the exception of the significant correlation between parents’ School and Community Composites for Version 2). One may presume that children’s behaviors in social interactions would be consistent across the school, community, and home settings, though our results (admittedly limited given the small samples studied) suggest that this may not be the case. At the very least, parents’ and children’s perceptions of their social interactions may differ depending on where and with whom children are observed. It is also plausible that children’s social interactions behavior indeed differ across settings, for as mentioned previously in this document, the degree to which social partners accommodate these children’s specific needs may influence the overall nature and quality of their interactions.
Correlations with Scaled Scores on the ASRS and SRS provide some preliminary evidence of validity of the SIBI Composite Scores across the 4 iterations. Focusing on the SIBI Composite Scores with Cronbach’s alphas greater than 0.70, the parent Community Composite negatively predicted the ASRS’ Social Communication (parent report), Adult Socialization (teacher report), Social/Emotional Reciprocity (parent and teacher reports) Scores, as well as the SRS’ Social Motivation Score (parent report). These suggest that children with better social interactions with other children in their community, as reported by parents, exhibit fewer problems in social communication, social relationships with adults, reciprocity, and desire to engage in social interactions. With regards to children’s report of their social interactions in the community, their Community Composite significantly predicted the ASRS’ Adult Socialization (teacher report) and Social/Emotional Reciprocity Scores (teacher report), as well as the SRS’ Autistic Mannerisms Score (teacher report), suggesting that those who report having more positive interactions with other children exhibit fewer problematic relationships with adults, fewer problems with reciprocity in their relationships with others, and may exhibit lower levels of behaviors such as having an unusually narrow range of interests and repetitive and odd behaviors.

Contrary to expectations, children’s Community Composite Scores and parents’ Community Composite Scores from Version 4 of the SIBI demonstrated positive relationships with scores on the SRS’ Total Score (teacher report) and Autistic Mannerisms Scale (parent and teacher report), the ASRS’ Total Score (parent report),
Adult Socialization (parent report), and Social/Emotional Reciprocity Scale (parent report). Specifically, while we may expect that children engaging in more positive social interactions would exhibit fewer inappropriate social behaviors (i.e., negative correlations between SIBI Composite Scores and the SRS and ASRS Scaled Scores), the opposite was found. Since the SIBI, SRS, and ASRS ask for reporting of different time periods (past 2 weeks, past 6 months, and past 4 weeks, respectively), it is possible that children’s behaviors in the 2 weeks prior to the SIBI administration were in fact different from their overall social behaviors in the previous 4 weeks or 6 months. However, given the small sample that was used, these findings should be interpreted with much caution, and future studies would do well to further explore the relationships between children’s Community Composite Scores and Scaled Scores on the SRS and ASRS.

Overall, these preliminary findings provide some initial support for the validity of the SIBI. Again, due to the small sample sizes evaluated in the current study, future studies utilizing larger samples must be completed to obtain stronger and more accurate evidence regarding the validity of the SIBI.

**Parent-Child Agreement**

As mentioned above, the lack of high and consistent agreement between parent and child reports is not uncommon. In Achenbach and colleagues’ (1987) meta-analytic study of 119 studies examining children and adolescents’ behavioral and emotional problems, the mean correlation between parent- and self-reports was 0.25. Other studies have also supported these findings (e.g., Engel, Rodrigue, & Geffken, 1994; Kenny & Faust, 1997), and in short, it is perhaps reasonable to expect low agreement between
parent and child reports. Karver (2006) identified 4 factors that may influence the degree of parent-child concordance when assessing children’s behavioral and emotional functioning. First, behaviors that are exhibited consistently across different domains in a child’s life should result in higher levels of agreement, while those that vary in frequency across settings should produce lower levels of agreement. Second, behaviors that are objectively observable, perceived to be meaningful, and are highly salient are thought to result in higher levels of parent-child agreement (externalizing versus internalization behaviors). Third, differences in parents’ and children’s ability to recall the information and behaviors in question can influence the degree of agreement between their reports, and lastly, the willingness of parents and children to report on certain behaviors would likely contribute to the level of agreement between them. Hartung and colleagues (2005) also suggested that while the specific responses parents and children provide are different, they may both be providing valid information, albeit based on different perceptions and knowledge of the behaviors in question.

Although few studies have examined the level of parent-child agreement among ASD populations (in fact, as discussed earlier in this document, there has been limited use of self-report measures among children with HFA/AS in general), the studies that have explored this question have focused largely on parents’ and children’s reporting of children’s anxiety symptoms. Parents have been found to rate their child with AS with greater levels of separation anxiety, social phobia, and generalized anxiety disorder symptoms than children rate themselves (Russell & Sofronoff, 2004), and consistent with the issues discussed above regarding otherwise typically-developing children, there
appears to be higher levels of parent-child agreement for observable, externalizing problems than for internalizing symptoms among youth with an ASD (Hurtig et al., 2009).

For the parent and child participants in our sample, significant correlations between parents’ and children’s Community Composite Scores but not between School Composite Scores (except for Version 3) lend some support to the postulation that parents and children may be providing valid yet different information due to the “unique” perceptions and observations they may each have. While parents’ and children’s knowledge of children’s social interactions in the community may be similar, it seems likely that their knowledge of children’s school behaviors differ, particularly in light of parents’ self-disclosed unawareness regarding their child’s social interactions at school. This is consistent with Comer and Kendall’s (2004) finding that parents and children demonstrate greater agreement over children’s non-school-based symptoms than school-based symptoms. Interestingly, parents and children completing Version 3 of the SIBI demonstrated high agreement. Perhaps these parents more closely monitored their child’s school behaviors, or they may have otherwise been more involved in their child’s school activities than parents completing other versions.

The lack of significant relationships between parents’ and children’s Home Composite Scores again suggests that both parents and children may be providing valuable yet unique information regarding children’s behaviors at home. For example, children and parents may use different sources of information to describe the amount of “fun” children had while playing with their family. Parents may attempt to gauge their
child’s enjoyment of the activities they played together by examining their own enjoyment of those activities or their child’s verbal expressions of enjoyment, while children may use entirely different indices to determine how much fun they had when playing with their family. The possibility that parents and/or children were unwilling to disclose or were unable to recall specific behaviors and experiences must be underscored as well. For example, disagreements and arguments that may have been salient and memorable in parents’ minds may have been quickly forgotten, hence not reported, by children. On the other hand, parents may be motivated to under-report the level of conflict that exists between their child and themselves in order to present themselves and their family in a favorable light. Overall, various factors may influence the level of parent-child agreement when assessing children’s behaviors, yet low concordance has been observed across different populations of children, and the value and interpretation of the information obtained must be carefully considered.

Use of Self-Report

The question of whether the use of child self-reports in assessing their behavioral and emotional symptoms is not an issue unique to the ASD population (e.g., Dadds, Perrin, & Yule, 1998; Schniering, Hudson, & Rapee, 2000). Perhaps due to the increased difficulty that children with ASDs have in identifying and expressing their feelings, the issue of using self-reports in this population of children may be particularly impacting. For example, Shalom and colleagues (2006) compared the self-reported emotions that typically-developing children and children with HFA provide when presented with pleasant, neutral, and unpleasant images, and found that even though children’s
physiological responses were similar, the emotions they reported experiencing differed between these two groups of children. This may indicate that children with an ASD indeed have greater difficulty identifying their emotions, and thus, researchers studying internalizing symptoms among children with ASD have been hesitant to depend solely on children’s self-reports (Blakeley-Smith et al., 2012).

On the other hand, among typically-developing children, some researchers have begun to argue that the use of self-reports to assess attention and behavior problems may provide meaningful information (e.g., Bell et al., 2010; Klimkeit et al., 2006). For example, otherwise typically-developing children with Attention-Deficit/Hyperactivity Disorder (ADHD) reported greater levels of disruptive and impulsive behaviors than those without ADHD, and also indicated they had lower levels of social and communication skills. To my knowledge, no studies have examined the value of self-reported indices of behavioral problems among children with HFA/AS. Given that the SIBI generally aimed to assess concrete, objective behaviors and experiences in the lives of children with HFA/AS, the challenges associated with using self-reports to examine internalizing symptoms may or may not be applicable here. Furthermore, items on the SIBI were created to be simple and direct, and the informative feedback children provided in this study regarding the clarity of items allowed us to improve the overall comprehensibility of the SIBI, thereby facilitating more accurate responding of children’s social interactions in their daily lives.

Apart from the ability of children to accurately respond to questionnaire items is the issue of desirability biases in responding. As mentioned previously in this document,
there did not appear to be evidence of reluctance among children to truthfully report on their social experiences. In fact, the child participants in our sample were candid in discussing some of the negative social experiences they have had. Initially, an attempt to assess for desirability responding in children was made by including several desirability items on the SIBI. Although such items have been used in ratings scales for typically-developing children (e.g., Dadds, Perrin, & Yule, 1998; Reynolds & Richmond, 1985), this method to detect social desirability may not be optimal when working with children with HFA/AS. At least among our child participants, it was generally agreed upon that the desirability items were difficulty to respond to, and administering the SIBI in an interview format instead would allow administrators to probe for clarifying information when desirability or other responding biases are detected.

With regards to the parent participants, those in the first focus group reported that although they provided accurate responses, they experienced a reluctance to truthfully express the difficulties that their children experience in social interactions. First, this may be an indication that the items on the SIBI are assessing pertinent aspects of children’s social relationships. Also, it is possible that these treatment-seeking families may be more willing to disclose problematic behaviors and experiences in their children, for although it is undoubtedly painful to describe such experiences, parents may recognize the importance of being truthful reporters of their children’s problems in order for relevant and tailored treatment goals to be created. Hence, although there does not appear to be convincing reason to suspect inaccurate responding in the parent and child participants in our sample, taking active steps to reduce this possibility (e.g., using an interview format,
emphasizing there is no right or wrong answer) is essential in future administrations. As well, despite potential limitations of using self-reports to gather information on children’s functioning, the experiences that children themselves describe may provide important insights regarding their relationships with their social partners.

Particularly for participants in the Winter, 2012 MF-PEP group, the internal consistency of the Composite Scores increased from their responses pre-treatment (Version 3) to post-treatment (Version 4). While the preceding discussion has emphasized the improvement of the SIBI to account for the increases in reliability indices, it is possible that participation in MF-PEP contributed to parents’ and children’s heightened awareness of problematic social functioning (e.g., through the discussion of ASD-related social impairment during group), enhancing their ability to provide reliable information regarding children’s social interactions. Future studies examining the impact of participation in psychosocial treatment programs such as MF-PEP on responses to the SIBI would certainly be informative to address this possibility.

Parent-Reports of Children’s School Social Interactions Behavior

One of the most consistent comments we received from our parent participants is their expressed lack of insight regarding their children’s social interactions with other children at school. As discussed previously, parent-child concordant rates among typically-developing children are generally lower for school-related symptoms than non-school-related symptoms (Comer and Kendall, 2004). This may be suggestive of the different levels of knowledge that parent and children have about children’s behaviors in the school setting. What is most important to consider in future studies, however, is why
parents expressed being unaware of their child’s social behaviors at school. What are the implications of not being knowledgeable about their child’s social functioning at school? Might it be beneficial to increase parents’ awareness of their child’s school relationships?

On the one hand, overly-involved parents (otherwise known as “helicopter parents”) who are minutely knowledgeable of their child’s every social encounter and try to painstakingly orchestrate every aspect of their child’s school experience may be viewed by children and staff at school as excessively intrusive and bothersome. However, some knowledge of their child’s social experiences, especially those that are problematic and cause significant distress for their child, is critical. Encouraging open communication between children and their parents, as well as educating parents regarding appropriate measures to take to facilitate the development and maintenance of positive social relationships at school, may be important targets of intervention for families of children with HFA/AS. For example, it may be beneficial for parents to volunteer for various programs and field trips at their child’s school. These opportunities would allow parents to develop direct relationships with their child’s teachers, increasing the likelihood of adequate communication between parents and teachers regarding children’s school behaviors. These would also provide parents with naturalistic opportunities to observe their child’s behaviors in a social context. Given the greater social challenges that children with HFA/AS experience compared to otherwise typically-developing children, it is arguably even more important for parents of these children to maintain active contact with their child’s teachers at school, so that parents can be well-informed of specific problems their child faces and take steps to address those issues. Furthermore, parents
who accompany their child on school field trips can serve as a scaffold for their child’s social interactions, facilitating successful social exchanges and mitigating potential conflicts and problems.

Despite parents’ reported unawareness of their child’s school behaviors, their responses on the SIBI’s school-related items demonstrated remarkable reliability, at least for those who completed Versions 3 and 4. An additional possibility to consider is that perhaps parents are more knowledgeable about their child’s school social interactions than they think! Furthermore, the significant relationship between parents’ ratings of their children’s school behaviors and children’s own ratings (for Version 3) suggests that there is value in retaining the school-related items on the parent SIBI. Interestingly, when a “Don’t know” option was provided to parents in Version 4, the percentage of parents who had more than 3 missing values for the school-related items increased to 60% (compared to 0% for Versions 1 and 2, and 29% for Version 3). While all parent participants were encouraged to provide a best response to each item despite their reported lack of knowledge, it seems that when given the opportunity to indicate their unawareness, parents are less likely to provide a “useful” response (at least regarding their child’s social interactions, though it is certainly valuable to know if a parent is unaware of their child’s behaviors at school). Future studies comparing the responses of parents providing a significant number of “Don’t know” responses with those who do not would shed light onto the utility of including such a response option.

**Limitations and Future Directions**
There are several limitations of this study that future studies can aim to address. First, as mentioned earlier in the document, the child participants in the first MF-PEP group seemed to be lower functioning compared to participants in the second MF-PEP group. Since each child did not participate in every iteration of the 4 SIBI versions, we were unable to directly compare their feedback and perceptions regarding the SIBI items. Children who completed Versions 3 and 4 of the SIBI (i.e., children in the second MF-PEP group) provided fewer suggestions than those who completed Versions 1 and 2, but it is unclear as to whether this reflects differences in functioning between participants in the two MF-PEP groups, or whether this suggests improvements in the comprehensibility and clarity of the SIBI items. A combination of these two factors may be the most likely explanation. In addition, although the range of IQ in our full sample spanned almost 4 standard deviations, there is a need for future studies to investigate the effects of children’s IQ on both their Composite Scores on the SIBI, as well as the reliability and validity of their responses.

Second, the overall sample size in our study was admittedly small, and extensive conclusions regarding the generalizability of our findings cannot be hastily made. Nevertheless, our sample seemed to adequately serve the purposes of the current study’s qualitative investigation, and the feedback provided by our parent and child participants was certainly helpful in informing the refinement process of the SIBI. Third, again related to our small sample size, the reliability and validity indices provided must be cautiously interpreted. Future psychometric studies utilizing large, representative samples would likely provide more accurate indications of the SIBI’s reliability and validity.
Fourth, our sample consisted of all Caucasian participants, and the child participants completing Versions 3 and 4 of the SIBI were all male. To enhance the usability and generalizability of the SIBI across different populations of children with HFA/AS, investigating the impact of culture on individuals’ responses to the SIBI and the reliability and generalizability of those scores is needed. With larger sample sizes in future studies, an exploration of potential gender differences in responses to the SIBI items and the social interactions of girls and boys with HFA/AS can be conducted. Finally, in light of parents’ reported limited awareness of their children’s school interaction behaviors and the intuitive utility of gathering information from children’s teachers, the creation of a teacher-report version of the SIBI may prove to be valuable in obtaining a more complete, comprehensive depiction of the social functioning of children with HFA/AS.
Chapter 5: Conclusions

In response to the need for ecologically-valid measures to assess the social functioning of children with HFA/AS in outcome studies and treatment planning, the SIBI was created to assess children’s social interactions in the school, community, and home settings. Through the use of focus groups and individual interviews, feedback regarding the clarity and comprehensibility of items on the SIBI was obtained from parents and children participating in MF-PEP, a group psychoeducational treatment adapted for children with HFA/AS and their parents. After 4 iterations during which SIBI items and responses were modified and refined, a final parent and child version of the SIBI was created. Both parent and child participants seemed satisfied with the final versions, and there was some preliminary evidence of the reliability and validity of the SIBI.

Several issues regarding parent-child concordance, the use of child self-reports, and parents’ knowledge of children’s school social interactions behavior were discussed. Overall, the low levels of parent-child agreement are common across different populations of children, and despite the small relationship between parent- and child-reports, valuable information can be obtained using multiple informants. Although children with HFA/AS may have difficulty identifying and reporting on their feelings and emotions, their responses to more concrete, objective indices of their functioning, such as
those assessed by the SIBI, may be more accurate and valid. Finally, despite parents’
reported lack of awareness of their children’s social interactions at school, their
knowledge of this domain of their children’s functioning may be greater than they
believe. Nevertheless, it is important for future work to explore the reasons behind
parents’ expressed “ignorance” of their children’s functioning, and the implications that
this may have for children’s social relationships and treatment-seeking behavior.

The next steps to be taken in the development process of the SIBI include
conducting psychometric evaluations on larger, more representative samples of children
with HFA/AS, examining the influence of key variables including, IQ, culture, and
gender on responses to SIBI items, and creating a teacher-report version of the SIBI to
more comprehensively assess the social interactions of children with HFA/AS across
different domains and settings in their lives. This qualitative study was an important first
step in creating a much-needed measure to assess the social functioning in a population of
children with significant social deficits. Not only does this work help fill a crucial gap in
the social functioning literature for children with HFA/AS, future extensions of this study
and their findings will inform and assist in the development and evaluation of treatments
that may greatly improve the social and overall functioning of these children.
References


Appendix A: Demographic Form
Demographics

Child’s Name: __________________________________________
Parent’s Name: _________________________________________
Parent’s phone number: _________________________________
Parent’s email address: _________________________________
Parent’s mailing address: _________________________________

Information about the Child:

Birth Date: _____ / _____ / ______
Sex: □ Male □ Female

Ethnic Category: □ Hispanic or Latino □ Not Hispanic or Latino
Racial Category: □ American Indian/Alaska Native □ Asian
□ Native Hawaiian or Other Pacific Islander □ Black or African-American
□ White

Education Information: □ Regular Classroom
□ Regular Classroom with Special Education
□ Regular Classroom with Pull-Out Services
□ Special Education Classroom
□ Specialized School
□ Home-Schooled

Sibling(s): Gender Age Behavioral/Emotional Difficulties; Developmental Disabilities
Please specify.

1. M / F ___ Y / N ________________________________
2. M / F ___ Y / N ________________________________
3. M / F ___ Y / N ________________________________
4. M / F ___ Y / N ________________________________

Today’s Date: _____ / _____ / ______

Month Day Year
Information about you:

Who completed this paperwork?

☐ Biological Mother ☐ Biological Mother’s significant other
☐ Adoptive Mother ☐ Biological Father’s significant other
☐ Biological Father ☐ Biological Grandmother – Maternal
☐ Adoptive Father ☐ Biological Grandmother – Paternal
☐ Stepmother ☐ Biological Grandfather – Maternal
☐ Stepfather ☐ Biological Grandfather – Paternal
☐ Other Family Members: __________________________________________
☐ Legal Guardian: _________________________________________________
☐ Other: _________________________________________________________

What is your age? ________

What is your marital status?

☐ Single ☐ Separated
☐ Married ☐ Divorced
☐ Living with Significant other ☐ Widowed
☐ Other: _________________________________________________________

What is your highest level of education completed?

☐ Some high school ☐ Associates degree
☐ Graduated with high school diploma ☐ Some post-college
☐ Completed GED ☐ Master’s degree
☐ Some college ☐ Doctoral degree
☐ Bachelor’s degree ☐ Other: _________________________________
☐ N/A

What is your occupation? ________________________________________

☐ N/A

What is your employment status?

☐ None ☐ Employed part time
☐ Retired ☐ Employed full time
☐ Unemployed ☐ Full-time homemaker
☐ Other: _________________________________________________________

Thank you!
Appendix B: Social Interactions Behavior Inventory (SIBI) – Parent, Version 1
Completer’s Name: _______________________________
Completer’s Relationship to Child: ________________
Today’s Date (mm/dd/yyyy): _______________________

Social Interactions Behavior Inventory (SIBI)

We are interested in knowing about your child’s relationships with his/her friends, family, and what he/she thinks about social relationships in general! For each question, please circle the answer that best describes your child. There is no right or wrong answer!

AT SCHOOL

In the past two weeks...

1. Your child knew how to play a game other kids played.
   Yes     No

2. Other kids asked your child to play with them at recess.
   0 times  1 – 3 times  4 or more times

3. Your child asked other kids if he/she could join in their games at recess.
   0 times  1 – 3 times  4 or more times

4. Other kids bullied or teased your child.
   0 times  1 – 3 times  4 or more times

5. A kid picked your child to be on a team for games.
   0 times  1 – 3 times  4 or more times

6. Your child had fun playing with other kids.
   Not really  Sometimes  Most of the time

7. Your child played by him/herself more than with other kids.
   Not really  Sometimes  Most of the time
8. Your child has a friend at school.
   Yes  No

   If yes, his/her first name is: ________________________________

9. Your child felt close to kids at school.
   Not really  Sometimes  Yes

10. Your child is more comfortable talking to kids in online games than to kids at school.
    Not really  Sometimes  Yes

11. Your child wants/has a social networking account (e.g., Facebook, Twitter).
    Yes  No

IN THE COMMUNITY

12. Your child is a member of a club or sports team (for example, scouts, soccer).
    Yes  No

    If yes, please specify: ________________________________

13. Your child has a friend outside of school.
    Yes  No

    If yes, his/her first name is: ____________________________

IF YOUR CHILD HAS A FRIEND AT SCHOOL OR OUTSIDE OF SCHOOL (if not, please skip to #14)… In the past two weeks…

a) This friend called or texted your child.
   0 times  1 – 3 times  4 or more times

b) Your child called or texted this friend.
   0 times  1 – 3 times  4 or more times
c) This friend came to play at your house.

0 times 1 – 3 times 4 or more times

d) Your child went to play at this friend’s house.

0 times 1 – 3 times 4 or more times

14. Another kid invited your child to play at his/her house.

0 times 1 – 3 times 4 or more times

15. Your child played at another kid’s house.

0 times 1 – 3 times 4 or more times

16. Another kid came to play at your child’s house.

0 times 1 – 3 times 4 or more times

17. Your child played outside with other kids.

0 times 1 – 3 times 4 or more times

AT HOME

In the past two weeks...

18. Your child asked a family member to play games with him/her.

0 times 1 – 3 times 4 or more times

19. Your child had fun playing with his/her family.

Not really Sometimes Most of the time

20. Your child played mostly...

By him/herself With his/her family
21. Your child mostly (please only choose one)...

   Played online games       Played Video Games       Watched TV
   Played with Legos         Played something else at home:

   ____________________________________________________________

DID THIS HAPPEN TO YOUR CHILD?

22. Your child fought/argued with a friend but they are still friends.

   Not really          Maybe          Definitely          Your child didn’t fight/argue with his/her friend

23. Your child talked to a friend about things they were both interested in.

   Not really          Sometimes       Most of the time

24. Your child talked to a friend about things he/she wasn’t interested in because his/her friend was interested in those things.

   Not really          Sometimes       Most of the time

ADDITIONAL COMMENTS

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

THANK YOU FOR PARTICIPATING! 😊
Appendix C: SIBI – Child, Version 1
Social Interactions Behavior Inventory (SIBI)

We want to know about your friends, your family, and what you like to do for fun! For each question, please circle the answer that best describes you. There is no right or wrong answer!

AT SCHOOL

In the past two weeks...

1. A kid at school asked me to play at recess.
   0 times  1 – 3 times  4 or more times

2. I always think positively about other kids.
   Yes  No

3. I knew how to play a game other kids at school played at recess.
   Yes  No

4. I asked another kid if I could join in a game at recess.
   0 times  1 – 3 times  4 or more times

5. I played a team game at recess (e.g., dodgeball, four square).
   0 times  1 – 3 times  4 or more times

6. A kid picked me to be on a team for games.
   0 times  1 – 3 times  4 or more times

7. I played near other kids at recess but not with them.
   Not really  Sometimes  Most of the time
8. I played by myself more than with other kids at recess.
   Not really    Sometimes    Most of the time

9. I mostly talked with another kid at recess.
   Not really    Sometimes    Most of the time

10. I have a friend at school.
    Yes            No

   If yes, his/her first name is: _____________________________

11. I was teased or bullied.
    0 times        1 – 3 times    4 or more times

12. I had fun playing with other kids.
    Not really    Sometimes    Most of the time

13. I felt close to kids at school.
    Not really    Sometimes    Most of the time

14. I talked to kids in online games more than to kids at school.
    Not really    Sometimes    Most of the time

15. I played ______________________ the most at recess.

16. My favorite game to play at recess is:
    __________________________________________________________
AFTER SCHOOL

17. I am a member of a club or sports team (for example, scouts, soccer).

Yes           No

If yes, what are you part of? _________________________________

18. I have a friend in my neighborhood.

Yes           No

If yes, his/her first name is: ________________________________

IF YOU HAVE A FRIEND AT SCHOOL OR IN YOUR NEIGHBORHOOD (if not, please skip to #19)...

In the past two weeks ...

a) This friend called me or texted me.

0 times  1 – 3 times  4 or more times

b) I called or texted this friend.

0 times  1 – 3 times  4 or more times

c) This friend came to play at my house.

0 times  1 – 3 times  4 or more times

d) I played at this friend’s house.

0 times  1 – 3 times  4 or more times

19. Another kid invited me to play at his/her house.

0 times  1 – 3 times  4 or more times
20. I never get upset at anybody.
   Yes    No

21. I am always right.
   Yes    No

22. I played at another kid's house.
   0 times  1 – 3 times  4 or more times

23. A kid came to play at my house.
   0 times  1 – 3 times  4 or more times

24. I played outside with other kids.
   0 times  1 – 3 times  4 or more times

25. Sometimes I don’t tell the truth.
   Yes    No

AT HOME

In the past two weeks...

26. I asked my family to play games with me.
   0 times  1 – 3 times  4 or more times

27. I had fun playing with my family.
   Not really  Sometimes  Most of the time
28. I played mostly...

By myself  With my family

29. I mostly (please only choose one)...

Played online games  Played Video Games  Watched TV
Played with Legos  Played something else at home:

30. I always agree with everything my parents say.

Yes  No

DID THIS HAPPEN TO YOU?

31. I fought/argued with my friend but we are still friends.

Not really  Maybe  Definitely  I didn’t fight/argue with my friend

32. I talked to my friend about things we were both interested in.

Not really  Sometimes  Most of the time

33. I talked to my friend about things I wasn’t interested in because my friend was interested in those things.

Not really  Sometimes  Most of the time

ADDITIONAL COMMENTS

THANK YOU FOR SHARING YOUR THOUGHTS! 😊
Appendix D: SIBI – Parent, Version 2
Completer’s Name: _______________________________
Completer’s Relationship to Child: ________________
Today’s Date (mm/dd/yyyy): _______________________

**Social Interactions Behavior Inventory (SIBI)**

*We are interested in knowing about your child’s relationships with his/her friends, family, and what he/she thinks about social relationships in general! For each question, please circle the answer that best describes your child. Some of these questions may not be applicable to your child, but please try to answer each question as best as you can. There is no right or wrong answer!* 

**AT SCHOOL**

*In the past two weeks…*

1. Your child knew how to play a game other kids played at recess.
   - Yes
   - No

2. Other kids asked your child to play with them at recess.
   - 0 times
   - 1 – 3 times
   - 4 or more times

3. Your child asked other kids if he/she could join in their games at recess.
   - 0 times
   - 1 – 3 times
   - 4 or more times

4. Other kids bullied or teased your child.
   - 0 times
   - 1 – 3 times
   - 4 or more times

5. A kid picked your child to be on a team for games.
   - 0 times
   - 1 – 3 times
   - 4 or more times

6. Your child had fun playing with other kids.
   - Not really
   - Sometimes
   - Most of the time

7. Your child played by him/herself more than with other kids.
   - Not really
   - Sometimes
   - Most of the time

124
8. Your child has a friend at school.
   Yes  No

If yes, his/her first name is: ________________________________

9. Your child felt close to kids at school.
   Not really  Sometimes  Most of the time

10. Your child is more comfortable talking to kids in online games than to kids at school.
    Not really  Sometimes  Most of the time

11. Your child has or indicated wanting a social networking account (e.g., Facebook, Twitter).
    Yes  No

IN THE COMMUNITY

12. Your child is a member of a club or sports team (for example, scouts, soccer).
    Yes  No

If yes, please specify: ________________________________

13. Your child has a friend outside of school.
    Yes  No

If yes, his/her first name is: _____________________________

IF YOUR CHILD HAS A FRIEND AT SCHOOL OR OUTSIDE OF SCHOOL (if not, please skip to #14)… In the past two weeks…

a) This friend called or texted your child.
   0 times  1 – 3 times  4 or more times

b) Your child called or texted this friend.
   0 times  1 – 3 times  4 or more times
This friend came to play at your house.

0 times 1 – 3 times 4 or more times

d) Your child went to play at this friend’s house.

0 times 1 – 3 times 4 or more times

14. Another kid invited your child to play at his/her house.

0 times 1 – 3 times 4 or more times

15. Your child played at another kid’s house.

0 times 1 – 3 times 4 or more times

16. Another kid came to play at your child’s house.

0 times 1 – 3 times 4 or more times

17. Your child played outside with other kids.

0 times 1 – 3 times 4 or more times

18. Your child indicated desiring more/better social interactions with other kids.

0 times 1 – 3 times 4 or more times

AT HOME

In the past two weeks...

19. Your child asked a family member to play games with him/her.

0 times 1 – 3 times 4 or more times

20. Your child had fun playing with his/her family.

Not really Sometimes Most of the time

21. Your child played...

Mostly by him/herself Mostly with his/her family Equally by him/herself and with family
22. Your child mostly engaged in this activity (please specify): _______________

_______________________________________________________________________

Your child engaged in this activity...

Mostly by him/herself  Mostly with his/her family  Equally by him/herself and with family

DID THIS HAPPEN TO YOUR CHILD?

23. Your child fought/argued with a friend but they are still friends.

Not really  Maybe  Definitely  Your child didn’t fight/argue with his/her friend

24. Your child talked to a friend about things they were both interested in.

Not really  Sometimes  Most of the time

25. Your child talked to a friend about things he/she wasn’t interested in because his/her friend was interested in those things.

Not really  Sometimes  Most of the time

ADDITIONAL COMMENTS

_______________________________________________________________________

_______________________________________________________________________

_______________________________________________________________________

THANK YOU FOR PARTICIPATING! 😊
Appendix E: SIBI – Child, Version 2
Your name: ______________________________________

Today's date (mm/dd/yyyy): _________________________

Social Interactions Behavior Inventory (SIBI)

We want to know about your friends, your family, and what you like to do for fun! For each question, please circle the answer that best describes you. There is no right or wrong answer!

AT SCHOOL

In the past two weeks...

1. A kid at school asked me to play at recess.
   
   0 times    1 – 3 times    4 or more times

2. I always think positively about other kids.

   True        Not True

3. I knew how to play a game other kids at school played at recess.

   Not really  Sometimes    Most of the time

4. I asked another kid if I could join in a game at recess.

   0 times    1 – 3 times    4 or more times

5. I played a team game at recess (e.g., dodgeball, four square).

   0 times    1 – 3 times    4 or more times

6. A kid picked me to be on a team for games.

   0 times    1 – 3 times    4 or more times
7. I played near other kids at recess but not with them.
   Not really  Sometimes  Most of the time

8. I played by myself more than with other kids at recess.
   Not really  Sometimes  Most of the time

9. I mostly talked with another kid at recess.
   Not really  Sometimes  Most of the time

10. I have a friend at school.
    Yes  No

    If yes, his/her first name is: ___________________________

11. I was teased or bullied.
    0 times  1 – 3 times  4 or more times

12. I had fun playing with other kids.
    Not really  Sometimes  Most of the time

13. I liked other kids at school.
    Not really  Sometimes  Most of the time

14. I felt I could trust other kids at school.
    Not really  Sometimes  Most of the time
15. I wish I had better friends at school.
   
   Not really   Sometimes   Most of the time

16. I talked to kids in online games more than to kids at school.
   
   Not really   Sometimes   Most of the time

17. I played ______________________________ the most at recess.

18. My favorite game to play at recess is:
   
   ____________________________________________

AFTER SCHOOL

19. I am a member of a club or sports team (for example, scouts, soccer).

   Yes   No

   If yes, what are you part of? ________________________________

20. I have a friend in my neighborhood.

   Yes   No

   If yes, his/her first name is: ________________________________

   IF YOU HAVE A FRIEND AT SCHOOL OR IN YOUR
   NEIGHBORHOOD (if not, please skip to #21)...

   In the past two weeks ...

   a) This friend called me or texted me.

     0 times   1 – 3 times   4 or more times


b) I called or texted this friend.
   0 times  1 – 3 times  4 or more times

c) This friend came to play at my house.
   0 times  1 – 3 times  4 or more times

d) I played at this friend’s house.
   0 times  1 – 3 times  4 or more times

21. Another kid invited me to play at his/her house.
   0 times  1 – 3 times  4 or more times

22. I never get upset at anybody.
   True     Not True

23. I am always right.
   True     Not True

24. I played at another kid’s house.
   0 times  1 – 3 times  4 or more times

25. A kid came to play at my house.
   0 times  1 – 3 times  4 or more times

26. I played outside with other kids.
   0 times  1 – 3 times  4 or more times
27. Sometimes I don’t tell the truth.

True Not True

AT HOME

In the past two weeks...

28. I asked my family to play games with me.

0 times 1 – 3 times 4 or more times

29. I had fun playing with my family.

Not really Sometimes Most of the time

30. I played...

Mostly by myself Mostly with my family Half the time by myself and half with my family

31. I mostly played (please specify):

______________________________________________

I played this:

Mostly by myself Mostly with my family Half the time by myself and half with my family

32. I always agree with everything my parents say.

True Not True

DID THIS HAPPEN TO YOU?

33. I fought/argued with my friend but we are still friends.

Not really Maybe Definitely I didn’t fight/argue with my friend
34. I talked to my friend about things we were both interested in.

Not really  Sometimes  Most of the time

35. I talked to my friend about things I wasn’t interested in because my friend was interested in those things.

Not really  Sometimes  Most of the time

ADDITIONAL COMMENTS

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

THANK YOU FOR SHARING YOUR THOUGHTS! ☺
Appendix F: SIBI – Parent, Version 3
Completer’s Name: _______________________________
Completer’s Relationship to Child: ________________
Today’s Date (mm/dd/yyyy): _______________________

Social Interactions Behavior Inventory (SIBI)

We are interested in knowing about your child’s relationships with his/her friends, family, and what he/she thinks about social relationships in general! For each question, please circle the answer that best describes your child. Some of these questions may not be applicable to your child, but please try to answer each question as best as you can. There is no right or wrong answer!

AT SCHOOL

In the past two weeks...

1. Your child knew how to play a game other children played at recess.
   
   Not at all   Not really   Sometimes   Often   Very often

2. Other children played with your child at recess.
   
   Not at all   Not really   Sometimes   Often   Very often

3. Your child joined in other children’s games at recess.
   
   Not at all   Not really   Sometimes   Often   Very often

4. Other children bullied or teased your child.
   
   Not at all   Not really   Sometimes   Often   Very often

5. A child at school picked your child to be on a team for games.
   
   Not at all   Not really   Sometimes   Often   Very often

6. Your child had fun playing with other children.
   
   Not at all   Not really   Sometimes   Often   Very often
7. Your child played by him/herself more than with other children.
   Not at all  Not really  Sometimes  Often  Very often
8. Your child maintained a friendship with another child at school.
   Not at all  Not really  Sometimes  Often  Very often
   If yes, his/her first name is: ____________________________________________
9. Your child felt close to other children at school.
   Not at all  Not really  Sometimes  Often  Very often
10. Your child is more comfortable talking to children in online games than to
    children at school.
    Not at all  Not really  Sometimes  Often  Very often
11. Your child uses or indicated wanting a social networking account (e.g., Facebook,
    Twitter).
    Not at all  Not really  Sometimes  Often  Very often

IN THE COMMUNITY
12. Your child participated in a club or sports team (for example, scouts, soccer).
    Not at all  Not really  Sometimes  Often  Very often
    Please specify activity: ________________________________________________
13. Your child maintained a friendship with another child outside of school.
    Not at all  Not really  Sometimes  Often  Very often
    If yes, his/her first name is: ________________________________

IF YOUR CHILD HAS A FRIEND AT SCHOOL OR OUTSIDE OF SCHOOL (if not,
please skip to #14)... In the past two weeks...
a) This friend called or texted your child.

Not at all  Not really  Sometimes  Often  Very often

b) Your child called or texted this friend.

Not at all  Not really  Sometimes  Often  Very often

c) This friend came to play at your house.

Not at all  Not really  Sometimes  Often  Very often

d) Your child went to play at this friend’s house.

Not at all  Not really  Sometimes  Often  Very often

14. Another child invited your child to play at his/her house.

Not at all  Not really  Sometimes  Often  Very often

15. Your child played at another child’s house.

Not at all  Not really  Sometimes  Often  Very often

16. Another child came to play at your child’s house.

Not at all  Not really  Sometimes  Often  Very often

17. Your child played outside with other children.

Not at all  Not really  Sometimes  Often  Very often

18. Your child indicated desiring more/better social interactions with other children.

Not at all  Not really  Sometimes  Often  Very often

AT HOME

In the past two weeks...

19. Your child asked a family member to play games with him/her.

Not at all  Not really  Sometimes  Often  Very often
20. Your child had fun playing with his/her family.
   Not at all  Not really  Sometimes  Often  Very often

21. Your child only played by him/herself.
   Not at all  Not really  Sometimes  Often  Very often

22. Your child mostly engaged in this activity (please specify):
   _______________________
   Your child engaged in this activity only by him/herself.
   Not at all  Not really  Sometimes  Often  Very often

DID THIS HAPPEN TO YOUR CHILD?

23. Your child had a conflict or argument with another child.
   Yes   No

   If yes, your child successfully resolved the conflict or argument with this child.
   Not at all  Not really  Neutral  Somewhat  Very successful
   successful  successful  successful

24. Your child talked to a friend about things they were both interested in.
   Not at all  Not really  Sometimes  Often  Very often

25. Your child had a conversation with a friend about things he/she wasn’t interested in because his/her friend was interested in those things.
   Not at all  Not really  Sometimes  Often  Very often

ADDITIONAL COMMENTS

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

THANK YOU FOR PARTICIPATING! ☺

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Appendix G: SIBI – Child, Version 3
Social Interactions Behavior Inventory (SIBI)

We want to know about your friends, your family, and what you like to do for fun! For each question, please circle the answer that best describes you. There is no right or wrong answer!

AT SCHOOL

In the past two weeks...

1. A kid at school asked me to play at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

2. I knew how to play a game other kids at school played at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

3. I played near other kids at recess but not with them.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

4. I played a team game at recess (e.g., dodgeball, four square).
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

5. A kid picked me to be on a team for games.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

6. I played by myself more than with other kids at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot
7. I talked with a kid about something at recess.
   No  Not really  Sometimes  Often  A lot

8. I had a friend at school.
   No  Not really  Sometimes  Often  A lot

   If yes, his/her first name is: _____________________________

9. I was teased or bullied.
   No  Not really  Sometimes  Often  A lot

10. I joined another kid in his/her game at recess.
    No  Not really  Sometimes  Often  A lot

11. I had fun playing with other kids.
    No  Not really  Sometimes  Often  A lot

12. I liked other kids at school.
    No  Not really  Sometimes  Often  A lot

13. I wish I had friends at school.
    No  Not really  Sometimes  Often  A lot

14. I talked to kids in online games more than I talked to kids at school.
    No  Not really  Sometimes  Often  A lot

15. I played __________________________ the most at recess.

16. My favorite game to play at recess is:
    ________________________________
AFTER SCHOOL

17. I participated in a club activity, scouts, or a sports team like soccer.

No  Not really  Sometimes  Often  A lot

If yes, what did you do? __________________________________________

18. I had a friend in my neighborhood.

No  Not really  Sometimes  Often  A lot

If yes, his/her first name is: ________________________________________

IF YOU HAVE A FRIEND AT SCHOOL OR IN YOUR NEIGHBORHOOD (if not, please skip to #19)...

In the past two weeks ...

a) This friend called me or texted me.

No  Not really  Sometimes  Often  A lot

b) I called or texted this friend.

No  Not really  Sometimes  Often  A lot

c) This friend came to play at my house.

No  Not really  Sometimes  Often  A lot

d) I played at this friend's house.

No  Not really  Sometimes  Often  A lot

19. Another kid invited me to play at his/her house.

No  Not really  Sometimes  Often  A lot
20. I played at another kid’s house.  
   No  Not really  Sometimes  Often  A lot

21. A kid came to play at my house.  
   No  Not really  Sometimes  Often  A lot

22. I played outside with other kids.  
   No  Not really  Sometimes  Often  A lot

AT HOME

In the past two weeks...

23. I asked my family to play games with me.  
   No  Not really  Sometimes  Often  A lot

24. I had fun playing with my family.  
   No  Not really  Sometimes  Often  A lot

25. I played mostly by myself.  
   No  Not really  Sometimes  Often  A lot

26. I mostly played (please specify):  
   ____________________________________________

   I played this mostly by myself.  
   No  Not really  Sometimes  Often  A lot
DID THIS HAPPEN TO YOU?

27. I fought/argued with my friend.

Yes  No

If yes...I fought/argued with my friend but we are still friends.

We’re definitely  We’re not  Maybe  We’re kind  We’re definitely
not friends  really friends  of friends  friends

28. I talked to my friend about things we were both interested in.

No  Not really  Sometimes  Often  A lot

29. I talked to my friend about things I wasn’t interested in because my
friend was interested in those things.

No  Not really  Sometimes  Often  A lot

ADDITIONAL COMMENTS

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

THANK YOU FOR SHARING YOUR THOUGHTS! 😊
Appendix H: SIBI – Parent, Version 4
Completer’s Name: _______________________________
Completer’s Relationship to Child: ________________
Child’s Name: __________________________________
Today’s Date (mm/dd/yyyy): _______________________

Social Interactions Behavior Inventory (SIBI)

We are interested in knowing about your child’s relationships with his/her friends and family! For each question, please circle the answer that best describes your child. Some of these questions may not be applicable to your child, but please try to answer each question as best as you can, based on your direct observations of your child, your child’s disclosure to you, or other indirect sources of information you may have (e.g., teacher’s reports). There is no right or wrong answer!

AT SCHOOL (If your child is homeschooled, please consider his/her social behavior in other organized/structured settings, such as Scouts or other youth programs)

In the past two weeks...

1. Your child had fun playing with other children at school.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

2. Your child played by himself/herself more than with other children.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

3. Your child knew how to play a game other children played at recess.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

4. Other children played with your child at recess.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

5. Your child joined in other children’s games at recess.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know
6. Other children bullied or teased your child.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

7. A child at school picked your child to be on a team for games.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

8. Your child maintained a friendship with another child at school.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know
   If yes, his/her first name is: ________________________________________________

9. Your child felt close to other children at school.
   Not at all  Not really  Sometimes  Often  Very often  Don’t know

10. Your child is more comfortable talking to children in online games than to children at school.
    Not at all  Not really  Sometimes  Often  Very often  Does Not Play Online Games

IN THE COMMUNITY
In the past two weeks...

11. Your child had fun playing with other children in the community.
    Not at all  Not really  Sometimes  Often  Very often

12. Your child was allowed to access or utilize social networking media (e.g., Facebook, Twitter).
    Yes  No

13. Your child expressed interest in accessing or utilizing social networking media (e.g., Facebook, Twitter).
    Not at all  Not really  Sometimes  Often  Very often
14. Your child participated in a club or sports team (e.g., Scouts, soccer).

<table>
<thead>
<tr>
<th>Attended</th>
<th>Not at all</th>
<th>Attended A Few Meetings/Practices</th>
<th>Attended Some Meetings/Practices</th>
<th>Attended Most Meetings/Practices</th>
<th>Attended Almost All Meetings/Practices</th>
</tr>
</thead>
</table>

Please specify activity: __________________________________________________

15. A child invited your child to play at his/her house.

Not at all  Not really  Sometimes  Often  Very often

16. Your child played at another child’s house.

Not at all  Not really  Sometimes  Often  Very often

17. A child came to play at your child’s house.

Not at all  Not really  Sometimes  Often  Very often

18. Your child played outside the home with other children.

Not at all  Not really  Sometimes  Often  Very often

19. Your child maintained a friendship with another child outside of school.

Not at all  Not really  Sometimes  Often  Very often

If yes, his/her first name is: _____________________________

IF YOUR CHILD HAS A FRIEND AT SCHOOL OR OUTSIDE OF SCHOOL (if not, please skip to #21)…

In the past two weeks…

a) This friend called or texted your child.

Not at all  Not really  Sometimes  Often  Very often  Not Allowed/No Phone

b) Your child called or texted this friend.

Not at all  Not really  Sometimes  Often  Very often  Not Allowed/No Phone
c) This friend came to play at your house.
   Not at all    Not really    Sometimes    Often    Very often
   
d) Your child went to play at this friend’s house.
   Not at all    Not really    Sometimes    Often    Very often

20. Your child indicated desiring more/better social interactions with other children.
   Not at all    Not really    Sometimes    Often    Very often

AT HOME
In the past two weeks...

21. Your child had fun playing with his/her family.
   Not at all    Not really    Sometimes    Often    Very often

22. Your child asked a family member to play games with him/her.
   Not at all    Not really    Sometimes    Often    Very often

23. Your child had a conflict or argument with one of his/her family members.
   Not at all    Not really    Sometimes    Often    Very often

24. Your child only played by him/herself.
   Not at all    Not really    Sometimes    Often    Very often

25. Your child mostly engaged in this activity (please specify): _________________
   Your child engaged in this activity only by him/herself.
   Not at all    Not really    Sometimes    Often    Very often

DID THIS HAPPEN TO YOUR CHILD?

26. Your child had a conflict or argument with another child.
   Yes        No
If yes, your child was successful in resolving the conflict or argument with this child.

<table>
<thead>
<tr>
<th>Not at all successful</th>
<th>Not really successful</th>
<th>Neutral</th>
<th>Somewhat successful</th>
<th>Very successful</th>
</tr>
</thead>
</table>

27. Your child had a conversation with a friend about things they were both interested in.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very often</th>
</tr>
</thead>
</table>

28. Your child had a conversation with a friend about things he/she wasn’t interested in because his/her friend was interested in those things.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very often</th>
</tr>
</thead>
</table>

**ADDITIONAL COMMENTS**

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

THANK YOU FOR PARTICIPATING! 😊
Appendix I: SIBI – Child, Version 4
Your name: ________________________________________

Today’s date (mm/dd/yyyy): _________________________

Social Interactions Behavior Inventory (SIBI)

We want to know about your friends, your family, and what you like to do for fun! For each question, please circle the answer that best describes you. There is no right or wrong answer!

**AT SCHOOL** (If you are homeschooled, please think about your social interactions in other places, such as at Scouts or other programs for kids)

*In the past two weeks…*

1. I liked other kids at school.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

2. I played by myself more than with other kids at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

3. I wished I had more or better friends at school.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

4. I had fun playing with other kids at school.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

5. A kid at school asked me to play, or wanted to play with me at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot
6. I knew how to play a game other kids at school played at recess.
   No   Not really   Sometimes   Often   A lot

7. I played near other kids at recess but not with them.
   No   Not really   Sometimes   Often   A lot

8. I played a team game at recess (e.g., dodgeball, four square).
   No   Not really   Sometimes   Often   A lot

9. A kid picked me to be on a team for games.
   No   Not really   Sometimes   Often   A lot

10. I talked with a kid about something at recess.
    No   Not really   Sometimes   Often   A lot

11. I had a friend at school.
    No   Not really   Sometimes   Often   A lot

   If yes, his/her first name is: _______________________

12. I was teased or bullied.
    No   Not really   Sometimes   Often   A lot

13. I joined another kid in his/her game at recess.
    No   Not really   Sometimes   Often   A lot
14. I talked to kids in online games more than I talked to kids at school.

   No    Not really    Sometimes    Often    A lot    Don’t Play Online Games

15. I played ___________________________ the most at recess.

16. My favorite game to play at recess:
   ______________________________________

17. I participated in a club activity, Scouts, or a sports team like soccer.

   No    Not really    Sometimes    Often    A lot

   If yes, what did you do? ____________________________

18. I had fun playing with other kids after school.

   No    Not really    Sometimes    Often    A lot

19. A kid invited me to play at his/her house.

   No    Not really    Sometimes    Often    A lot

20. I played at a kid’s house.

   No    Not really    Sometimes    Often    A lot

21. A kid came to play at my house.

   No    Not really    Sometimes    Often    A lot
In the past two weeks...

22. I played outside with other kids.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
</tr>
</thead>
</table>

23. I had a friend in my neighborhood.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
</tr>
</thead>
</table>

If yes, his/her first name is: ____________________________

**IF YOU HAVE A FRIEND AT SCHOOL OR IN YOUR NEIGHBORHOOD (if not, please skip to #24)...

In the past two weeks ...

a) This friend called me or texted me.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
<th>Not Allowed/ No Phone</th>
</tr>
</thead>
</table>

b) I called or texted this friend.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
<th>Not Allowed/ No Phone</th>
</tr>
</thead>
</table>

c) This friend came to play at my house.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
</tr>
</thead>
</table>

d) I played at this friend’s house.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not really</th>
<th>Sometimes</th>
<th>Often</th>
<th>A lot</th>
</tr>
</thead>
</table>
AT HOME
In the past two weeks...

24. I had fun playing with my family.
No  Not really  Sometimes  Often  A lot

25. I played mostly by myself.
No  Not really  Sometimes  Often  A lot

26. I asked my family to play games with me.
No  Not really  Sometimes  Often  A lot

27. I fought or argued with someone in my family.
No  Not really  Sometimes  Often  A lot

28. I mostly played (please specify):
______________________________________________
I played this mostly by myself.
No  Not really  Sometimes  Often  A lot

DID THIS HAPPEN TO YOU?
In the past two weeks...

29. I fought/argued with my friend.
Yes  No

If yes...I fought/argued with my friend and now...
We're definitely not friends  We're not really friends  I'm not sure  We're kind of friends  We're definitely friends
30. I talked to my friend about stuff we both like to talk about.

No  Not really  Sometimes  Often  A lot

31. I talked to my friend about stuff I didn't want to talk about because he/she likes to talk about it.

No  Not really  Sometimes  Often  A lot

ADDITIONAL COMMENTS

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

THANK YOU FOR SHARING YOUR THOUGHTS! 😊
Appendix J: SIBI – Parent, Final Version
Completer’s Name: _______________________________  
Completer’s Relationship to Child: ________________  
Child’s Name: ________________________________  
Today’s Date (mm/dd/yyyy): _______________________

**Social Interactions Behavior Inventory (SIBI)**  

We are interested in knowing about your child’s relationships with his/her friends and family! For each question, please circle the answer that best describes your child. Some of these questions may not be applicable to your child, but please try to answer each question as best as you can, based on your direct observations of your child, your child’s disclosure to you, or other indirect sources of information you may have (e.g., teacher’s reports). There is no right or wrong answer!

**AT SCHOOL** (If your child is homeschooled, please consider his/her social behavior in other organized/structured settings, such as Scouts or other youth programs)

*In the past two weeks…*

1. Your child had fun playing with other children at school.  
   - Not at all  
   - Seldom  
   - Sometimes  
   - Often  
   - Very often  
   - Don’t know

2. Your child played by him/herself more than with other children.  
   - Not at all  
   - Seldom  
   - Sometimes  
   - Often  
   - Very often  
   - Don’t know

3. Your child knew how to play a game other children played at recess.  
   - Not at all  
   - Seldom  
   - Sometimes  
   - Often  
   - Very often  
   - Don’t know

4. Other children played with your child at recess.  
   - Not at all  
   - Seldom  
   - Sometimes  
   - Often  
   - Very often  
   - Don’t know

5. Your child joined in other children’s games at recess.  
   - Not at all  
   - Seldom  
   - Sometimes  
   - Often  
   - Very often  
   - Don’t know
6. Other children bullied or teased your child.
   Not at all  Seldom  Sometimes  Often  Very often  Don’t know

7. A child at school picked your child to be on a team for games.
   Not at all  Seldom  Sometimes  Often  Very often  Don’t know

8. Your child maintained a friendship with another child at school.
   Not at all  Seldom  Sometimes  Often  Very often  Don’t know
   If yes, his/her first name is: _______________________________________________

9. Your child felt close to other children at school.
   Not at all  Seldom  Sometimes  Often  Very often  Don’t know

10. Your child is more comfortable talking to children in online games than to children at school.
    Not at all  Seldom  Sometimes  Often  Very often  Does Not Play Online Games

IN THE COMMUNITY
In the past two weeks...

11. Your child had fun playing with other children in the community.
    Not at all  Seldom  Sometimes  Often  Very often

12. Your child was allowed to access or utilize social networking media (e.g., Facebook, Twitter).
    Yes  No

13. Your child expressed interest in accessing or utilizing social networking media (e.g., Facebook, Twitter).
    Not at all  Seldom  Sometimes  Often  Very often
14. Your child participated in a club or sports team (e.g., Scouts, soccer).

<table>
<thead>
<tr>
<th>Meetings/Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Attended A Few Meetings/Practices</td>
</tr>
<tr>
<td>Attended Some Meetings/Practices</td>
</tr>
<tr>
<td>Attended Most Meetings/Practices</td>
</tr>
<tr>
<td>Attended Almost All Meetings/Practices</td>
</tr>
</tbody>
</table>

Please specify activity: ________________________________

15. A child invited your child to play at his/her house.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
</tbody>
</table>

16. Your child played at another child’s house.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
</tbody>
</table>

17. A child came to play at your child’s house.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
</tbody>
</table>

18. Your child played outside the home with other children.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
</tbody>
</table>

19. Your child maintained a friendship with another child outside of school.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
</tbody>
</table>

If yes, his/her first name is: _____________________________

IF YOUR CHILD HAS A FRIEND AT SCHOOL OR OUTSIDE OF SCHOOL (if not, please skip to #21)…

In the past two weeks…

a) This friend called or texted your child.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
<tr>
<td>Not Allowed/ No Phone</td>
</tr>
</tbody>
</table>

b) Your child called or texted this friend.

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>Seldom</td>
</tr>
<tr>
<td>Sometimes</td>
</tr>
<tr>
<td>Often</td>
</tr>
<tr>
<td>Very often</td>
</tr>
<tr>
<td>Not Allowed/ No Phone</td>
</tr>
</tbody>
</table>
c) This friend came to play at your house.
   Not at all  Seldom  Sometimes  Often  Very often

d) Your child went to play at this friend’s house.
   Not at all  Seldom  Sometimes  Often  Very often

20. Your child indicated desiring more/better social interactions with other children.
   Not at all  Seldom  Sometimes  Often  Very often

**AT HOME**
*In the past two weeks…*

21. Your child had fun playing with his/her family.
   Not at all  Seldom  Sometimes  Often  Very often

22. Your child asked a family member to play games with him/her.
   Not at all  Seldom  Sometimes  Often  Very often

23. Your child had a conflict or argument with one of his/her family members.
   Not at all  Seldom  Sometimes  Often  Very often

24. Your child only played by him/herself.
   Not at all  Seldom  Sometimes  Often  Very often

25. Your child mostly engaged in this activity (please specify): _________________
   Your child engaged in this activity only by him/herself.
   Not at all  Seldom  Sometimes  Often  Very often

**DID THIS HAPPEN TO YOUR CHILD?**

26. Your child had a conflict or argument with another child (peer or sibling).
   Yes  No
If yes, your child was successful in resolving the conflict or argument with this child.

Not at all successful  Not really successful  Neutral  Somewhat successful  Very successful

27. Your child had a conversation with a friend about things they were both interested in.

Not at all  Seldom  Sometimes  Often  Very often

28. Your child had a conversation with a friend about things your child wasn’t interested in, because your child’s friend was interested in those things.

Not at all  Seldom  Sometimes  Often  Very often

ADDITIONAL COMMENTS

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

THANK YOU FOR PARTICIPATING! ☺
Social Interactions Behavior Inventory (SIBI)

We want to know about your friends, your family, and what you like to do for fun! For each question, please circle the answer that best describes you. There is no right or wrong answer!

AT SCHOOL (If you are homeschooled, please think about your social interactions in other places, such as at Scouts or other programs for kids)

In the past two weeks...

1. I liked other kids at school.
   No  Not really  Sometimes  Often  A lot

2. I played by myself more than with other kids at recess.
   No  Not really  Sometimes  Often  A lot

3. I wished I had more or better friends at school.
   No  Not really  Sometimes  Often  A lot

4. I had fun playing with other kids at school.
   No  Not really  Sometimes  Often  A lot

5. A kid at school asked me to play, or wanted to play with me at recess.
   No  Not really  Sometimes  Often  A lot
In the past two weeks...

6. I knew how to play a game other kids at school played at recess.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

7. I played near other kids at recess but not with them.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

8. I played a team game at recess (e.g., dodgeball, four square).
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

9. A kid picked me to be on a team for games.
   - No
   - Not really
   - Sometimes
   - Often
   - A lot

10. I talked with a kid about something at recess.
    - No
    - Not really
    - Sometimes
    - Often
    - A lot

11. I had a friend at school.
    - No
    - Not really
    - Sometimes
    - Often
    - A lot

   If yes, his/her first name is: ____________________________

12. I was teased or bullied.
    - No
    - Not really
    - Sometimes
    - Often
    - A lot

13. I joined another kid in his/her game at recess.
    - No
    - Not really
    - Sometimes
    - Often
    - A lot
AFTER SCHOOL

In the past two weeks...

14. I talked to kids in online games more than I talked to kids at school.
   No            Not really           Sometimes            Often            A lot
   Don't Play Online Games

15. I played ______________________ the most at recess.

16. My favorite game to play at recess: ________________________________

17. I participated in a club activity, Scouts, or a sports team like soccer.
   No            Not really           Sometimes            Often            A lot
   If yes, what did you do? ________________________________

18. I had fun playing with other kids after school.
   No            Not really           Sometimes            Often            A lot

19. A kid invited me to play at his/her house.
   No            Not really           Sometimes            Often            A lot

20. I played at a kid's house.
   No            Not really           Sometimes            Often            A lot

21. A kid came to play at my house.
   No            Not really           Sometimes            Often            A lot
22. I played outside with other kids.

No  Not really  Sometimes  Often  A lot

23. I had a friend in my neighborhood.

No  Not really  Sometimes  Often  A lot

If yes, his/her first name is: ____________________________

IF YOU HAVE A FRIEND AT SCHOOL OR IN YOUR NEIGHBORHOOD (if not, please skip to #24)...

In the past two weeks ...

a) This friend called me or texted me.

No  Not really  Sometimes  Often  A lot  Not Allowed/No Phone

b) I called or texted this friend.

No  Not really  Sometimes  Often  A lot  Not Allowed/No Phone

c) This friend came to play at my house.

No  Not really  Sometimes  Often  A lot

d) I played at this friend’s house.

No  Not really  Sometimes  Often  A lot
AT HOME

In the past two weeks...

24. I had fun playing with my family.
   No       Not really       Sometimes       Often       A lot

25. I played mostly by myself.
   No       Not really       Sometimes       Often       A lot

26. I asked my family to play games with me.
   No       Not really       Sometimes       Often       A lot

27. I fought or argued with someone in my family.
   No       Not really       Sometimes       Often       A lot

28. I mostly played (please specify):

_________________________________________________________________

   I played this mostly by myself.
   No       Not really       Sometimes       Often       A lot

DID THIS HAPPEN TO YOU?

In the past two weeks...

29. I fought/argued with my friend.
   Yes       No
If yes... I fought/argued with my friend and now...

We're definitely
not friends
We're not
really friends
I'm not sure
we are friends
We're kind
of friends
We're definitely
friends

30. I talked to my friend about stuff we both like to talk about.

No
Not really
Sometimes
Often
A lot

31. I talked to my friend about stuff that only my friend likes to talk about.

No
Not really
Sometimes
Often
A lot

ADDITIONAL COMMENTS

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

THANK YOU FOR SHARING YOUR THOUGHTS! 😊
<table>
<thead>
<tr>
<th>Session</th>
<th>Parent-Session Content</th>
<th>Child-Session Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introductions, group-building, completion of pre-treatment questionnaires</td>
<td>Introductions, group-building, explanation of rules, completion of pre-treatment questionnaires</td>
</tr>
<tr>
<td>2</td>
<td>Symptoms and diagnosis of ASDs</td>
<td>Symptoms and diagnosis of ASDs</td>
</tr>
<tr>
<td>3</td>
<td>Medication – classes of medication, targeted symptoms, side effects, communicating with prescribers; Understanding the mental health and school systems of care and access to care</td>
<td>Medication – same as parent-session, presented in developmentally-appropriate manner</td>
</tr>
<tr>
<td>4</td>
<td>Strategies to effectively coach a child with an ASD</td>
<td>Developing emotion regulation skills and coping strategies, building a “tool kit”</td>
</tr>
<tr>
<td>5</td>
<td>Understanding the family system and changing negative interaction patterns</td>
<td>Basics of Cognitive Behavioral Therapy – relationships among thoughts, feelings, and actions</td>
</tr>
<tr>
<td>6</td>
<td>Problem solving and coping skills – family issues</td>
<td>Problem solving skills – family, peer, and school issues</td>
</tr>
<tr>
<td>7</td>
<td>Verbal and non-verbal communication skills</td>
<td>Non-verbal communication skills</td>
</tr>
<tr>
<td>8</td>
<td>Symptom management skills and strategies</td>
<td>Verbal communication skills</td>
</tr>
<tr>
<td>9</td>
<td>Review and graduation</td>
<td>Review and graduation</td>
</tr>
</tbody>
</table>

Table 1. Summary of the content covered in each parent and child session in MF-PEP for HFA/AS.
<table>
<thead>
<tr>
<th></th>
<th>First MF-PEP Group (n = 6)</th>
<th>Second MF-PEP Group (n = 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean (SD)</td>
<td>Age</td>
</tr>
<tr>
<td>Female (n = 3)</td>
<td>10 yrs, 5 mos (11.5 mos)</td>
<td>Female (n = 0)</td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeschooled (n = 1)</td>
<td>--</td>
<td>Homeschooled (n = 1)</td>
</tr>
<tr>
<td>Regular classroom (n = 2)</td>
<td>--</td>
<td>Regular classroom (n = 0)</td>
</tr>
<tr>
<td>Regular classroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with special education (n = 1)</td>
<td>--</td>
<td>Regular classroom with</td>
</tr>
<tr>
<td>with pull-out services (n = 1)</td>
<td>--</td>
<td>special education (n = 6)</td>
</tr>
<tr>
<td>with special education and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pull-out services (n = 1)</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>FSIQ</td>
<td>84.0 (11.7)</td>
<td>FSIQ</td>
</tr>
<tr>
<td>VIQ</td>
<td>89.2 (14.5)</td>
<td>VIQ</td>
</tr>
<tr>
<td>IQ instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WISC-IV (n = 4)</td>
<td>--</td>
<td>WISC-IV (n = 3)</td>
</tr>
<tr>
<td>SB-5 (n = 2)</td>
<td>--</td>
<td>SB-5 (n = 3)</td>
</tr>
<tr>
<td>WPPSI-III (n = 0)</td>
<td>--</td>
<td>WPPSI-III (n = 1)</td>
</tr>
<tr>
<td>Vineland-II (n = 4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptive Behavior</td>
<td>69.8 (9.5)</td>
<td>Adaptive Behavior</td>
</tr>
<tr>
<td>Composite</td>
<td></td>
<td>Composite</td>
</tr>
<tr>
<td>Communication</td>
<td>74.8 (8.7)</td>
<td>Communication</td>
</tr>
<tr>
<td>Daily Living</td>
<td>76.3 (7.7)</td>
<td>Daily Living</td>
</tr>
<tr>
<td>Socialization</td>
<td>62.3 (16.1)</td>
<td>Socialization</td>
</tr>
<tr>
<td>SIB-R (n = 0)</td>
<td></td>
<td>SIB-R (n = 2)</td>
</tr>
<tr>
<td>Broad Independence</td>
<td>--</td>
<td>Broad</td>
</tr>
<tr>
<td>Social/Communication</td>
<td>--</td>
<td>Social/Communication</td>
</tr>
<tr>
<td>Personal Living</td>
<td>--</td>
<td>Personal Living</td>
</tr>
<tr>
<td>Community Living</td>
<td>--</td>
<td>Community Living</td>
</tr>
</tbody>
</table>

Table 2. Demographic information, IQ scores, and adaptive functioning scores of child participants in each MF-PEP group.
<table>
<thead>
<tr>
<th></th>
<th>First MF-PEP Group (n = 6)</th>
<th>Second MF-PEP Group (n = 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td>43 yrs, 4 mos</td>
<td>39 yrs, 9 mos</td>
</tr>
<tr>
<td></td>
<td>(5 yrs, 11 mos)</td>
<td>(3 yrs, 1 mo)</td>
</tr>
<tr>
<td>Mother</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>6 (100)</td>
<td>6 (85.7)</td>
</tr>
<tr>
<td>Widowed</td>
<td>0 (0)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>1 (16.7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>5 (83.3)</td>
<td>4 (57.1)</td>
</tr>
<tr>
<td>Some post-college</td>
<td>0 (0)</td>
<td>1 (14.3)</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>0 (0)</td>
<td>2 (28.6)</td>
</tr>
<tr>
<td>Employment Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time homemaker</td>
<td>2 (33.3)</td>
<td>2 (28.6)</td>
</tr>
<tr>
<td>Employed full-time</td>
<td>1 (16.7)</td>
<td>5 (71.4)</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>2 (33.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Temporarily unemployed</td>
<td>1 (16.7)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

Table 3. Demographic information of parent participants in each MF-PEP group.
Table 4. Means and standard deviations of the ASRS scaled scores for each of the two MF-PEP groups.

Note: Higher scores on the ASRS indicate more problematic functioning than lower scores.
<table>
<thead>
<tr>
<th>Session 1</th>
<th>Mean (SD)</th>
<th>Session 1</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent (n = 6)</td>
<td></td>
<td>Parent (n = 7)</td>
<td></td>
</tr>
<tr>
<td>Total Score</td>
<td>83.5 (10.4)</td>
<td>Total Score</td>
<td>77.0 (11.2)</td>
</tr>
<tr>
<td>Social Awareness</td>
<td>73.2 (9.4)</td>
<td>Social Awareness</td>
<td>71.0 (10.6)</td>
</tr>
<tr>
<td>Social Cognition</td>
<td>80.2 (10.4)</td>
<td>Social Cognition</td>
<td>74.4 (12.5)</td>
</tr>
<tr>
<td>Social Communication</td>
<td>82.0 (12.9)</td>
<td>Social Communication</td>
<td>76.9 (11.0)</td>
</tr>
<tr>
<td>Social Motivation</td>
<td>71.3 (11.4)</td>
<td>Social Motivation</td>
<td>67.3 (15.3)</td>
</tr>
<tr>
<td>Autistic Mannerisms</td>
<td>85.0 (8.2)</td>
<td>Autistic Mannerisms</td>
<td>71.4 (12.3)</td>
</tr>
<tr>
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<td>Teacher (n = 4)</td>
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</tr>
<tr>
<td>Total Score</td>
<td>55.6 (6.0)</td>
<td>Total Score</td>
<td>57.0 (10.6)</td>
</tr>
<tr>
<td>Social Awareness</td>
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<td>56.8 (12.7)</td>
</tr>
<tr>
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<td>57.5 (7.9)</td>
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<td>Social Motivation</td>
<td>54.0 (9.8)</td>
</tr>
<tr>
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<td>Autistic Mannerisms</td>
<td>59.5 (13.7)</td>
</tr>
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<tr>
<td>Total Score</td>
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<td>Total Score</td>
<td>80.8 (16.0)</td>
</tr>
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<tr>
<td>Social Cognition</td>
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<tr>
<td>Social Communication</td>
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<td>Social Motivation</td>
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<td>Social Motivation</td>
<td>64.3 (10.1)</td>
</tr>
<tr>
<td>Autistic Mannerisms</td>
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<td>Autistic Mannerisms</td>
<td>80.5 (17.1)</td>
</tr>
<tr>
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<td>Total Score</td>
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<td>Social Motivation</td>
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<td>Autistic Mannerisms</td>
<td>58.8 (6.1)</td>
<td>Autistic Mannerisms</td>
<td>56.0 (15.1)</td>
</tr>
</tbody>
</table>

Table 5. Means and standard deviations of the SRS scaled scores for each of the two MF-PEP groups.

*Note:* Higher scores on the SRS indicate more problematic functioning than lower scores.
Table 6. Cronbach’s alphas for the Composite Scores in consecutive versions of the SIBI.

<table>
<thead>
<tr>
<th>Composite Scores</th>
<th>Version 1</th>
<th>Version 2</th>
<th>Version 3</th>
<th>Version 4</th>
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<tbody>
<tr>
<td>Parent – School</td>
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<td>0.54</td>
<td>0.92</td>
<td>0.91</td>
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<tr>
<td>Parent – Community</td>
<td>0.78</td>
<td>0.86</td>
<td>0.64</td>
<td>0.92</td>
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<td>--</td>
<td>0.49</td>
<td>0.70</td>
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<tr>
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<td>Unable to calculate*</td>
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<td>0.92</td>
</tr>
<tr>
<td>Child – Community</td>
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<td>0.94</td>
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<tr>
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<td>--</td>
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<td>0.33</td>
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<td>--</td>
</tr>
</tbody>
</table>

* Cronbach’s alphas were unable to be calculated for these items due to a negative average covariance among items.