EFFECTS OF A THERAPEUTIC OUTDOOR ADVENTURE ON THE SOCIAL COMPETENCY OF GIFTED ADOLESCENTS WITH ASPERGER'S SYNDROME OR HIGH FUNCTIONING AUTISM

by

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(Under the Direction of Thomas P. Hébert)

ABSTRACT

Adolescents with Asperger's Syndrome or high functioning autism (AS/HFA) are often isolated, excluded or even bullied, because of their social differences. Though the need is great for social skills interventions for this population, relatively few exist. Rather than teach social skills in isolation, many experts in the field recommend incidental learning in naturalistic situations. Much in the same way, a therapeutic adventure does not teach a certain curriculum; rather the activities provide opportunities for personal and social growth.

This qualitative case study investigated the effects of a 4-day therapeutic adventure on the social interactions and self-perceptions of social competency of 4 gifted male adolescents with AS/HFA. Semi-structured interviews, student report versions of the Social Skills Improvement System rating scales, and a variety of observational techniques were used to collect data. Several themes emerged from constant comparative analysis of the data. The contextual elements of the therapeutic adventure focus on independence, teamwork and physical challenge. Camping out and hiking while learning about an exciting new hobby called letterboxing, created opportunities for personal and social growth. Results indicated that there was a rise in self-perception of social

competency and an increase in pro-social interaction. This may suggest that non-competitive recreational activities be explored as naturalistic social skills interventions for adolescents with AS/HFA. The study also promotes understanding of a seldom studied group—those who are gifted with AS/HFA.

INDEX WORDS: Asperger's Syndrome, high functioning autism, gifted, therapeutic adventure, social skills, social competency, self-efficacy, pro-social behavior, experiential education, twice-exceptional, letterboxing

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DEDICATION

I would like to dedicate this dissertation to

"The Boys of Spring"

Walter, Chuck, Kevin and Mike.

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Dr. Thomas Hébert deserves to be told how wonderful he is every day of his life, for going above and beyond to support me through this entire process. I could not have done it without him. I also wish to thank my committee members, Drs. Jonathan Campbell, Corey Johnson and Patricia Reeves for taking time from busy lives to mentor me in their respective fields. The influence of each of them can be felt in the pages of this dissertation.

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I appreciate so much the understanding of my family as I have been very preoccupied for the past few years. My son, Alex and my mother, Molly have never failed to encourage me. If my dad were still here he would tell me, "I knew you could do it."

Most of all, I thank my husband Ric for being the wind in my sails.

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CHAPTER I

INTRODUCTION

Background of the Study

Imagine sitting in the school cafeteria with a group of friends swapping jokes and lively banter over a slice of institutional pizza and a carton of milk. This invokes pleasant memories for most of us....but now imagine that your ears are ringing painfully from the high noise level, that you are slightly nauseous from the smell of the cafeteria food, that you don't understand the jokes, and that you do not realize that the person beside you is bored with your lengthy conversation about whale sharks. Imagine that you are a gifted adolescent with Asperger's Syndrome (AS).

Asperger's Syndrome (AS) was identified in 1944 when Austrian pediatrician Hans Asperger described a group of boys with a pattern of behavior that included noticeable deficiencies in social and communication skills. The boys also exhibited other autistic tendencies, yet had normal intelligence and language development (Wing, 1981). Yet fifty years elapsed before Asperger's Syndrome (AS) was added to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (Appendix A). A diagnosis of AS requires that four of five listed criteria be manifested in an individual in addition to at least two indicators of a disability in social interactions.

Debate persists over whether individuals diagnosed with AS differ from those diagnosed with high functioning autism (HFA). Some studies show subtle differences in social skills. Tonge, Brereton, Gray, and Einfeld (1999) found that children with AS had more social problems than their counterparts with HFA and postulated that the more analytic and inflexible approach to information processing of the child with AS might create rigidity in dealing with the rapid occurrences of a natural social interaction. Other research based on the reports of parents and teachers concluded that the individual with AS has fewer or milder social impairments than the child with HFA (Ozonoff, South, & Miller, 2000).

A comparison of children with AS and HFA conducted by Gilchrist et al. (2001) found that those with HFA were more hindered in early life by their characteristic delay in speech development than the highly verbal children with AS, but by adolescence the two groups were more similar than different. Studies have suggested that even though children with AS demonstrated superior language skills and higher levels of conversation, (Ozonoff et al., 2000) and made more social bids than children with HFA (Szatmari, Archer, Fisman, & Streiner, 1995), the actual amount of time spent in ongoing interactions was similar (MacIntosh & Dissanayake, 2006). The preponderance of research revealed few significant differences in either the nature or the frequency of social interactions (MacIntosh & Dissanayake, 2004). Therefore, for the purposes of this study, the terms Asperger's Syndrome and high functioning autism are combined as Asperger's Syndrome/high functioning autism (AS/HFA), defaulting to the particular term used by the researcher when another study is referenced.

The number of individuals diagnosed with autism spectrum disorders (ASD) continues to climb (Appendix A). In 2009, the Centers for Disease Control reported the ASD prevalence rate as 1% of all children, consisting of four times as many boys as girls. In addition, estimates based on research data indicate that as many as 7 % of children

diagnosed with an ASD that includes normal cognitive functioning, such as Asperger's Syndrome (AS) or high-functioning autism (HFA) may also be identified as gifted (Henderson, 2001) (Appendix B).

Gifted individuals with AS may demonstrate typically gifted traits, such as advanced vocabulary, intensity of focus, introversion, and excellent memory skills (Little, C., 2002). However, while the gifted individual has high abstract thinking and comprehension skills, the gifted individual with AS may exhibit literal thought and poor language comprehension. According to Little, those identified as having AS are unaware of the perspectives of others, while the gifted person is typically sensitive to others and is able to see things from another's viewpoint. Individuals with AS may demonstrate gifted abilities, such as advanced vocabulary, intensity of focus, and excellent memory skills, but often lack empathy and struggle with social interactions (Assouline, Nicpon, & Doobay, 2009; Neihart, 2000).

Inability to form appropriate peer relationships is the most pervasive and debilitating social deficit for those diagnosed with AS/HFA (Kransny, Williams, Provencal, & Ozonoff, 2003). Problems include poor eye contact, lack of joint attention, pedantic or odd speech patterns, difficulty both initiating and maintaining conversations, lack of social problem-solving ability, lack of empathy, and difficulties interpreting body language (Church, Alisanski, & Amanullah, 2000). Individuals with lower cognitive functioning may not discern that they lack social competency, yet observations of children with AS suggested they possess the insight needed to self-report social and emotional difficulties (Meyer, Mundy, van Hecke, & Durocher, 2006). Barry et al. (2003) observed that individuals with AS/HFA desired social interaction and were acutely aware of their inability to make friends. Farrugia and Hudson (2006) found that this awareness led to anxiety levels which were greater than in those with lower cognitive functioning autism. Compounding the problem, the more those with AS/HFA attributed their social problems to ability and effort the more depressed they became (Barnhill, 2001). In addition, because children with AS/HFA have typical cognitive functioning and appearance, their atypical social behaviors may be difficult for peers to reconcile (Campbell, 2006), often resulting in isolation and depression (Church, Alisanski, & Amanullah, 2000). Barnhill and Myles (2001) reported that by adolescence, 80% of individuals with AS/HFA were being treated with antidepressants. Ironically, very few social skills interventions have been designed specifically for adolescents with AS/HFA, although these individuals may need such assistance the most urgently of all groups with ASD (Rao, Beidel, & Murray, 2008).

Despite the dearth of social skills intervention research specifically targeting adolescents with AS/HFA, studies exist which include those with AS/HFA. Data extrapolated from relevant studies published from 2000 to 2009 suggested that social skills interventions for school-aged children with AS/HFA were most efficacious when: (a) in a naturalistic setting; (b) with understanding peers; (c) developmentally appropriate; and (d) individualized according to strengths, interests, and learning styles (Schreiber, in press). Moreover, structured activities with adult facilitation were often necessary, particularly at the outset.

In addition to the LEGO® studies (LeGoff, 2004; LeGoff & Sherman, 2006; Owens, Granader, Humphrey, & Baron-Cohen, 2008), extant observational research indicated that team-building activities, centered on a common interest or goal, were often of value in teaching social skills and encouraging positive social interactions (Klin & Volkmar, 1995; Shore, 2002). According to Williams (2000), demonstrating strengths while working cooperatively in non-competitive recreation activities is suitable for those with AS/HFA. Attwood (2000) also suggested that it is often helpful to teach social skills in a small group setting with other adolescents having AS/HFA, creating a natural peer group. Experiencing the joy and excitement of reciprocal relationships has proven to be motivation for continued participation (Crick & Dodge, 1994; Gutstein & Whitney, 2002). Moreover, the friendships that may ensue have been considered a strong indicator of a successful intervention (Klin & Volkmar, 1995). This ability to engage in mutually beneficial interactions has been described as social competency (Gresham, 1986).

A plausible way to implement these recommendations may be a social skills intervention emphasizing team-building within the theoretical framework of experiential learning. Experiential learning theory involves a continuous cycle of action, reflection, abstract conceptualization, and experimentation (Kolb, 1984). For example, if four young men worked together to complete an obstacle course, they would then reflect as group upon how they were able to accomplish this feat. Next the individuals in the group would begin to conceptualize the construct of teamwork and then test their conceptualization in a new circumstance such as rafting or solving a mental puzzle together. Experimenting with teamwork in a different setting would then become the new action upon which to reflect. Thus the cycle of learning through experience would continue.

Therapeutic adventure (TA) is one such type of outdoor experiential learning.

TA encourages cooperative group effort to overcome both physical and mental challenges. According to Itin (2001), the goal of TA is to lessen the occurrence of behaviors that reduce the quality of life and to increase behaviors that enhance life by offering individuals opportunities for self-discovery, personal growth, and meaningful social interaction.

Although there were no TA research studies specifically dealing with adolescents with AS/ HFA, studies with other at-risk adolescent populations have shown that TA has generated positive outcomes, including improved social skills, self-esteem, and physical health (Cason & Gillis, 1994; D.B. Wilson & Lipsey, 2001; Russell, 2003; Wilson D. B. & Lipsey, 2001). Moreover, a Japanese study demonstrated that therapeutic camping improved behavior for 4-12 year olds with autism (Kobayashi & Murata, 1977).

TA encompasses most of the common components of successful social skills interventions for those with AS/HFA. It takes place in a naturalistic environment with peers and includes adult facilitation of structured activities. Researchers have found that outdoor activities have the added benefit of increasing physical health and athletic skills. In addition, physical activity is a self-initiated strategy for dealing with social anxiety according to some young adults with AS/HFA. In the study by Muller, Schuler, and Yates (2008), the young adults described engaging in physical activity with others as a way to "connect socially without need for much conversation" (p. 185).

One type of TA that has garnered anecdotal support for adolescents with AS/HFA involves camping and hiking (Talisman Camps and Programs for Teens With Asperger's and Autism, 2009. ; YouthCare, 2009). These programs purport that outdoor adventures provide beneficial opportunities for social interaction, teamwork, communication, motor

skills, confidence, focus, and problem solving resulting in greater personal responsibility, improvement in social communication skills, and enhanced self-concept.

Although these outdoor adventure programs seem to encompass all of the common factors shown in effective social skills interventions, and parent testimonials are encouraging, no empirical research base exists to support the use of TA as a social skills intervention for adolescents with AS/HFA. Moreover, few, if any, studies have documented the effects of any social skills intervention designed specifically for gifted individuals with AS/HFA. Sadly, although the number of identified gifted children with AS/HFA has grown, research studies confirming successful interventions for social skills have not kept pace. It is essential that we not only develop an understanding of the social difficulties faced by children with AS/HFA, but also design interventions which promote social successes to encourage and support interaction—not alienation. Perhaps the words of a gifted young man with AS say it best:

Hello. I am Martin... Those of you who have been around me a lot have noticed that sometimes I act like I'm from another planet.... I have an abnormality in my brain called Asperger's Syndrome, which is a form of autism. No, I'm not crazy or retarded: My brain functions on a high level, just differently than yours... I'm not asking you to feel sorry for me. Because if you pity me, you are also pitying all the great people like me, for example: Thomas Edison, Alexander Graham Bell, and Shatoshi Tijjaru [creator of Pokemon] who all have autistic traits. We're not looking for a cure for Asperger's: just your understanding, and the understanding that comes from research. After all, if autism was [*sic*] cured, society would lose access to many of its great geniuses and inventors. We need

you to accept us and be friends with us, while we learn to survive and be successful in your world (Martin, 1997).

By promoting understanding, as well as validating social skills interventions considered to be beneficial to gifted individuals with AS/HFA, perhaps we can help the "Martins" among us to develop their talents and not just survive, but thrive in our world.

Purpose of the Study

The purpose of this qualitative case study was to investigate the effects of a 4-day therapeutic outdoor adventure on the social interactions and perceptions of social competency of gifted adolescents with AS/HFA. A collateral goal of the study was to promote understanding of the gifted adolescent with AS/HFA and assist in identifying effective interventions for high functioning individuals with debilitating social deficits. The following questions guided the investigation:

Research Questions

- Research Question 1: How does a therapeutic outdoor adventure affect social interaction for gifted adolescents with AS/HFA?
- Research Question 2: How do gifted adolescents with AS/HFA perceive the social interactions occurring during the therapeutic outdoor adventure?
- Research Question 3: How does a therapeutic outdoor adventure influence the self-perception of social competency for gifted adolescents with AS/HFA?

Assumptions

This study recognizes the following assumptions:

• Study participants honestly answered interview questions and effectively communicated their perceptions.

- Participants completed the rating scales measuring self-perception honestly.
- Participants' diagnoses of AS/HFA were accurate.
- Participants' identifications as gifted according to at least one component of the Georgia gifted criteria were accurate.

Scope

The focus of this study included adolescent males with a medical diagnosis of AS/HFA and identified as gifted by meeting at least one component of the Georgia gifted criteria. All participants were between the ages of 14 and 18. This research included participants residing in the metropolitan Atlanta area.

Limitations

- This research was limited by the number (4) of participants included in the study.
- The geographic location of this study was limited to the southern metropolitan Atlanta area.
- This study may not be used to predict, as it is a snapshot of the experiences of the participants at a given moment in time.

Definitions and Discussion of Terms

A discussion of the terminology used in this study is included. Terms are listed in alphabetical order. Acronyms are included here and again the first time the term is used in each chapter. Information pertaining to sources is also included.

Adventure Therapy (AT) - "Adventure therapy is any intentional, facilitated use of adventure tools and techniques to guide personal change toward desired therapeutic goals" (Alvarez & Stauffer, 2001, p. 87) Some consider the most essential "common-denominator of adventure programs to be that they involve doing physically active things

away from the person's normal environment" (Hattie, Marsh, Neill, & Richards, 1997, p. 44). Attempting to facilitate behavioral change directed at the meta-process level, a certified mental health provider conducts *adventure therapy* with a population traditionally thought of in the clinical context (Itin, 2001).

Amygdala - An almond-shaped component of the limbic system located in the temporal lobe of the brain. It essentially acts as the brain's warning center and is responsible for initiating the fight-or-flight response. It is involved in memory, emotion and fear (Serendip, 2009).

Applied Behavior Analysis (ABA) - The application of behavioral science in real-world settings to address behavior problems and learning. There are many ABA approaches, but all objectively measure behavior, control the environment, and use procedures based on scientifically established principles of behavior (Baer, Wolf, & Risley, 1987).

Asperger's Syndrome (AS) - A developmental disability on the high end of the autism spectrum that includes characteristics of lack of empathy, naïve or inappropriate interaction, little or no ability to form friendships, repetitive speech, poor nonverbal communication, intense absorption in certain subjects, and clumsy or ill-coordinated movements and odd postures (Wing, 1981).

Autism - Sometimes referred to as "classic autism." Classic autism is often associated with Kanner's (1943) description of the syndrome. Classic or low functioning autism is typically is displayed with intellectual functioning below normal levels (IQ < 70) (Tsatsanis, Foley, & Donehower, 2004).

Autism Spectrum Disorder (ASD) - Developmental disorders characterized by impairments in communication and social interactions. Stereotyped behavior patterns

may also be present. Disorders covered by the spectrum include autism, Asperger's Syndrome, Rhett Syndrome, Pervasive Developmental Disorder, and Pervasive Developmental Disorder Not Otherwise Specified (National Institute of Mental Health, 2009).

Experiential Learning Theory - A theory of learning that involves four stages which operate in a cyclical fashion—concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 1984).

Externalizing - A description of a problem behavior in which an individual is "being verbally or physically aggressive, failing to control temper, and arguing" (Gresham & Elliott, 2008, p. 2).

Functional magnetic resonance imaging (fMRI) - A non-invasive technique for measuring brain activity which can be used to map which areas of the brain are involved in mental processes. When a brain area is more active the oxygen need increases and thus blood flow increases. fMRI works by detecting these changes (Oxford University Department of Clinical Neurology, 2009).

Fusiform gyrus - A raised portion of the temporal lobe of the brain that is important in face recognition and the processing of positive emotional contexts. It is part of a network of brain regions (prefrontal cortex, occipitofrontal cortex, the superior temporal sulcus and the amygdala) involved in processing social stimuli (Pelphrey, Adolphs, & Morris, 2004).

Gifted –The Elementary and Secondary School Act (2002) identified the gifted as students who demonstrate "high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need

services and activities not ordinarily provided by the school in order to fully develop those capabilities" [Title IX, Part A, Definition 22]. According to the National Association of Gifted Children (2008): "A gifted person is someone who shows, or has the potential for showing, an exceptional level of performance in one or more areas of expression." Officials in each state have developed their own criteria for determining eligibility for gifted services. (For Georgia gifted identification criteria see Appendix B.) Gyrus - A raised portion of the folded brain surface (Serendip, 2009).

High functioning autism (HFA) - Individuals with HFA possess cognitive abilities in the normal range (IQ > 70). The term is often used synonymously with AS by many researchers (Baron-Cohen, 2000).

Inferior temporal gyrus - A raised portion of the temporal lobe of the brain used to process object recognition (Schultz et al., 2000).

Internalizing - A description of a problem behavior in which an individual is "feeling anxious, sad, and lonely; exhibiting poor self-esteem" (Gresham & Elliott, 2008, p. 2). *Joint attention* - The ability to coordinate attention with a social partner using eye contact and gestures (Kasari, Freeman, & Paparella, 2006).

Letterboxing -"An intriguing pastime combining artistic ability with 'treasure-hunts' in parks, forests, and cities around the world. Participants seek out hidden letterboxes by cracking codes and following clues." In letterboxing the "treasure" is a small hand-carved rubber stamp. Letterboxers use the stamp found in the box to record their find in a personal logbook. They then use their own signature stamp, usually symbolizing the trail name that they have chosen, to stamp into the logbook found with the letterbox (AtlasQuest, 2009).

Locus of control – Belief that individuals develop concerning the extent to which they control their environment. Those with an internal locus of control believe they have influence on their environment and social outcomes. Those with an external locus of control feel they have very little influence on their environment (Rotter, 1989). *Medial prefrontal region* - An interior area of the frontal lobe of the brain that is involved with emotions (Shalom et al., 2006).

Outdoor Experiential Therapy (OET) - An umbrella term encompassing all types of adventure-based programming. Using the OET framework espoused by Kurt Hahn, the founder of the Outward Bound movement in the 1930's, Ewert, McCormick, and Voight (2001) expressed the doctrine of OET as using a natural or outdoor setting for "rehabilitation, growth, development and enhancement of an individual's physical, social and psychological well-being through the application of structured activities involving direct experience" (p. 108).

Pro-social behavior - Relationship skills that make others feel positive and seek interaction. Reciprocal conversation, getting along with others, empathy, taking turns, asking for/giving help and making friends are examples of pro-social behavior (Alessandri, Caprara, Eisenberg, & Steca, 2009).

Self-efficacy – This term describes one's perception of personal competency in an area. It is also sometimes referred to as *belief in self*. According to Bandura (1977), self-efficacy affects " both initiation and persistence of coping behavior. The strength of people's convictions in their own effectiveness is likely to affect whether they will even try to cope with given situations" (p. 193). Perceived self-efficacy influences a person's choice of activities and settings, as well as how long they will persist. "Efficacy expectations

determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences. The stronger the perceived self-efficacy, the more active the efforts" (Bandura, 1977, p. 194).

Social competency - The ability to integrate cognition, affect, and behavior to achieve a positive social outcome (Elliott, Busse, & Gresham, 1993), such as the ability to establish and maintain friendships or gain peer acceptance (Gresham, Sugai, & Horner, 2001). In the Social Skills Improvement System (Gresham & Elliott, 2008), which was used as a self-report measure in this study, these areas are identified as key to developing social competency: communication, cooperation, assertion, responsibility, empathy, engagement, and self-control.

Social skills -The specific behaviors which generally lead to positive social outcomes (Gresham & Elliott, 2008).

Social Information Processing Model (SIP)- An empirically based framework for organizing the field of social skills acquisition (Crick & Dodge, 1994). This model explains the processes involved in social interactions as a cycle of steps in which information is encoded and interpreted in light of past experiences, social goals are clarified, and responses are constructed, considered and acted upon. Peer reactions are noted and the cycle continues.

Sulcus - A furrow of the folded brain surface (Serendip, 2009).

Superior temporal sulcus - A furrow in the temporal lobe of the brain used to encode soically significant visual and auditory componenets (Pelphrey et al., 2004).

Theory of Mind (ToM)- A type of meta-cognition, in which a person is able to maintain an intimate personal world view, but can also consider alternative interpretations based

on the understanding of another individual's experience (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997).

Therapeutic Adventure (TA) – An adventure-based experience that is aimed at lessening the occurrence of behaviors that reduce the quality of life and increasing behaviors that enhance life (Itin, 2001). Those who provide therapeutic adventures do not need to be certified mental health providers, but should have experience as a helping professional, such as an educator, counselor or social worker in addition to being trained in their area of adventure expertise (Alvarez & Stauffer, 2001).

Twice-exceptional - An individual who is both gifted and has a physical, mental or social disability. Such an individual may also described as having *dual exceptionalities* (National Association of Gifted Children, 2008).

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of the first part of this review of literature is to provide background for understanding the social difficulties of individuals with AS/HFA by exploring the underlying neurophysiologic etiology. The second part of the literature review will examine current intervention research designed to ameliorate social deficits and extrapolate the common elements of effective treatments. In part three, therapeutic adventure (TA) will be reviewed as a possible intervention which shows promise based on the commonalities of effective social skills interventions. The implications of employing TA to address the social and emotional needs of adolescents with AS/HFA, as well as those of gifted adolescents, will also be discussed.

Social Information Processing

The primary DSM-IV (American Psychiatric Association, 1994) criteria for diagnosing AS (Appendix A) is social impairment as evidenced by: (a) deficits in nonverbal behaviors, such as facial expression and making eye contact; (b) a failure to develop peer relationships; (c) lack of joint attention and experience sharing; and (d) deficits in social reciprocity. These diagnostic characteristics provide a convenient organizational structure to discuss research dealing with the social impairments associated with AS/HFA. However, focusing on the diagnostic categories does not afford a holistic understanding of the difficulties faced by individuals with AS/HFA in social situations. Rather than choosing to focus on the observable diagnostic *products*, this section of the review will instead examine how individuals diagnosed with AS/HFA *process* social information. Using a novel approach suggested by J. M. Campbell (personal communication, April 4, 2007), current research involving the social cognition and behavior of individuals with AS/HFA will be synthesized within the framework of Crick and Dodge's (1994) Reformulated Social Information-Processing Model (SIP).

SIP explains the processes involved in social interactions as a cycle of steps in which information is first encoded and interpreted in light of past experiences. In the next step, social goals are clarified, and responses are constructed, considered, and acted upon. Peer reactions are noted and the cycle continues. Focusing on the interrelated processes involved in social interactions will promote understanding and help to inform the development of naturalistic social skills interventions for those with AS/HFA.

Step 1 – Encoding of Cues

"It is hypothesized that children selectively attend to particular situational and internal cues, encode those cues and then interpret them" (Crick & Dodge, 1994, p. 76). Deficits affecting the individual with AS/HFA are most apparent in this critical foundational area. The child with AS/HFA often fails to make eye contact and ignores body language, including pointing gestures (Klin, Jones, Schultz, Volkmar, & Cohen, 2002). Klin et al. (2002) tracked the visual path of males with autism and typical males when watching a video which involved one person asking another person about a particular painting on the wall and pointing to it. The normal persontypical subject shifted gaze to the painting immediately when it was pointed to, but the individual with autism did not and seemed to be unaware of which painting the video conversation was about (Klin et al.) In a longitudinal study of children with AS between 3 and 15 years of age, Church et al. (2000) found that pre-school teachers described children with AS as simply lacking awareness of others, engaging only in parallel play, or as treating other children as if they were objects. Work by Schultz et al. (2000) suggested that may indeed be the case. Schultz found that individuals with AS/HFA might use the inferior temporal gyri, the part of their brain which processes *objects* in typical perception, to process faces.

A defining characteristic of AS/HFA is difficulty in appreciating the thoughts and feelings of others (Ozonoff & Miller, 1995). This inability to "put oneself in another's shoes" is attributed to a theory of mind (ToM) deficit, which has been documented in a variety of studies and is characterized by difficulties in: predicting, reading the intentions of others, understanding emotions, explaining one's own behavior, establishing perspective or frame of reference, reading and reacting to the interests of others, and understanding social interaction (Baron-Cohen et al., 1997; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Hurlburt, Happe, & Frith, 1994; Myles & Simpson, 2002). This lack of being able to understand another's viewpoint and properly encode the cues gained from social interactions may limit children with AS/HFA in deriving comparable benefits from similar life experiences (Channon, Charman, Heap, Crawford, & Rios, 2001).

A growing body of literature implicates abnormalities in neuroanatomical structures as the source of social cognition dysfunction evidenced in those with AS/HFA, specifically the amygdala (Oya, Kawasaki, Howard, & Adolphs, 2002), the superior temporal sulcus region (Allison, Puce, & McCarthy, 2000), and the fusiform gyrus (Hubl et al., 2003; Pierce, Mueller, Ambrose, Allen, & Courchesne, 2001). In a typically developing individual, these structures function in parallel to encode and interpret social interactions (Pelphrey et al., 2004). The amygdala provides a quick threat assessment, the fusiform gyrus engages to identify a face, and parts of the superior temporal sulcus are marshaled to provide a visual analysis of salient facial features and eye gaze shifts, as well as to encode auditory and visual components judged to have social significance (Pelphrey et al.). In functional neuroimaging (fMRI) studies of individuals with AS/HFA, each of these structures has been shown to function in an atypical manner (Pelphrey et al.). In addition, the severity of the social dysfunction seems to vary with the size of the amygdala . Those with more severe forms of autism have smaller amydgdalae while those with AS/HFA have typically sized or in adolescence, even larger than typical amygdalae (Nacewicz et al., 2006).

Baron-Cohen, Ring, Wheelwright et al. (2001) found that individuals with autism exhibited reduced amygdala activity while attempting to encode emotion in the eye region when compared to typical controls. In fact, part of the problem appeared to be that the visual scanpath which individuals with HFA employed when trying to decode social cues was faulty (Pelphrey et al., 2002). Subjects without autism typically scan from left to right across the eyes and then down to the mouth in a triangular path, spending almost 70 percent of their gaze time on the eye region (Walker-Smith, Gale, & Findlay, 1977), whereas the subjects with HFA in this study spent little time focusing on the eyes or other core features (Pelphrey et al.). Children with HFA, in contrast to control children, were severely impaired when asked to recognize a whole face by the eyes only; however, they performed well when asked to identify the whole face by using the mouth (Joseph & Tanaka, 2003). Schultz et al. (2003) hypothesized that abnormal amygdala development results in reduced visual attention to the eye region, yielding less visual input to the cortical face processing areas, mainly the fusiform gyrus. Without practice, these areas never gain expertise in deriving facial emotion, and thus, according to Schultz, a cascade effect upon other social skills is created, resulting in autism.

Dalton et al. (2005) proposed a slightly different theory which associates eye fixation with over-arousal in the amygdala of autistic individuals. Using a control group and a group with autism, the study employed fMRI to measure brain activation when shown emotional facial photographs, as well as familiar and unfamiliar facial photographs. The group with autism showed greater activation of the left amygdala and orbitofrontal gyrus than the control group did when viewing the emotional photographs and greater right amygdala activation when presented with the familiar and unfamiliar face photographs. Moreover, eye-fixation was strongly correlated to an increased response in one region of the amygdala (Dalton et al., 2005), "suggesting a heightened emotional response associated with gaze fixation in autism" (Dalton, Nacewicz, Alexander, & Davidson, 2007, p. 513). This led to a theory suggesting that in order to avoid the uncomfortable feeling of overstimulation by way of the amygdala, individuals with autism avoid gaze fixation, resulting in atypical fusiform gyrus activation (Dalton et al.).

An investigation by Shalom et al. (2006) indicated that at least some emotions are physiologically processed by children with AS/HFA in a typical manner, but the expression of those emotions is significantly impaired. When ten children with AS/HFA were shown photos with pleasant, unpleasant, interesting, boring, or neutral stimuli, their skin conductance activity was measured using an index of physiological emotions (SCR), and the results were typical when compared to a control group. But when asked to rate on a scale of 1 to 10 how interesting or pleasant a photo appeared to them, the group with AS/HFA did not give statistically different answers to two types of questions in any of three categories. Since psychological emotions are produced on a subcortical level by the amygdala and conscious feelings by the reciprocal interaction between the subcortical system and the medial prefrontal cortex, the authors suggested "these results raise the possibility of an impaired conversion of the amygdala inputs (emotions) into medial prefrontal outputs (feelings)" (Shalom et al., p. 399).

Eye gaze studies employing fMRI have found that unaffected siblings follow much the same brain pattern as family members with autism (Dalton et al., 2007), although the manifestation is less severe, suggesting that this pattern of neural circuitry might be a part of the broad phenotype of autism. Whether the abnormalities are a result of innate impairment of specialized neural systems or a secondary consequence of a reduction in social interest, the end result is the same—lack of fusiform gyrus activation and atypical development leading to social difficulties. Sasson (2006) supported a synthesis of the two, suggesting "face processing is an emergent and developmental skill, mediated by exposure and experience with faces, particularly during early infancy.

"Abnormalities in the central nervous system of individuals with autism may fail to attribute social meaning to faces, thereby reducing experience-expectant visual input required for the development of specialized face processing abilities" (p. 392). Hence individuals with AS/HFA are presented with a pervasive deficit at the first stage of social information processing – inability to properly encode the relevant information required to construct an appropriate behavioral response.

Step 2 – Interpretation of Cues

Decoding emotion from facial expressions is considered to be a skill associated with heightened social competence. In typically developing children, this ability improves until about age ten; thereafter they tend to rely on situational cues more than facial expressions to interpret the emotional experiences of the individual (Egan, Brown, Goonan, Goonan, & Celano, 1998). Children with AS/HFA are often capable of identifying emotions from still pictures of faces but less likely to look for them in social interactions. Thus they have the ability to distinguish facial emotions but do not recognize the situational cues to trigger this ability to efficiently and effectively decode the emotional states of others (Egan et al., 1998).

Some researchers have theorized that individuals with AS/HFA use their verbal skills to compensate for inadequate social skills (Grossman, Klin, Carter, & Volkmar, 2000). Grossman (2000) found that individuals with AS performed significantly lower on a test of emotions when a mismatching word was paired with the emotion. Additionally, Lindner and Rosen (2006) found that when verbal content cues were lacking, children with AS had significantly more difficulty decoding emotions from both static and dynamic facial expressions, as well as tone of voice, when compared to typical peers. This corroborated Landa and Goldberg's (2005) observation that those with AS/HFA possess limited ability to interpret emotional cues.

Gutstein and Whitney (2002) found in their study of school-age children that children with autism did much less monitoring and observing of peer behavior. They rarely shifted their gaze among partners (Gutstein & Whitney), nor did they seem to recognize the significance of the gaze shifts in others. Pelphrey, Morris and McCarthy (2005) documented that children with HFA noticed a brightly flashing checkerboard inserted into a screen character's view as well as the character's shift in gaze, but showed no difference in brain function as measured by fMRI whether the gaze change was congruent or incongruent. Control subjects showed activation of the same brain area, the superior temporal sulcus, as the clinical subjects, but showed stronger responses to incongruent gaze shifts than individuals with HFA did.

These findings suggested that "gaze processing deficits in autism are not based on problems with gaze discrimination, but rather are linked to deficits in using information from gaze direction to solve real-world social puzzles that demand awareness of contextual subtleties and the intentions of another person" (Pelphrey et al., p. 1044). In short, individuals with AS/HFA seem to miss the significance of eye gaze shifts even though they are noticed.

Social misinterpretation seems to be a characteristic problem of children having AS/HFA. Interpretation of emotionally neutral comments were blown out of proportion and perceived as hurtful by elementary students on the autistic spectrum (Church et al., 2000). Teasing is a complex social interaction which is especially problematic for youngsters with AS/HFA because it requires the ability to interpret non-literal meanings and to understand intention and pretense in the social context (Keltner, Capps, Kring, Young, & Heerey, 2001).

Many children with AS/HFA reported that they didn't know why people teased them and often didn't understand that they were being teased at all (Heerey, Capps, Keltner, & Kring, 2005). Heerey and colleagues (2005) investigated this issue by setting up a parent-child teasing interaction with children having AS/HFA and their parents compared to typically developing children and their parents. They found that the children with AS/HFA and their parents as well experienced difficulty in spontaneously linking teasing with social context (Heerey et al., 2005).

Understanding humor often hinges upon the interpretation of non-literal meanings and surprise endings, another area individuals with AS/HFA often fail to appreciate (Emerich, Creaghead, Grether, Murray, & Grasha, 2003). Lyons and Fitzgerald (2004) present some evidence to the contrary, suggesting that individuals with AS/HFA are capable of appreciating specific types of humor, such as philosophical or mathematical, perhaps because these two types of humor are short, explicit and do not require much context. In addition, those with AS/HFA, with their verbal skills largely intact, are capable of understanding most verbal humor, although they interpret it more cognitively than emotionally (Lyons & Fitzgerald, 2004).

Not only do children with AS/HFA misunderstand verbal messages, they often misread body language and may exhibit hostile attributional biases, which may be the result of a lack of mediating socialization (Dodge, 2006). Sometimes, possibly due to tactile sensitivity, an accidental tap can be perceived as an aggressive act by the child with AS/HFA, who will then retaliate by hitting back or tattling (Blakemore et al., 2006). Other children recognize from the context and character of a person whether the action had benevolent or malicious intentions; children with autism often do not (Attwood, 2000). On the other hand, a simple kind gesture from another can result in an obsessive infatuation if this type of misinterpretation continues in the teen years (Attwood, 2003).
When shown a video, students with HFA were much less accurate in detecting inappropriate behavior and gave irrelevant explanations for the behavior (Loveland, Pearson, Tunali-Kotoski, Ortegon, & Gibbs, 2001). Church et al. (2000) discovered that even when students with AS/HFA could identify emotions in a formalized setting, they did not react to those same emotions when expressed in spontaneous, real-life situations. Koning and Magill-Evans (2001) found evidence of this as well. Teens with AS were able to infer the emotional state of others when looking at still photographs but had difficulty doing the same with video scenarios because they were required to deal simultaneously with facial, voice, body, and situational clues.

Golan and Baron-Cohen (2006) also found that children and adolescents with AS/HFA had no problem interpreting the six basic situationally-based emotions of happiness, sadness, anger, fear, surprise, and disgust from still photographs but showed significant deficits compared to a control group in recognizing complex belief-based emotions such as surprise or embarrassment. Heerey, Keltner and Capps (2003), on the other hand, reported no problem with the recognition of surprise in their study but found that recognition of two self-conscious emotions– shame and embarrassment– were significantly diminished in children with AS/HFA. The children did not simply confuse embarrassment with shame. Children with AS/HFA frequently described embarrassment as "happy" whereas they tended to describe shame as "sleepy" (Heerey et al., 2003).

Self-conscious emotions are central to social adeptness because they motivate following the rules of society, and their unpleasantness helps to deter future transgressions (Tangney, Miller, Flicker, & Barlow, 1996). In addition, they help

individuals to repair relationships and seek forgiveness when they are guilty of violating those norms (Keltner & Anderson, 2000).

Causal relationships also seem to present problems for children with AS when they were compared to controls in developing both storybook and personal narratives. Researchers found that children with AS were quite similar to typically developing children on measures such as length and amount of personal narratives, but exhibited a significant deficit in inferring and building upon causal relationships in both storybook and personal narratives. Other differences noted in children with AS were a greater tendency to include bizarre or irrelevant comments and more dependence on prompts from the examiner when narrating personal experience stories (Losh & Capps, 2003).

Additional research has demonstrated that individuals with AS/HFA were no less likely than typically developing peers to give examples of emotional states drawn from their own experiences (Capps, Yirmiya, & Sigman, 1992) but seem to have particular problems in determining the underlying causes of emotions in both themselves and others (Yirmiya, 1992). Therefore, the primary differences seem to lie not in the failure to identify emotions or in the ability to understand a story on the surface, but in the lack of ability, or perhaps the lack of motivation, to decode the causes for emotional states from the social context.

In Baron-Cohen and Joliffe's view (1997), individuals with AS/HFA fail to develop a Theory of Mind (ToM), a type of metacognition in which they not only maintain an intimate personal world view but can also consider alternative interpretations based on their understanding of another individual's experiences. Although specific ToM training for individuals with AS/HFA has resulted in improvements on ToM tasks, the learning does not always transfer to gains in social adaptability (Klin, 2000).

Studies have shown one aspect that aids in successful ToM training but does not necessarily transfer to real-life situations is the verbal presentation of tasks, which allows the population with AS/HFA to use their generally superior verbal skills to scaffold and improve their performance (Bowler, 1992; Happe, 1995; Yirmiya & Shulman, 1996). The explicit nature of the problem and a dichotomous solution are other facets of the ToM which help those with AS/HFA to successfully complete the training. Unfortunately, problems in real life are rarely presented in that fashion and scripted responses are almost never applicable.

In an attempt to empirically investigate the gap between ToM training and real life social aptitude, Klin (2000) minimized the factors that promoted the training but were not applicable in authentic social situations and focused on the ability to attribute social meaning to geometric shapes acting like people in a cartoon format. Termed the Social Attribution Test (SAT), Klin's instrument very reliably documented the social deficits of adults with AS/HFA even though they had all passed a second order ToM screening task. The clinical group was sensitive to only about a quarter of the social elements usually identified by the normally developing group, and close to one-third of the attributions by individuals with AS/HFA were irrelevant. Although some of the clinical group had the capacity to see the shapes as people, their social attributions were much more concrete and less integrated (Klin, 2000). This study demonstrated that even though individuals with AS/HFA may be successful with specific training tasks, they are often unable to decode the majority of the elements of a complex social situation. According to Attwood (2003), children with AS/HFA were years behind in their social development. Myles (2002) suggested that they may have the social maturity of someone 1/3 to 2/3 of their age. Since individuals with AS/HFA do not know how to respond to cues, they do not offer compliments frequently or volunteer to help others. Parents reported that their middle school aged sons with AS/HFA failed to recognize that other children had different ideas about play than they did (Church et al., 2000). They often fail to encode cues that other people are in distress (Bacon, Fein, Morris, Waterhouse, & Allen, 1998), and this lack of empathy can lead to a others' perceiving them as callous and uncaring, contributing to the lack of peer group acceptance.

Rubin (2004) identified two areas as the core deficits in social learning disabilities that are present in children with AS/HFA. One of them is the capacity for symbol use, which allows for the interpretation of both nonverbal and verbal communication at the decoding stage. The other is joint attention, a goal that establishes patterns for sharing attention that enables one to appreciate the perspective of another person and plays an important role in the next step of SIP.

Step 3 – Clarification of Goals

"During Step 3, after interpreting the situation, it is proposed that children select a goal or desired outcome for the situation...or continue with a preexisting goal" (Crick & Dodge, 1994, p. 76). At the fundamental level, joint attention is one of the first socially oriented goal directed behaviors. This ability to coordinate attention with a social partner has been demonstrated to be another area where individuals with AS/HFA have deficits (Kasari et al., 2006). Typically developing children use eye contact and/or gestures to show that their attention is being directed simultaneously to what another person is attending.

This early lack of social interest appears to establish a pattern in which the individual with AS/HFA avoids engaging in joint attention except when it serves to gain another person's assistance to obtain an object or modify an event, and it appears to engage a different area of the brain (Mundy, Card, & Fox, 2000). The ventromedial prefrontal cortex has been associated with joint attention, establishing stimulus-reward associations and flexibility in the application of social rewards (Dawson et al., 2002). The extent to which joint attention is rewarding may affect desire to engage in it in the future (Nichols, Fox, & Mundy, 2005).

An ecological study of first birthday party home movies of children later diagnosed with autism, as compared to typically developing children, have shown that the children with autism responded less frequently when their name was called and looked at faces and people less often (Dawson, Meltzoff, Osterling, Rinaldi, & Brown, 1998). Thus, the divergence from joint attention, and hence emotion sharing, seems to begin in infancy and remain stable throughout development for children with AS/HFA. It is still one of the distinguishing characteristics for middle school children with AS/HFA (Travis & Sigman, 1998).

Gutstein and Whitney (2002) maintained that engaging in experience sharing is an essential building block to learning how to have friends and build relationships. They found that when young children with AS/HFA did initiate interaction with peers, it was mostly for the purpose of giving information, whereas their matched controls invited others to play or sought personal information (Gutstein & Whitney, 2002). It has been

postulated that the lack of response to joint attention causes an impoverishment of experiences resulting in a dearth of social information to encode for future situational reference (Presmanes, Walden, Stone, & Yoder, 2007).

The logical path from the lack of encoding and decoding social skills, combined with not participating in joint attention, leads to a life with few friends. Some lower functioning individuals with autism may seem happy to be left alone, but children with AS/HFA desire friends and, as teens, desperately want to fit in with their peer group. Yet they find it exhausting because they lack the social insight to make it a reality (Attwood, 2002; Church et al., 2000). As one young man expressed, "It's not that I'm antisocial, it's that I don't meet many people that I like" (Attwood, 2002, p. 6).

In a study involving friendship and adolescents with AS, Green, Gilchrist, Burton and Cox (2000) found that although most of the participants could conceptualize friendship and describe it, very few of them had actually experienced it. Children with autism are reported as having difficulty with initiating as well as maintaining friendships (Bauminger, Shulman, & Agam, 2003). Koning and Magill-Evans (2001) found that of the 21 adolescents with AS they studied, 16 of them reported that they had no friends. For those who did have social contacts, most centered around special interests rather than close spontaneous friendships (Howlin, 2000).

Jones and Meldal (2001) found a real desire to have personal relationships to be an overriding theme in personal accounts of those with AS/HFA, yet most expressed feelings of great loneliness. Mark, a participant in a study of boys with AS conducted by Carrington and Graham (2001), explained: Last year wasn't a good year. I didn't have many friends, I used to go home in tears actually, because I saw all the other kids with friends and when they were having trouble they could just talk to their friends and I couldn't do that for some reason. I couldn't make friends (p. 42).

Attwood (2002) also found that while many children with AS set one of their goals as having friends, their intrinsic goal is for knowledge, rather than popularity. In addition, it appeared they did not understand the concepts of reciprocity and sharing (Carrington, Templeton, & Papinczak, 2003).

Executive skills are also instrumental in being able to identify appropriate goals, selecting a course of action, and predicting future consequences of that action. However, results of a study with typically developing individuals indicated that traditional tests of executive function did not always predict problems in everyday life problem-solving ability (Shallice, Burgess, Levin, Eisenberg, & Benton, 1991).

Such a disconnect could explain why individuals with AS/HFA may perform well on abstract cognitive executive abilities tests but poorly in real-life scenarios. This highlights the need for contextual clues in real life as well as the ability to effectively utilize social knowledge gained through life experiences and other avenues of social transmission (Channon & Crawford, 1999); (Shallice et al., 1991).

Individuals may also have problems in developing a goal with a social rather than a material reward, as discovered by Dawson et al. (2001) in their study of pre-school children with autism. They found that compared to both typically developing children and those with developmental delays; the participants had difficulty in attaching a reward to a novel stimulus. Therefore, while on one level, the individual with AS/HFA may have intellectual goals of friendship, brain impairments may render the realization of that goal inordinately difficult to attain. This is may be due to an underlying dysfunction in goal-oriented reward systems.

Step 4 – Response Access or Construction

"Next, at step 4, it is hypothesized that children access from memory possible responses to the situation, or, if the situation is novel, they may construct new behaviors in response to immediate social cues" (Crick & Dodge, 1994, p. 76). Individuals with AS/HFA are already at a clear disadvantage in this step of the process due to their difficulty in encoding and decoding social cues, such as eye contact, body language and voice nuances demonstrated in Steps 1 and 2, along with their mismatched goals in Step 3. Their difficulties are further compounded at this stage, not only because they lack social experiences upon which to draw for possible solutions, but also because they seem to fail to access those memories to construct social responses.

Recent work by Goddard, Howlin, Dritsche, and Patel (2007) studied the relationship between memory retrieval and problem-solving ability. There was a relationship for the control group between difficulties with memory retrieval and problem-solving ability, but no such relationship was found for the group with AS. It appears that even when the individuals with AS were able to recall past experiences, they failed to use them to construct solutions to social problems. This corresponds with Bowler's (1992) theory that the characteristic social deficits in those with AS are more associated with a general inability to see the relevance of prior social knowledge than as a result of social skills incompetence. This inability to see relevance of knowledge to problems may also reflect their difficulty with identifying complex emotions in autobiographical memories. In a discourse analysis study of children with HFA, Losh and Capps (2006) asked the children to tell about a time when they were happy, sad, etc. The participants were successful in doing this, but when asked to tell about a time when they were proud, for example, they seemed to confuse it with the more basic emotion of happiness, (e.g., "I was proud when I got my new video game"). Similar confusions took place for other complex emotions, such as "ashamed", "guilty," and "embarrassed," for which the children with HFA often described experiences more likely to be considered sadness or anger. Even when they did seem to understand the emotion, these children gave the impression that it was an intellectual understanding and not the result of their own experience, as in this response when a child was asked to tell about a time when he felt guilty: "Well, probably like, later I might get in trouble for it. Then I kinda [*sic*] feel guilty" (p. 814).

In addition to drawing from a limited database of social situations, individuals with AS/HFA are also apparently drawing from memories of simple emotional contexts. This would have a tremendous impact on their ability to read complex emotions in others and to construct an appropriate behavioral response. The path to social isolation appears to begin at a very early age. It has been hypothesized that toddlers with AS have already withdrawn into socially and emotionally deviant behavior from which they never fully recover (VanMeter, Fein, Morris, Waterhouse, & Allen, 1997).

Without many social experiences to draw upon, it is difficult for the individual with AS/HFA to construct appropriate behavioral responses. When shown a video depicting a social problem and asked to decide upon a solution, adolescents with

AS/HFA were able to generate about the same number of responses as a control group, but the quality of their responses was lacking in measures of problem appreciation, social appropriateness, and practical effectiveness (Channon et al., 2001). For example, one instance concerned a neighbor who had neglected to return a lawnmower. The solution given by the adolescent with AS was to "Go 'round and punch him in the face" (p.468). Another instance involving a neighbor with an annoying barking dog elicited a response to "Sneak in to the flat and poison the dogs" (p. 468). The group with AS/HFA was just as happy with the solutions they generated as the control group. Thus, it appears that while able to fluently generate solutions to social problems, persons with AS/HFA are unaware that their solution is inappropriate.

Step 5 – Response Decision

"At Step 5, it is hypothesized that children evaluate the previously accessed (or constructed) responses and select the most positively evaluated response for enactment" (Crick & Dodge, 1994, p. 76). Several factors are involved in this evaluation, including outcome expectation, self-efficacy, and the appropriateness of each response. At this stage of the social information processing cycle, the deficits of individuals with AS/HFA sometimes become insurmountable. They typically have difficulties encoding and interpreting social cues, particularly when the cues are simultaneous; and they lack social experiences from which to generalize appropriate goals and behavioral responses. These deficits severely limit both knowledge of outcome expectation and the appropriateness of the response.

Self-efficacy issues may create another complication at this stage. As adolescents, those with autism disorders might "masquerade" or pretend to have friends

and social status to hide their inadequacies in social skills and understanding (Carrington et al., 2003). Although some young people with AS/HFA are successful at hiding their symptoms behind a facade of normalcy, the strain is evident. When asked how it felt when others didn't seem to understand his disability, Noel replied, "Sometimes I feel like I could just explode" (Carrington & Graham, 2001, p. 44).

Masquerading may account for some of the conflicting results surrounding the awareness of social deficits of those with AS/HFA. Adolescents may in fact be very aware of their difficulties, yet choose to hide them behind a mask, especially during the teen years when social expectations are high (Gilchrist et al., 2001). Green and colleagues (2000) found that about a third of the participants with AS in their study demonstrated a complete lack of awareness of their social difficulties. This was also borne out in an investigation by Carrington et al (2003) in which five high school students with AS participated in semi-structured interviews.

Conversely, another study found participants with AS/HFA were very aware of their social difficulties and gave "lack of necessary skills" as their reason for not dating (Jennes-Coussens, Magill-Evans, & Koning, 2006, p. 411). The gap in social competency between individuals with AS/HFA and typical peers continues to increase with age. Although skills are not lost, individuals with AS/HFA fail to develop at the same rate as typical peers, rendering them even less socially capable by comparison (Klin et al., 2007). Some researchers have maintained that an acute awareness of inadequate social competence leads to anxiety and accounts for the fact that 80% of teens with AS are on medication for depression (Attwood, 2002; Barnhill & Myles, 2001). Cognitive theories of depression do not view it as simply a chemical imbalance or a pathological state of mind but, according to Atherley (as cited in Barnhill & Myles, 2001), as "a lack of wisdom in living." One cognitive theory in keeping with this line of thinking is the reformulated learned helplessness model (Abramson, Seligman, & Teasdale, 1978), which posits that individuals come to believe that responding is independent of reinforcement, and whatever action they take is futile. In other words, they may believe that whatever behavioral choice they make, the response will be negative.

This belief in turn reinforces the depressive state and adversely affects selfefficacy (Barnhill & Myles, 2001; Green et al., 2000). Moreover, the fewer depressive symptoms that the participants in the Barnhill & Myles (2001) study reported, the more likely they were to attribute negative outcomes to external causes. Conversely the greater their depressive symptoms, the more likely they were to blame themselves and consider the cause to be internal and global. Therefore, negative peer interactions may cause anxiety and behavior problems to emerge (Ginsburg, La Greca, & Silverman, 1998).

Attwood (2002) found that persons with AS/HFA are sometimes unable to learn from past mistakes due to a rigidity of thinking or to cope with being wrong. Church et al. (2000) concurred that rigid thinking, such as routine, rituals, and rules, plays an important part in determining behavioral responses of those with AS/HFA. Szatmari, Bremmer, and Nagy (1989) found that individuals with AS have great difficulty in changing their behavior to meet the demands of the social environment. Even when they know the rules of conversation, for example, they are often rigid and have difficulty implementing them in an authentic social context (Adams, Green, Gilchrist, & Cox, 2002). They are rarely able to modify their messages to the listeners and seem oblivious to their lack of coordination in conversation (Church et al., 2000; Gutstein & Whitney, 2002).

According to Fogel, Nwokah, Dedo, and Messinger (1992), this type of deficit points to inabilities in using co-regulation, which is the process of continually changing one's actions in relation to ongoing and anticipated actions of the social milieu. Gutstein and Whitney (2002) suggested that scripted skills do not address these cardinal deficits.

Step 6 – Behavioral Enactment

"At step 6, the chosen response is behaviorally enacted " (Crick & Dodge, 1994, p. 76). Children and adolescents with AS/HFA often make inappropriate behavioral choices due to misunderstanding of social cues compounded by deficiencies outlined at each stage of SIP. They may be aggressive, withdraw, lose control, or participate in selfinjurious behavior (Church et al., 2000). In their peer interactions, children with AS frequently appear to be egocentric and often use inappropriate body language (Attwood, 2002). One mother described her son Mark in this way:

He can't read body language. He is always invading your space, always standing too close to you. He still goes up and tugs a girl's hair. He has no idea. So, he's classified as a weirdo by a lot of the kids. He just can't understand (Carrington & Graham, 2001, p. 41).

Children with AS/HFA often have difficulty modulating their voices and keeping their hands to themselves. In addition, "inability to read social cues of peers, awkward body posture and awkward use of gesture, annoying habits such as making noises or drumming the desk, highly variable eye contact, and odd body language" cause children with AS not to fit in with their peers (Church et al., 2000, p. 17). Their social skills deficits often alienate others and create patterns of negative interactions.

The children with AS in the Church and colleagues (2000) study often amazed adults with stores of knowledge on certain topics of interest, but their lack of reciprocal conversation was apparent, as was their lack of ability to modulate their voices, with about half being reported as too loud and the other half as too soft. Proper inflection seemed to be a problem as well, and three children with AS in the study were described by peers as talking like cartoon characters (Church et al., 2000). Other speech and voice factors, such as hypernasality, inappropriate phrasing, and sentential stress also prejudiced the perception of young adult males with AS/HFA by their peers (Paul et al., 2005).

Similarly, Landa and Goldberg (2005), in a matched control study, found evidence of impaired sentence formulation ability and impaired ability to understand abstract, figurative language. Yet literal interpretations were given with no evidence of difficulty. This lack of understanding of age-appropriate figures of speech and abstract language is another factor that impairs social competency.

One important positive finding reported by MacIntosh and Dissayayake (2006) was that children with HFA engaged in complementary play to the same degree as typically developing children and were just as likely to participate in games with rules as their peers. Bauminger et al. (2003) suggested that the presence of rules can create a comfort zone since children with AS/HFA have great difficulties with intuitive social interactions.

Pervasive social impairments can result in lack of independence and the ability to deal with everyday life situations. Even such tasks as shopping, making travel arrangements, and managing personal hygiene require some degree of social understanding that many young adults with AS/HFA lack. Consequently, many young adults with AS/HFA continue to live at home (Green et al., 2000).

In a current study of the quality of life of young men with AS, four of twelve participants engaged primarily in solitary leisure activities, as compared to only two of thirteen participants without AS (Jennes-Coussens et al., 2006). Sadly, many adults with AS/HFA are faced with virtual isolation in all areas of their lives due to lack of social competency (MacLeod, 1999). Szatmari, Bartolucci and Bremmer (1989) found that of their 16 participants with AS/HFA, only 1was married and only 3 had any dating experience.

Summary

Clearly, deficiencies at each step of the SIP framework result in choices for behavioral enactment, which are often evaluated as inappropriate by peers and responded to in a negative manner. In accordance with the cyclical nature of Crick and Dodge's (1994) reformulated SIP model, this information then forms the experience base from which to draw information for future responses. Since individuals with AS/HFA tend to get negative responses, their perception of social competency diminishes and they are less likely to engage socially, decreasing their experience base even more as compared to typical peers.

Even though social improvements can continue into adulthood, the importance of early intervention in preventing the downward social-emotional spiral cannot be ignored. However, children with AS/HFA are often diagnosed years later than lower functioning individuals with autism (Mandell, Novak, & Zubritsky, 2005). In a study by Howlin and Asgharian (1999) children with autism were identified at an average age of 5 years, while the average age of diagnosis for AS was 11 years, with many not diagnosed until the teen years or even later. Thus, the development of effective social skills interventions which are particularly suitable for older children and adolescents with AS/HFA, including those who are gifted, is vital.

Social Skills Interventions

A search was conducted to identify recent empirical literature concerning social skills interventions for school-aged children and adolescents with AS/HFA, focusing on techniques for promoting positive social behavior and/or reducing negative behaviors. The PsychInfo and ERIC databases were searched using the terms *autism* or *Asperger's* and *social skills* delimited by either *social skills training* or *interventions* and yielded 145 entries. Only those which were published in peer-reviewed journals from January 2000 through August 2009 were considered. Secondly, in the studies reviewed, at least one of the participants, with disaggregated data provided, was diagnosed with either AS or HFA. Thirdly, the participants of the study were been between the ages of 5 and 18. For those studies meeting the criteria, reference lists were examined for additional articles that may have been overlooked in the initial search. Overviews and meta-analyses of social skills interventions also provided additional leads to relevant studies.

A total of 38 studies that met the criteria were targeted for inclusion in the review. While not exhaustive, the studies chosen were representative and methodologically diverse, ranging from single subject case studies to group comparison studies; from experimental to anecdotal; and from clinical to naturalistic settings. The majority of the studies were small sample quantitative studies with a variety of multiple base-line designs. Although the studies could have been categorized in several ways, basic typology was chosen as the organizing structure (see Appendix C for a summary of the literature reviewed).

Social Stories

The Social Story was a technique developed by Carol Gray (Gray & Garand, 1993) to improve social understanding through simple short stories that described social situations the child with AS/HFA encountered in everyday life, along with aspects of priming and self-management (Scattone, 2007). Since their development in the last decade, Social Stories have been widely used in school settings, but empirical studies have been scant until the last few years. The studies chosen for inclusion in this review document the use of Social Stories, often with modifications, to help tailor the basic intervention to individual needs and learning strengths.

Brownell (2002) investigated the use of music to strengthen the Social Story effect. He found that singing the story was superior to reading in all cases, but that it was only statistically significant in one case. Others have enlisted the help of parents and employed videotaping to explore the efficacy of using Social Stories to manage inappropriate social behavior at home for elementary school-aged children with AS (Adams et al., 2002; Bernad-Ripoll, 2007).

The use of Social Stories produced improvement in the target behaviors of reduced frustration during homework time (Adams, Gouvousis, VanLue, & Waldron, 2004) and the ability to recognize and understand self emotions (Bernad-Ripoll, 2007).

Videotapes of the child engaged in behaviors within a naturalistic setting seemed to increase social understanding because the child could repeatedly examine the contextual factors which may have led to that emotion.

While some studies have demonstrated the effectiveness of Social Stories in extinguishing negative behaviors, few have examined their role as the sole intervention in increasing appropriate social behaviors, as did Scattone, Tingstrom and Wilcznski (2006) in their study with 3 boys with autism spectrum disorders (ASD). For each boy, a Social Story was constructed and was read one time each day. The boys were observed for 10minute intervals during unstructured social times for 11 weeks, and the number of appropriate social interactions was recorded.

Results showed increases in pro-social behavior for the 2 participants who were high functioning and no significant change for the child who was considered lower functioning (IQ 67). These results suggest that the Social Story intervention may have greater implications for efficacy with higher functioning individuals with autism, or that lower functioning children may need visual prompts in addition to the stories.

Sansosti and Powell-Smith (2006) employed Social Stories with 3 children with AS and documented targeted pro-social gains for 2 of the 3 participants. At times, the level of performance of the 2 boys was greater than that of their typical comparison peers. This study was unique in that each participant kept a pictograph journal detailing when and with whom they read their Social Story and how it made them feel.

The journal seemed to create an important bridge between the home and school environment, as well as providing documentation that the strategy was carried out. Maintenance data were not as promising, with a drop in skill levels from the intervention phase to the follow-up stage. However, in a later similar study, maintenance was documented according to blinded observer ratings (Sansosti & Powell-Smith, 2008).

An instructional strategy, which took advantage of the special interests of the child with autism in combination with a type of social story, was the Power Card Strategy developed by Keeling, Myles, Gagnon, and Simpson (2003). These researchers used a 10-year old girl's obsession with the Power Puff Girls to teach sportsmanship skills by creating Power Puff Girls cards with relevant stories to be read before game time.

Results showed that the participant's negative behavior during both gross motor games and board games was significantly reduced. Perhaps even more promising, independent generalization occurred in other settings according to anecdotal reports from school personnel not involved in the study.

Manualized Instructional Programs

Due to the dearth of manualized social skills programs designed specifically for those with AS/HFA (Rao et al., 2008), some researchers have looked to behavioral interventions that have shown efficacy with other populations. Originally designed for children with attention-deficit/hyperactivity disorder, the Summer Treatment Program (Pelham et al., 2005) tested the effectiveness of an intensive 6-week-long behavioral intervention for 4 boys with AS (Mrug & Hodgens, 2008).

The study took place in a naturalistic camp environment. The boys participated daily in multiple recreational activities, as well as a social skills training class. They were awarded points for positive social behavior and lost points for negative behavior across settings. The boys received rewards, such as Friday field trips, based on the points earned during the week. In addition, individualized goals were developed with parent input and communicated by program staff in a daily report card with a home-based reward system.

According to staff evaluation on the individual daily report card, each child made significant gains in his social competence. All the participants demonstrated a higher rate of peer interaction initiations and were able to communicate in a more reciprocal fashion. Parent ratings also indicated positive behavioral changes indicating generalization. Maintenance of social gains and generalization to settings other than home were not evaluated. Moreover, the participants were not randomly selected—all were very high functioning and had the support of involved families.

Another programmatic intervention, the SCORE Strategy, developed and documented for use with the students who have learning disabilities (Vernon & Schumaker,1993), was tested for adolescents with AS/HFA (Webb, Miller, Pierce, Strawser, & Jones, 2004). Ten boys with AS/HFA participated in group instruction during two 1-hour sessions per week for 6 1/2 weeks to learn five social skills: S –share ideas, C –compliment others, O –offer help or encouragement, R –recommend changes nicely, and E –exercise control. After each skill was taught and modeled by a trained instructor, the boys practiced the skill by role-playing. The social skill was then reviewed and the boys were encouraged to apply the skill in authentic situations. The comparison of base-line data to post-intervention observations indicated that each boy made gains between 10% and 50% in demonstrating knowledge of how and when to use each skill; however, their knowledge was not apparent to others. According to the post-intervention survey, parents did not notice a change in their sons' social competency. Within the group, observers anecdotally noted that the boys had started to form friendships. This

was reflected in the comments of participants when asked what they liked best about the SCORE program: "Learned to make new friends with others of the same disability," and "Hanging out with friends" (p.60).

A direct instructional intervention that has demonstrated similarly unexpected results was the targeting of nonverbal communication in a group setting (Barnhill, Cook, Tebbenkamp, & Myles, 2002) using lessons adapted from *Teaching Your Child the Language of Social Success* (Duke, Nowicki, & Martin, 1996). Although, the growth in nonverbal communication skills was minimal, some positive outcomes were observed social relationships developed and were maintained with a sense of trust evolving throughout the process. Fifty percent of the adolescents initiated contact with another group member simply to talk or to get together several months after the sessions ended, thus indicating friendships had evolved.

In a clinical case study by Crager and Horvath (2003), a behavioral social skills program was implemented for 4 pre-teens with social deficits, including 1 participant diagnosed with AS. Qualitative changes were observed within the group for the boy with AS, but the skills were not immediately generalized. Following the study, the clinicians recommended a social skills group consisting of only those with AS/HFA to provide a more applicable treatment plan.

While some success has been demonstrated by adapting existing social skills programs, other studies have investigated interventions specifically designed for those with AS/HFA. A scripted social-behavioral learning strategy that has shown promising results for those with AS/HFA is the SODA intervention developed by Bock (2007) and tested in three naturalistic settings: cooperative learning activities, organized sport games, and lunch time.

The SODA strategy instructs children to stop (S), observe (O), deliberate (D), and act (A). SODA gives self-talk questions to help the child with AS/HFA cue in and process the social information in steps S, O, and D and gives a specific list of options to do and say for the action component (A). In Bock's 2007 research, all of the participants showed significant increases in the time they spent participating in each of the social situations measured, and these gains were still present during a 5-month follow-up probe. Lending weight to the results, observers were blind as to the intent of the study, and interobserver reliability was greater than 93%.

Another recent study used a program specifically designed by the researchers for those with AS/HFA–the Junior Detective Training Program. This 7-week multicomponent intervention was evaluated as a social skills intervention for 26 children with AS compared to a randomly-assigned waiting list control group of 23 children with AS (Beaumont & Sofronoff, 2008). The program consisted of group social skills training, parent training, teacher hand-outs, and a computer game which taught participants how to decode thoughts and feelings.

Compared to the control group, the treatment group made gains averaging one standard deviation based on parent reporting on social skills rating scales. Moreover, improvements were maintained at both 6-week and 5-month follow-up probes. Unfortunately, social functioning at school was unable to be measured due to a lack of teacher response. Although this empirical study employed a relatively large sample size, randomly assigned a control group, and included follow-up measures, it was limited by the potential for reporter bias. Parents who were trained to implement the intervention at home also served as the primary evaluators of its effectiveness. Determining the relative importance of individual program components responsible for treatment gains was also problematic. A more comprehensive therapist manual which will allow the intervention to be implemented by school and health personnel should pave the way for other researchers to help determine the efficacy of this program.

The Program for the Education and Enrichment of Relational Skills (PEERS) created by Laugeson and Frankel (2006) is a manualized program for teenagers that teaches key elements involved in making and keeping friends. Based on a program for younger children developed by Frankel and Myatt in 2003, the PEERS program was recently evaluated for adolescents with AS/HFA (Laugeson, Frankel, Mogil, & Dillon, 2009). The intervention took place in small groups over a 12-week period and included direct instruction, role-playing, modeling, rehearsing the behavior, and weekly socialization homework assignments. Parents met concurrently in a separate group to receive instruction on how to facilitate the targeted skills at home. Parent report results revealed a significant improvement in social knowledge, frequency of hosted get-togethers, and overall social competency of the treatment group as compared to the control group.

This study represents one of the largest sample sizes (n=33) for a randomized control design study of teens with AS/HFA. However, as teacher data were not collected due to poor response, and parents were involved in the delivery of the intervention, non-

biased ratings were not obtained. In addition, this study did not include generalization or follow-up data. The authors are currently conducting a replication study to address these limitations.

Non-Manualized Training and Support Groups

There appears to be little empirical documentation for the efficacy of nonmanualized training and support groups for those with AS/HFA; however, some studies have been conducted with promising results which could lay the groundwork for future research. In their work with three groups of teenagers with AS, Weidle, Bolme, and Hoeyland (2006) found that 76.5% of the participants and 95% of their parents rated their satisfaction with the group as either "good" or "very good." The groups were loosely based on the structure outlined by the TEACCH system (Schopler, Mesibov, & Hearsey, 1995) and included understanding autism, understanding the uniqueness of the child, clarifying expectations, using visual supports to structure tasks, and motivating the students by using special interests.

In the study by Tse, Strulovitch, Tagalakis, Linyan and Fombonne (2007), roleplay was the primary vehicle for a social skills training group that met for 12 weeks. Six groups participated, a total of 46 adolescents with AS/HFA. The curriculum and pacing of instruction were dependent on the needs of the group members. Significant gains were demonstrated on measures of social competency, and problem behaviors were reduced, according to parent report. Effect sizes ranged between .34 and .72, which demonstrated a moderate effect.

A major strength of this study was its large sample size; however, it was limited by the lack of a control group, parent-report only as an outcome measure, and lack of follow-up data. In addition, this study was not manualized, so programming may have varied between the groups.

The Friendship Club, a collaborative group intervention study involving both a school-aged group (6 members) and a teen group (4 members) with AS/HFA also documented positive results (Carter et al., 2004). The Friendship Club is similar to the Circle of Friends intervention which had been used successfully with pre-schoolers (Kalyva & Avramidis, 2005). Each session consisted of a discussion of friendship skills and a group activity, such as skating or playing a game to put the skills into practice.

Qualitative analysis of the data indicated that both parents and participants felt the Friendship Club was socially beneficial. Recommendations included suggestions to include typical peers at the next level. Similarly, a pilot study incorporating both separate social skills training groups and simultaneous attendance at a community youth group with a trained adult helper reported increased self-esteem and social confidence for the participants (Broderick, Caswell, Gregory, Marzolini, & Wilson, 2002).

A social skills group in the clinical setting has also been shown to significantly increase the social knowledge of 4 children with AS/HFA as the result of an 8-session intervention using rule-based social scripts (Barry et al., 2003). Following the intervention, observers documented the gains during sessions with typical peers. The children were able to generalize the skills to a new playroom and a new peer, even without the therapist present. However, the only targeted social behavior that was reported by parents to occur outside the clinical setting was in the area of appropriate greetings. The small sample size limited the statistical power to produce significant results in this study. Another limitation was the use of unblinded observers.

At times only one social behavior is targeted to determine the effectiveness of an instructional method. Video modeling, both alone and in conjunction with selfmanagement techniques, has been shown to be effective in teaching compliment-giving behaviors of children with ASD according to teacher and parent reports (Apple, Billingsley, & Schwartz, 2005). While focusing on only one facet of social skills could be thought of as limiting, the study pointed to video modeling as a potentially effective instructional vehicle for teaching a variety of social skills.

Virtual environments (VE) are one of the newest training innovations for adolescents with AS/HFA (Parsons, Leonard, & Mitchell, 2006). In a qualitative study with 2 teens, Parsons and colleagues found that although the teens enjoyed the sessions and were able to learn what to do in tricky social situations, such as asking someone on a crowded bus to move their packages so they could sit down, the learning did not transfer to real life. One participant indicated that he had not thought about the VE bus lesson while on summer break, even though he rode the bus almost daily. This finding supports Bowler's (1992) theory that the social deficits of those with AS/HFA are not necessarily associated with a lack of social knowledge, but rather a failure to see the relevance of prior social knowledge. The failure to transfer and apply social knowledge taught in isolation to complex real-life situations appears to be one of the greatest hurdles to overcome for social skills training interventions (Klin, 2000).

Cognitive Behavioral Therapy

Evidence that children with AS/HFA are capable of cognitively learning social skills was highlighted in a larger scale, well-designed randomized experimental study by Solomon, Goodlin-Jones, and Anders (2004). Employing a waiting list matched pair

control group matched on age (8–12) and IQ (>75), researchers implemented a 20-week adjustment enhancement curriculum for 18 boys with AS/HFA. The group-based curriculum addressed three areas deemed by most to be core deficit areas for those with AS/HFA: "emotion recognition and understanding; theory of mind; and executive functions/real life type problem solving" (p. 649).

Results demonstrated statistically significant gains in the scores of the intervention group in the areas of facial expression recognition and problem solving. This study corroborated research that has demonstrated the ability to teach facial expression recognition to those with autistic disorders (Hadwin, Baron-Cohen, Howlin, & Hill, 1996), but the use of only two social skills outcome measures limited the curriculum's usefulness as a comprehensive social skills intervention. The study was also limited by lack of follow-up and generalization data. Although social interaction within the group was not targeted, the researchers noted anecdotally the willingness and interest of the boys to learn facts about one another in the course of the training

Using a cognitive-behavioral-ecological approach in his work with children with AS/HFA, Bauminger (2002, 2007) demonstrated improvement in both social cognition and positive social interaction with long-term maintenance. In the 2002 study, Bauminger implemented a multi-modal 7-month social skills training program for 15 children (8–17) with AS/HFA. In keeping with the ecological treatment model, the intervention was conducted by the child's teacher, an older typical peer, and the child's parent.

Bauminger addressed three weaknesses of the original study in the 2007 replication study. First, an observer who was blind to study aims was utilized instead of the teacher who was implementing the training. Second, a long-term follow-up was included. Third, peer group interactions were included in the observations rather than just dyadic interactions. A two-part study was designed so that in the first year, an individual intervention would take place and in the second year, a group intervention. The results for the first year's individual intervention were reported and supported the 2002 findings with the additional evidence of maintenance of gains in a 4-month followup study (Bauminger, 2007). The group intervention data results are in press at this time.

Another cognitive behavioral study presented preliminary group data from a 6week summer treatment program for children with AS (Lopata, Thomeer, Volker, & Nida, 2006). The 21 participants showed a significant improvement in social skills based on parent and staff reports. This on-going study also compared two treatment methods social skills (SS) only and social skills plus behavioral treatment (SS+ BT). Each participant in both groups received 6 hours of instruction and the opportunity for naturalistic social interaction. However, the SS + BT group's treatment included a behavior management response-cost point system; the SS group received only naturalistic feedback.

The data thus far have demonstrated social gains for both groups and suggested no significant differences between the two types of treatment. With additional research support, this finding may underscore the power of group interventions and suggest that behavioral modification techniques are not as effective for older children and adolescents with HFA/AS as they have proven to be with younger lower functioning children with autism. A recent clinical case study evaluated the effectiveness of an outpatient cognitive behavioral 12-week social skills group for 6 pre-teen boys with ASD (Ruble, Willis, & McLaughlin Crabtree, 2008). A variety of techniques were employed during the group sessions, including Social Stories and role-playing. Social problem-solving and having conversations were the focus of the sessions.

Overall, problem-solving and conversational post-treatment gains were evidenced by a coder who was blind to the intent of the treatment program. In addition, parental reports revealed a significant improvement in engagement skills. A 1-month follow-up study indicated anecdotal social growth. As a clinical study, this research was limited by lack of direct observational follow-up data and a control group; however, the results still provide useful efficacy data.

Parent/Family Mediated

In an attempt to facilitate generalization of behavioral therapy to naturalistic settings, researchers trained parents and other family members to teach social skills in the home environment (Gutstein, Burgess, & Montfort, 2007; Stewart, Carr, & LeBlanc, 2007). Stewart, Carr, and LeBlanc taught the mother and sister of a 10-year-old boy with AS to deliver a behavioral skills training program designed by Miltenberger. An increase in targeted social skills was documented through observation of the family sessions by researchers via videotape.

The ability of trained family members to deliver a social skills intervention has been reinforced by the results from the program evaluation of Gutstein's Relationship Development Intervention (RDI) (Gutstein et al., 2007). In this program, parents were trained in an intensive 6-day workshop, which taught them to scaffold opportunities for their child to respond to increasingly difficult social problems in progressively unpredictable settings. These opportunities were designed to promote experience sharing, which, Gutstein postulated, is an essential component of social competence (Gutstein & Whitney, 2002).

Biweekly consultation meetings with an RDI consultant, which included videotape of parents working with their child, helped to ensure that parents received the guidance required to stay on track and target their child's individual needs. This combination of an individualized program implemented primarily by parents but overseen by trained professionals has shown promise as a social skills intervention for school-age children with AS/HFA by documenting significant long-term results. However, results should also be viewed with caution, as the research was conducted by the implementers of the program utilizing a self-selected sample of very committed parents.

A methodologically strong study demonstrating the positive effects of contextual support by adults at the beginning of a naturalistic social skills intervention reported positive preliminary findings in reference to encouraging the development of friendships during play dates (Koegel, Werner, Vismara, & Koegel, 2005). All play dates took place in the home of the child with AS/HFA and involved a typical peer who was a classmate. The sessions were videotaped and scored by two independent observers with an average interrater reliability of 87%. During play dates with no support, unprompted reciprocal interaction ranged from 0% to 40% and increased to 75% - 85% during play dates with contextual support. Affect level was also measured, and results showed positive affect levels increased for both the child with AS/HFA and the typical peer during play dates

with support. Not surprisingly, parents reported increased play date invitations for their children.

These results suggested that children with AS/HFA are capable of unprompted high-level reciprocal interactions, but they may need the contextual scaffolding provided by an adult facilitator to practice these skills in a mutually reinforcing way with peers.

Peer Mediated

There is some evidence that peer mediated social skills interventions for children with AS/HFA are effective. In the first of a two-part study, Kamps et al. (2002) studied 5 students with autism (only 1 high functioning) and 51 typical peers in three contexts: social skills groups, cooperative learning groups, and control groups. Each setting incorporated peer training in critical skills. Only the cooperative learning situation was measured for the student who was high functioning, and that setting showed the highest increase in social behavior.

The second part of the study included 34 students with autism, with about half considered high functioning. Two groups of 130 typical peers took part the first year and 120 typical peers participated the second year. Three classifications of peers were defined for this study: *trained*, *familiar*, and *stranger*. The trained peers, who were within a year of the age of the students with autism, received training in prompting and reinforcing social interaction with the target students in a peer mediation program.

The peer mediation program consisted of social skills/play groups, lunch buddy groups, recess buddy programs, and tutoring activities. During the 2-year study, videotaped probes were used to monitor the students' behavior during the social skills/play group time, engaging at separate times with trained, familiar, and stranger peers. Unfortunately, due to time constraints, data were not collected in the other three settings.

Social interactions, reciprocal interactions, and, to a lesser degree, on-topic verbalizations increased over time for children with autism when they were in the group with the trained peer. Time spent in social interactions and reciprocal interactions with familiar peers also increased; however, all behaviors decreased when engaged with stranger peers. Students who had received peer mediation intervention for more than a year showed more generalization to other groups of peers.

Earlier peer mediation studies also documented positive changes in social interaction (Kamps et al., 1998; Pierce & Schreibman, 1997). Furthermore, peer mediation produced changes in typical peers. In another study by Kamps (1998), over 90% indicated that they would like continue in programs working with their classmates with autism. Thus, a mutually reinforcing relationship occurred whereby children with autism were encouraged to increase social interaction.

Two other studies also showed the benefit of having peers act as mediators of the instruction while increasing social communication skills (Chung et al., 2007; Thiemann & Goldstein, 2001). Thiemann and Goldstein found that a combined structured social skills approach using social stories, pictorial cues, and written cues, all supplemented by video feedback, significantly increased the social communication skills of 5 elementary-aged children with ASD. Each participant interacted with 2 typical peers who had been oriented in how to talk with "new friends." Targeted behaviors were all conversational in nature and included getting a friend's attention, initiating conversation or requests, and continuing conversations. Although all 5 students demonstrated improvement in these

areas between base-line and post-treatment coded observations, only 2 participants were able to generalize the behaviors to new settings, and maintenance was minimal.

Unlike Thiemann and Goldstein (2001), Chung et al. (2007) studied children who were approximately the same age and were high functioning. The Social Story component was not used as part of the instruction, and a token system was used to reward participants for utilizing conversational skills which had been previously taught. Three out of 4 children improved, according to observationally rated behavior comparisons. It appeared, however, that the use of stickers to be exchanged for toys for reinforcement may have circumvented authentic communication.

A similar study compared peer-monitoring and self-monitoring using direct instruction of targeted social skills (requesting, commenting, sharing) with peer interaction after instruction (Morrison, Kamps, Garcia, & Parker, 2001). The combined approach of adult instruction with peer mediation, using reinforcement for targeted skills, resulted in increased initiations and social interactions for 3 students with AS/HFA, but little difference was found between self- and peer-monitoring. Generalization was limited in both these studies, however, and maintenance was not discussed in either (Chung et al., 2007; Morrison et al., 2001).

Activity-based

Social skill gains, as well as generalization and long-term maintenance, have been documented in an activity-based intervention using LEGO® blocks as the interactive medium (LeGoff, 2004; LeGoff & Sherman, 2006). This therapy, much like the Power Card strategy described earlier, attempted to build social competence by capitalizing on the child's natural interest. In this study, social competence consisted of initiating and

maintaining social contact while overcoming aloofness and rigidity. This repeatedmeasures study employed a waiting list control group–all 47 participants with AS/HFA served as their own controls–and delayed treatment for a minimum of 12 weeks.

The treatment phase consisted of one individual 60-minute psychological therapy session and one 90-minute LEGO® session per week, during which each group member had an assigned task, with an emphasis on communication, task focus, and collaborative problem-solving. At the end of 12 weeks of therapy, statistically significant gains in social competency were documented (LeGoff, 2004). These gains have been generalized, according to reports by teachers and parents, and, perhaps even more importantly, sustained for more than 3 years.

Additionally, the gains of the LEGO® group were more pronounced when compared to a matched control group who received differing therapy services from another psychologist (LeGoff & Sherman, 2006). Although the studies made use of multiple observations, had control groups, and included generalization/maintenance data, the results must still be interpreted cautiously, because the group assignment was nonrandomized and the raters were familiar with the study outcome.

These findings were partially confirmed in an independent study by comparing LEGO® therapy to another social skills program, the Social Use of Language Programme (SULP)(Owens et al., 2008). SULP is a social-communication program developed by Rinaldi (2004) that uses a structured curriculum and has anecdotal reports of success for children with AS/HFA. The comparison study also employed a matched control group, which was part of another study, for whom no special intervention was implemented

(Owens et al., 2008). Interventions occurred 1 hour per week over the course of 18 weeks.

Results demonstrated that the LEGO® therapy group's ratings on the autismspecific social interaction scores of the Gilliam Autism Rating Scale improved more than the other groups. Maladaptive behavior decreased significantly more for both the SULP and LEGO® groups compared to the control group.

Still, some design issues limited the impact of this study. Random assignment was used to designate the LEGO® or SULP group but not the control group. Moreover, no direct observations were made of the control group. In addition, observational data were collected by the primary researcher, who was not blind to group membership. Parents were also potentially biased reporters as they were aware of their child's group participation. Nevertheless, this study demonstrated an independent evaluation of the efficacy of LEGO® therapy, as well as a first evaluation of SULP for those with AS/HFA.

Collaborative computer group work was also found to increase appropriate social interactions and decrease inappropriate behaviors while increasing status with schoolmates for a 7-year-old child with AS in a single case study design (Lewis, Trushell, & Woods, 2005). Improved social status was the focus of another qualitative study in which six 10–14 year old boys with AS/HFA learned to play an interactive videogame with a physical component (Chiang, Lee, Frey, & McCormick, 2004). After the training period of 3 to 6 weeks, they taught typical peers how to play.

The resulting survey data indicated that improved components of friendship, peer recognition of physical competence, and social expectation resulted from the

intervention. Anecdotal evidence from parents indicated more social invitations and initiations by their sons and a greater propensity to participate in physical activities. The authors suggested that it may be more important for someone with AS/HFA to become proficient in talents and/or skills valued by peers than it is to become skilled at reading and responding to social cues (Chiang et al., 2004).

Summary

Social Stories were developed in the 1980s and have been used extensively in school settings, but until recently this methodology constituted only a very small percentage of research-based intervention literature. In light of the reviewed studies, the use of Social Stories, both alone and in conjunction with technological and peer mediated interventions, appears to be an effective intervention for children with AS/HFA, perhaps because many high functioning children with autism, particularly those who have been diagnosed with AS, have verbal strengths. Although positive outcomes continue to mount in studies examining the efficacy of Social Stories, evidence of maintenance and generalizability is still limited.

Some programmatic approaches have employed training in small group settings. Long-term friendships between group members have sometimes occurred as a beneficial side effect. Participants seemed to enjoy getting to know others who were "like themselves." This potential for developing friendships in a social context is the premise that has driven support groups, which sometimes include typical peers.

Clinical approaches using cognitive behavioral therapy have proven to be effective in teaching social skills in isolation to children and adolescents with AS/HFA, but the ability to apply the knowledge in social situations has not been shown to transfer
to naturalistic settings. Even the inclusion of peers as mediators, while effective within the controlled settings, has not demonstrated overall generalization to unstructured social settings. One possible approach to ameliorate this problem is to train parents, who have consistent daily contact with their child in a variety of naturalistic settings, to deliver the instruction.

Activity-based interventions, which build on a child's enjoyable recreational pursuit by including it in a naturalistic peer-group setting with others who share the same interest, seem especially promising, because they are mutually reinforcing for both children with AS/HFA and typical peers. These situations also seem to promote the selfefficacy that is important encouragement for future social interaction (Koegel, 2007), as well as improved status among peers.

From this review of current research involving social skills interventions for school-aged children and teens with AS/HFA, it is evident that the field is still in its genesis. Most of the studies reviewed were case studies or utilized small sample sizes. While single subject designs with clinically significant outcomes may provide the first indication of the efficacy of a social skills intervention, effectiveness cannot be established without a large number (>9) of replication experiments (Sanderson & Woody, 1995)or randomized controlled trials with sample sizes large enough to produce a statistically significant result (Smith et al., 2007).

Only 6 of the studies reviewed had a sample size of 25 or more, and only 1 study included effect sizes, making cross study comparisons difficult. In addition, only 7 of 38 studies included a control group, with only 2 of the 7 using random assignment. Parents are often reluctant to give permission for their child to participate in a study if their child

may be randomly assigned to a control group and excluded from a potentially helpful intervention. To address this issue, most studies which included a control group, made use of a wait-list or delayed treatment control group. Other difficulties in comparing interventions stem from the variety of social skills targeted and the inconsistency in outcome measures.

At this time, applied behavior analysis (ABA) is the only social skills intervention method with a basis of solid empirical research demonstrating increases in positive behaviors (McConnell, 2002; McEachin, Smith, & Lovaas, 1993; Odom et al., 2003) and reductions of negative behaviors (Horner, Carr, Strain, Todd, & Reed, 2002). ABA is recommended as evidence-based practice for clinicians by the U.S. Surgeon General (1998).

Unfortunately, the current ABA studies do not target high-functioning schoolaged children, which explains their lack of representation in this review, even though some of the reviewed studies have incorporated ABA techniques (Apple et al., 2005; Chung et al., 2007; Lopata et al., 2006; Mrug & Hodgens, 2008). Most of the interventions reviewed should be considered as emergent practices, without sufficient empirical evidence to be recommended as efficacious. However, an extrapolation of the successful components of these studies revealed promising trends for designing social skills interventions for school-aged children with AS/HFA.

Interventions which showed promise for youths with AS/HFA were developmentally appropriate and individualized according to strengths, interests and/or learning styles. In addition, interventions which were activity-based with adult support, such as the LEGO® Club (LeGoff & Sherman, 2006), seemed particularly effective. Including others with HFA/AS or an understanding peer group in the activity was also a component which helped to create positive social interactions and sometimes facilitated the formation of friendships within the group. Lastly, the use of a naturalistic setting allowed for incidental learning and generalization of social skills.

Adding weight to these foundational findings, observational research and recommendations from well-known authorities in the field indicate that team-building activities centered on a common interest or goal are often of value in teaching social skills (Klin & Volkmar, 1995). Stephen Shore (2002), an author with AS who is gifted, penned several books on the subject and suggested that activity-based social interactions, such as a bicycling or a gardening club, can be quite effective in drawing individuals with AS/HFA into successful social relationships. He asserted, "The commonality between people who have gathered together for a reason can, and will, lay the groundwork towards closer relationships with others" (p. 27).

Attwood (2000) suggested using a small group setting with other adolescents with AS/HFA, thereby creating a natural peer group. These experience-sharing relationships rely on the constant reading of the emotional states and actions of companions and the adjusting of behaviors accordingly (Fogel, 1993). Experiencing the joy and excitement that is the product of a successful experience-sharing encounter can be motivation for continued participation (Gutstein & Whitney, 2002) and the reciprocity of friendship that may ensue is considered a strong indicator of a successful intervention (Klin, Volkmar, & Sparrow, 2000).

Demonstrating strengths while working together cooperatively, as in noncompetitive sports activities, may be especially suitable for those with AS/HFA.

Outdoor activities such as biking, camping and hiking do not require highly skilled movements or the social understanding required for team sports (Williams, 2001). Outdoor Experiential Therapy (OET), particularly in the context of a therapeutic adventure, may be a plausible pathway to explore and implement the findings and recommendations concerning the design of social skills interventions for young people with AS/HFA.

Outdoor Experiential Therapy

Outdoor experiential therapy (OET) has evolved into an umbrella term encompassing all types of adventure-based programming, including wilderness therapy. Using the OET framework espoused by Kurt Hahn, the founder of the Outward Bound movement in the 1930's, Ewert, McCormick, and Voight (2001) expressed the doctrine of outdoor experiential therapy as using a natural or outdoor setting for "rehabilitation, growth, development and enhancement of an individual's physical, social, and psychological well-being through the application of structured activities involving direct experience" (p. 108).

Common features in all types of OET are participant-centered programming, cognitive dissonance, reality-based outcomes, and the connection of program structure to client needs (Ewert et al., 2001; Gass & Priest, 2006). In most forms of OET, clients are required to take some form of action in an outdoor setting (Ewert et al., 2001). Often the action is holistic and can vary from group decision-making to a specific challenge, such as rafting through rapids or completing a high ropes course.

Cognitive dissonance, often an earmark of OET programs, involves a discrepancy between the level of the challenge and an individual's perceived abilities, often resulting in the need to take risks to resolve progressively more difficult tasks (Cooper & Fazio, 1984). Gass (1993) asserted that cognitive dissonance creates opportunities for personal growth, as well as team-building, in a novel context.

Experiential groups operate as social microcosms where individuals learn how others perceive them in a real-world environment (Corey & Corey, 2000). The sense of being in a cohesive group is an effective way to combat feelings of isolation that are typical during adolescence, while group problem solving and decision-making encourage healthy ways to handle conflict and problems (Davis-Berman & Berman, 1994). Another key component of an OET program is the debriefing which follows the experience. Debriefing can take a variety of forms but often involves group discussion or journaling, which allows the individual to reflect, consolidate and construct learning (Schoel, Prouty, & Radcliffe, 1988).

One facet of OET is adventure therapy (AT). AT incorporates physical and social challenges which provide opportunities for personal development (Sitch & Gaylor, 1963). Alvarez and Stauffer preferred a definition divorced from client outcomes and specific techniques, making use of the existing body of knowledge in the field rather than relying on other theoretical frameworks. "Adventure therapy is any intentional, facilitated use of adventure tools and techniques to guide personal change toward desired therapeutic goals" (2001, p. 87). Likewise, Baldwin, Persing, and Magnuson (2004) recommended building a "theory of adventure" rather than testing existing social science theories in adventure contexts: "Hypothesizing immediate or proximal outcomes and distal outcomes clarifies the common and distinct elements of adventure education programs, alternative programs and social science theory" (p. 174).

Some consider the most essential "common-denominator of adventure programs to be that they involve doing physically active things away from the person's normal environment" (Hattie et al., 1997, p. 44). As challenges of the natural environment are successfully faced, self-worth and feelings of adequacy increase (Kimball & Bacon, 1993) and participants often discover that limitations are self-imposed (Luckner, 1989).

In AT as in other forms of OET, the consequences as well as the rewards are authentic. The inability to achieve a goal has direct and natural consequences. For example, failure to start the fire will result in a cold supper. In addition, physical activities are directly connected to the needs of the client. They are not stand-alone activities done just for fun (Ewert et al., 2001).

AT focuses on the engagement of the client and therapist in some type of adventurous activity such as rock climbing or ropes courses. This serves as the medium for the psychotherapy in which clients are placed outside their comfort zone.

Clients often perceive a high level of risk, whereas the actual risk is much lower (Peel & Richards, 2005). However, Davis-Berman and Berman (2002) suggested that risk or perceived risk need not be a factor in adventure programming and that emotional safety should be afforded the same attention as physical safety. In their view, perceived risk is a subjective experience that may be counterproductive or even damaging for some individuals.

Adventure therapists and leaders should be alert to the anxiety levels of their participants. Berman & Davis-Berman (2005) recommended a paradigm shift from risk to emotional safety in order to incorporate intrinsic motivation as the primary change agent in adventure therapy and thus operate from a positive rather than a deficit

perspective by helping people to find and use their strengths in a supportive context. However, this description seems to more closely match the philosophy of therapeutic adventure (TA).

Itin (2001) distinguished between therapeutic adventure and adventure therapy by comparing practitioner credentials, processes, and outcomes. Attempting to facilitate behavioral change directed at the meta-process level, a certified mental health provider conducts adventure therapy with a population traditionally thought of in the clinical context.

Therapeutic adventure, on the other hand, is aimed at lessening the occurrence of behaviors that reduce the quality of life and increasing behaviors that enhance life. A trained adventure therapist may provide a potentially therapeutic adventure experience, such as a canoe trip, but knows when to make the transition to specific therapy based on an individual client's needs. Therefore, it is important that adventure therapists have training in both the tools and techniques of adventure work and the mental health field.

Those who provide therapeutic adventures and simply allow clients opportunities for self-discovery and personal growth may not need to be certified mental health providers but should have experience as a helping professional, such as an educator, counselor, or social worker, in addition to being trained in their area of adventure expertise (Alvarez & Stauffer, 2001).

OET in all its forms is a relatively new field with a limited number of empirical studies. However, there is promise in the possibility of effective adventure-based social skills interventions for gifted individuals with AS/HFA using the OET framework. Although it has not been specifically tested for those with AS/HFA, OET appears to have

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most of the common components of successful social skills interventions for that population. It takes place in a naturalistic environment, involves adult scaffolding of activities, and includes peers. In many cases, adventure-based programming also takes into account the special interests of the participant.

The benefits of OET programming fall into three primary realms—physical, psychological, and social. The physical benefits of adventure-based programming may include potential increases in strength and endurance along with reductions in weight and hypertension (Paffenbarger et al., 1991).

Most of the psychological gains have been reported in the areas of self-esteem and internal locus of control (Hans, 2000). Since OET activities are group oriented, social skills are often enhanced. To determine group goals, establish guidelines, and give and receive constructive feedback, communication skills must be utilized effectively (Ewert et al., 2001).

OET has been utilized as both treatment and enrichment for a wide variety of groups ranging from adjudicated youths to adult managerial professionals to those with physical or mental disabilities. In the next section, relevant research is reviewed in an attempt to delineate which OET approaches have shown promise to enhance social skills for adolescents and may be best suited for the gifted with AS/HFA.

For the purpose of the review, only studies which focus on individuals from ages 10 to 20 were included, with an emphasis on studies reported since the year 2000. The selected studies, which include both quantitative and qualitative research, were categorized into two areas—adventure therapy (AT) which includes wilderness therapy, and therapeutic adventure (TA) which includes the therapeutic wilderness environment.

These categories were based on the defining characteristics discussed in the previous section including: (a) the type of OET programming, (b) the population served, and (c) the credentials of the program providers.

Adventure Therapy (AT)

Early research. Adjudicated youth are among the most prominent groups targeted by outdoor-based intervention programs, and most OET research during the 1990's dealt with that population. Wichmann (1991) documented a decrease in asocial behavior for the teenage boys he studied during a wilderness trip. Although Hadley (1994) found little change in self-esteem for the participants of a river adventure trip, a reduction in anxiety, depression and hostility was documented. In addition, during a 4- month Outward Bound adventure experience, Pommier and Witt (1995) found an increase in the ability of at-risk youths to develop and maintain a close relationship.

Two landmark meta-analyses in the 1990s spawned numerous subsequent studies. In 1994, Cason and Gillis conducted a meta-analysis of 43 empirical studies and found that adolescents who participated in Adventure Therapy (AT) were 64% better off than the control group, with the most significant differences shown on clinical scales of depression and anxiety. Researchers reported a moderate average effect size of 0.31, which included self-concept (0.34), behavioral assessments by others (0.40), locus of control (0.30), attendance at school (0.47), and school grades (0.61). AT was equally beneficial for all adolescent populations studied, including the behaviorally disordered, juvenile offenders, and those with mental and/or emotional problems. In their analysis, length of program proved to be the only moderating variable with longer programs having a greater average effect size (0.58) than medium (0.19) and short programs (0.17). Similarly, but on a much larger scale, Hattie, Marsh, Neill and Richards (1997) examined the effect sizes drawn from 96 adventure program studies which targeted mostly adolescent populations. The median length of programs studied was 22 days. As in the Cason and Gills (1994) analysis, program length was isolated as a moderating factor. Effects were greater for programs longer than 20 days, both immediately following the program and at follow-up. The studies also revealed overall positive effects for leadership, self-concept, internal locus of control, independence, challenge, flexibility, social competence, cooperation, and interpersonal communication. The average effect size at the end of the programs was in the moderate range (0.34). Rather than decreasing with time, the initial gains were followed by additional effect size gains between the end of the program and the follow-up assessments (0.17).

Though these results are compelling, limitations to meta-analysis methodology must be taken into account. Meta-analyses are only as reliable as the studies they synthesize. According to Neill (2003), some low quality adventure therapy research studies have not reported sufficient descriptive statistics nor used standardized outcome measures. Hattie and colleagues (1997) were disconcerted by the number of studies that included only anecdotal evidence and analyses that were merely correlational.

Another weakness of the meta-analysis is its dependence on published research. Since journals tend to publish only those studies with statistically significant results, a meta-analysis may unwittingly overestimate the positive effects of the program (Neill, 2003). The effect sizes of a meta-analysis can support only claims that adventure therapy programs work. How, why, and with whom they work best is still a largely unexplored area for researchers. **Recent research.** In a recent study involving 23 individuals with cognitive difficulties taking part in a canoeing and camping trip lasting 3 to 5 days, the participants' recreational skill levels and their social competencies increased (McAvoy, Smith, & Rynders, 2006). Levels of satisfaction were very positive, especially in areas that dealt with friendship, safety, and learning new things. Follow-up data were equally positive, with comments indicating that participants felt more comfortable working collaboratively in groups. While skills were measured by self-report and the small sample size limited generalization, this study supported research that has suggested a correlation between leisure skill development and social development leading to greater peer acceptance (Chiang et al., 2004).

Often difficult to engage in a traditional counseling experience, adolescents tend to respond more positively to an action-oriented approach such as wilderness therapy. Cross (2002) found that a 5-day rock climbing intervention significantly influenced atrisk adolescents' feelings of alienation and their perception of control in a positive way. Using demographic survey data, the study employed a matched control group consisting of 34 students from an alternative high school. Besides daily rock climbing, the experimental group engaged in scheduled discussions about the activities and in individual reflection through journal writing.

Using the New Multidimensional Measure of Children's Perceptions of Control (Connell, 1985), locus of control was measured in four domains—general, physical, social, and cognitive. The Dean Alienation Scale (Dean, 1961) assessed feelings of isolation. Though the two groups scored the same before the intervention, the

experimental group demonstrated a stronger sense of control and a lesser sense of alienation than the control group after the rock climbing intervention.

Since no significant differences were identified for the independent variables of gender, ethnicity, and family, the majority of the variability was attributed to the treatment. With a larger sample, other differences may have surfaced, but the use of a matched control group lends substance to the findings in spite of the small sample size.

Using a qualitative multi-site case study approach, Russell and Phillips-Miller (2002) examined the experiences of 12 clients in four established wilderness therapy programs. Through analysis of interviews and field observations, researchers concluded that wilderness therapy facilitated a desire for participants to confront their problem behaviors and initiate a change for the better.

A recent quasi-experimental study by Larson (2007) investigated the effects of an adventure camp program on the self-concept of youth with behavioral problems. From 85 adolescents with behavioral problems who voluntarily attended a 5-day adventure camp, 31 male and female adolescents were randomly selected for the experimental group. The control group was randomly selected from 80 adolescents with behavioral problems who were undergoing behavioral modification treatment at a residential treatment center.

The Piers-Harris Children's Self-Concept Scale (PHCSCS) (Piers, Harris, & Herzberg, 1984) was administered as a pretest and posttest to both groups. There was no significant difference in self-concept between the experimental and control groups' gain scores, except in the 9 to 11-year-old age group (Larson, 2007). This finding may support the idea that self-esteem is formed early in life and is relatively stable, although it continues to be modified as an individual matures (Purkey, 1988).

In an interpretive study with 9 teenage girls who were residents of a psychiatric facility, Autry (2001) found a positive impact after 4 days of experiential adventure activities including backpacking and ropes courses. Themes that emerged from semi-structured interviews were an awareness of trust in oneself and others, a sense of empowerment, recognition of personal values, and the improvement of teamwork. However, a negative sub-theme was also revealed, focusing on the inability to transfer the values learned back into the residential treatment center environment.

In an attempt to explore the efficacy of OET programs in the wilderness therapy context, Russell (2003) conducted a large-scale multi-site study and coined the term Outdoor Behavioral Healthcare (OBH). He collected a Self-Report-Youth Outcome Questionnaire (SRY-OQ) (Burlingame, Wells, & Lambert, 1996) from 523 adolescent clients, as well as a Youth Outcome Questionnaire (Y-OQ) (Burlingame et al., 1996) from 372 parents of the youths, prior to and following the OBH programs.

The clients ranged in age from 16 to 18 years and presented a variety of mental health issues, including oppositional defiant disorder, substance abuse, and depression. Sixty-nine percent of participants were male. The subscales of the SRY-OQ and the Y-OQ "assessed symptoms associated with (1) Interpersonal Distress, (2) Somatic, (3) Interpersonal Relations, (4) Critical Items, (5) Social Problems, and (6) Behavioral Dysfunction" (Russell, 2003, p. 365). As a note of explanation, the Critical Items scale dealt with symptoms such as paranoia, mania and eating disorders, while the Somatic scale referred to physical symptoms, such as headaches, nausea and dizziness

(Burlingame et al., 1996). The higher the score reported, the more severe the symptoms were judged to be.

Overall group mean scores for client self-reports decreased by an average of 21.59 points after participation in the OBH program. On three of the subscales— Interpersonal Relations, Critical Items, Somatic—clients posted an average score at or below the normal cut-off score at discharge. Critical Items and Behavioral Dysfunction were assessed by parents of clients as being at normal levels at discharge. It is noteworthy that programs in which participants spent the longest time in the wilderness (8 weeks) and programs including behavioral education demonstrated the highest statistical reduction in symptoms. Since at-risk adolescent clients are often resistant to therapy, another encouraging finding was that 97% of the clients who entered the treatment program completed it (Russell & Phillips-Miller, 2002).

More important, a follow-up study indicated that the gains were maintained after 12 months. Although Russell's large-scale study helped to provide a basis for evaluating the efficacy of OBH in a wilderness setting, results must be interpreted cautiously since there was no control group. Moreover, because no attempt was made to match specific programmatic elements to outcomes, a replication study to address that issue would be a valuable addition to this line of research (Russell, 2003).

The longitudinal value of Russell's work was expanded when he contacted the parents of the participants 24 months post-treatment (Russell, 2005). A total of 88 parents and 47 youths were reached and agreed to participate. A qualitative case-study design using semi-structured interviews was employed.

Parents were asked to rate their child's current status and to describe the aftercare treatment. Adolescents were asked to reply to the same questions from their perspective. Eighty-seven percent of the youths were either in school or working according to their parents and were described as "doing well" or "doing very well." Youth responses revealed that the majority continued to struggle with substance abuse and had difficulties forming friendships. Nonetheless, 80% of the parents and 95% of the youths surveyed perceived the AT treatment as effective, particularly in the area of family communication.

The aftercare treatment, which most adolescents attended for an average of 6 months, garnered mixed reviews (Russell, 2005). While the majority of parents expressed views that it was critical to the transition process, their children were more ambivalent. With the diversity of aftercare programs employed, ranging from halfway houses to living at home and attending weekly therapy sessions, it is difficult to assess relative effectiveness of each type. Separating the effect of the initial treatment from the effect of the aftercare process is also problematic. However, the overall long-term effectiveness of OBH is supported by Russell's work, which is one of the few longitudinal studies in the field.

A meta-analysis by S. J. Wilson & Lipsey (2000) supported the continuing use of outdoor programming for delinquent youth. Researchers found that the recidivism rate for program participants was 29% while the rate for comparison subjects was 37%. Programs involving relatively intense activities or those enhanced with therapy, such as individual or family counseling, produced the greatest reductions in anti-social behaviors.

This finding suggested that short-term intensive programs with therapeutic elements might be the most cost-effective approach in the optimal treatment of this

population. Advising caution in interpreting the results of the meta-analysis, the authors conceded that few studies included in their synthesis employed rigorous methodologies, such as random assignment and control groups.

Implications. Research presented in this section suggests that adventure therapy and wilderness therapy help at-risk youth, including those with behavioral or psychological issues, face their problems and began to deal with them. Russell's (2005) work demonstrated that the wilderness therapy experience had long-lasting effects. Some of the youths still had problems with substance abuse and friendships, but most were able to cope well enough to remain in school. Although the clients in Russell's study still received psychological or behavioral therapy from a licensed practitioner in the field, the bulk of the literature supports the fact that the effectiveness of outdoor therapy outweighs therapy in a residential clinical setting.

This advantage was most likely due to a combination of factors, including the tendency of adolescents to enjoy intense physical activity, often with an element of risk; the intensified reality-based nature of the experience; the opportunity for adolescents to develop relationships with a therapist in a novel environment; and the social microcosm which required group interdependence and lessened feelings of alienation. Future research in this area is needed both to solidify the evidence that adventure and wilderness therapy is effective and to discover which program elements and lengths work best for differing categories of at-risk youth.

Therapeutic Adventure (TA)

TA is an adventure-based experience that allows opportunities for personal growth as a result of a challenging, and often novel, natural environment. Participants in

the studies in this section are youths who are not at risk or who do not have obvious physical or mental disabilities. Since TA is a relatively new branch of OET, no early research studies exist, although the early studies and meta-analyses of AT certainly have implications for TA.

The facilitators of the experiences in this research have had training in experiential techniques and may have some counseling skills, but they are not typically licensed therapists. Thus they are not operating from a deficit position, but from an enhancement and enrichment paradigm. One criticism of TA programming is that the outcomes are general and are not associated with specific program elements. Several current studies have attempted to bridge that gap.

Current research. A study by Sibthorp (2003) demonstrated that perceptions of personal empowerment and learning relevance were associated with positive changes in self-efficacy. A follow-up study explored the connection between participant expectations and the development of effective life skills when participating in an adventure program (Sibthorp & Arthur-Banning, 2004). Results indicated no mediating role for learning relevance, but perceived personal empowerment was a mediator between participant expectations and the development of life effectiveness.

A recent study confirmed the importance of participant perception of personal power. Using the National Outdoor Leadership School, the research examined participant antecedents and program characteristics that might result in participant growth across six outcomes—"communication, leadership, small group behavior, judgment of personal empowerment, and previous expedition experience" (Sibthorp, Paisley, & Gookin, 2007, p. 1). Through the use hierarchical modeling with a large sample size of 663 participants, the authors found that both the participants' perceptions of personal empowerment and previous expedition experience were related to increases in all six targeted outcomes. The outcome analysis also indicated that participants demonstrated greater personal growth during longer programs. This conflicts with earlier findings in a meta-analysis by S. J. Wilson and Lipsey (2000) concerning wilderness programs for delinquent youth, which suggested that short programs had as much effect as longer programs. However, the difference could be explained by the characteristics of the population being considered, as well as the additional behavioral therapy, rather than the length of the program.

While the results of meta-analyses have shown statistically significant increases in self-esteem as a result of adventure-based programming (Cason & Gillis, 1994; Hattie et al., 1997), recent research has reported inconsistent findings. To investigate the claim that TA increases self-esteem, a quasi-experimental study was conducted with 265 adolescents participating in a 3-week Actionquest adventure program in the British Virgin Islands (Kaly & Heesacker, 2003).

The program focused on developing skills in sailing, scuba diving, windsurfing, water skiing, and hiking. Three sessions were offered, each consisting of exactly the same programming. Participants of session 3 served as a control group. During sessions 1 and 2, participants were randomly assigned to a pretest/posttest condition or to posttest only condition. Each pretest/posttest participant completed Rosenberg's Self-Esteem Scale (Rosenberg, 1965) and the Extended Objective Measure of Ego Identity Satus-2

(Bennion & Adams, 1986), as well as demographic questions and a subjective appraisal of the program.

In contradiction to two major meta-analyses (Cason & Gillis, 1994; Hattie et al., 1997), self-esteem scores were not found to be affected by program participation (Kaly & Heesacker, 2003). However, in both meta-analyses, the majority of studies were conducted with at-risk youth, whereas participants in this study had no apparent behavioral or mental problems. In addition, global self-esteem scales such as the Rosenberg may not effectively measure the multidimensional nature of self-concept. If only certain dimensions of self-esteem, such as locus of control, are impacted by TA, a global self-esteem scale may not provide an adequate evaluation. Participants in the Actionquest program, particularly males, significantly benefited in the area of ego-identity development. This finding tends to support the use of adventure programs to facilitate personal development (Kaly & Heesacker, 2003).

Although there is an abundance of anecdotal evidence claiming the development of positive psychological characteristics in participants of outdoor adventure educational programs, a recent empirical study by Sheard and Golby (2006) did not support those claims. The convenience sample consisted of an experimental group of 26 college students who were enrolled in a 3-month outdoor adventure education class, while the control group comprised an equal number of college students enrolled in a travel and tourism course. All participants were naïve as to the intent of the study.

The outdoor adventure education course was taught through traditional classroom methods in addition to participation in TA activities. Travel and tourism students were taught using traditional classroom methods only. A pretest and posttest were administered to both groups on six psychological scales measuring mental toughness, hardiness, dispositional optimism, self-esteem, self-efficacy, and positive/negative affectivity. To allow for differences in pre-intervention scores, multivariate analysis of covariance was used to analyze the data.

No statistically significant differences were found between students enrolled in the outdoor education course and those enrolled in the travel and tourism course (Sheard & Golby, 2006). Furthermore, there were no significant gender differences. The authors conceded the possibility that the particular type of activities in the program were not as conducive to positive personality changes. Another possibility presented was that the college course was not as intensive as the residential program model that was the basis for the many of the studies citing improvements in the self-esteem meta-analyses. To resolve this question, the authors recommended a replication study in a residential adventure program.

Another study investigating self-esteem combined Adlerian thought with cooperatively-based adventure therapy (Wick, Wick, & Peterson, 1997). Adler believed that human beings internalize concepts of themselves from within a social context and that as children mature, they learn to be successful in activities that benefit others as well as themselves, thus developing self-esteem in tandem with a social conscience (Adler, 1928). A group of 42 fifth graders participated in a 30-minute session once a week for 6 weeks. Posttest results revealed gains in self-esteem as measured by the PHCSCS, but this was not a controlled experimental study and there may have been confounding variables, though none were identified. A meta-analysis by Hans (2000) which included 14 studies (primarily TA) and a total of 1,632 subjects also attempted to link a frequently cited outcome of TA—locus of control—with program characteristics. Whereas the analysis provided only minimal insight into which TA features are involved with locus of control increases, two possible moderators were program goals and daily duration.

A second purpose of the study was to replicate effect sizes (0.30) concerning locus of control from two previous comprehensive meta-analyses (Cason & Gillis, 1994; Hattie et al., 1997) in a population which was not at risk. In fact, Hans's analysis revealed a slightly higher effect size of 0.38, which lends more support to increased locus of control as an overall outcome of multiple types of adventure-based programming.

Another study that explored group cohesion as a social benefit of TA involved 167 adolescents between the ages of 11 and 14 who participated in a 1-day low-elements challenge course (Glass & Benshoff, 2002). A low-elements challenge course consists of structured tasks which require group cooperation, such as making sure everyone crosses a swinging log. The study utilized a questionnaire with a pre-treatment and post-treatment design.

A statistically significant increase in mean scores was found, suggesting that group cohesion increased as a result of participation in the low challenge course activities. The race, age, or gender of the participant had no significant effect on the results, suggesting that this type of TA program, even one of short duration, promotes group bonding across demographic differences. Unfortunately, the study suffered from both the lack of a control group and the lack of data sufficient to support generalization and maintenance. Goldenberg, McAvoy, and Klenosky (2005) conducted a large scale quantitative study with 216 Outward Bound course participants who had participated in backpacking, canoeing, rock climbing, solo (reflection time), a service project, and a personal challenge event. Participants, who were primarily between 14 and 17 years old, completed courses ranging in length from 4 to 21 days. They were then asked to list the outcomes they received as a result of each program component.

The most frequently cited outcomes were "physical fitness (listed by 34.7% of the study participants), followed by relationships with others (20.8%), self-confidence (19.9%), self-reliance (16.7%), appreciation (16.7%), teamwork/cooperation (15.7%), personal growth/challenges (15.7%), and knowledge/awareness (15.3%)" (Goldenberg et al., 2005, pp. 130,131). The final step was to ask the participants which program component(s) led to the outcome(s). Hierarchical value maps were constructed demonstrating the ties between the attribute, consequence, and perceived value.

An analysis of the data supported previous studies which showed that outdoor adventure programs had an impact on self-awareness, awareness of others, and group dynamics (Hattie et al., 1997). Although hampered by the lack of a control group and follow-up study, this work is important because it used a means-end analysis to determine the outcomes of various programmatic adventure elements.

Implications. For youths presenting only the typical emotional and psychological instability of the adolescent years, TA would seem to provide an opportunity for personal development. Though increased physical fitness was perhaps an obvious outcome for participants, some studies showed that participants also felt an overall increase in life skills.

Results related to overall self-esteem enhancement were mixed, perhaps due to the differences in the ages of the participants or the length and type of therapeutic experience. However, evidence abounds that at least one area of the self-esteem construct was positively affected—locus of control (Hans, 2000). Identity development, leadership skills, and group cohesion are also areas that the reviewed literature suggested might be enhanced for youth who participate in TA.

Anderson and colleagues (1997) argued that the outdoor environment also increased group development by enhancing social integration, even when the group had diverse ability levels. Individuals with disabilities enjoy natural areas and seek the same kind of challenges that those without disabilities enjoy (Anderson et al., 1997). For participants with or without disabilities, inclusive therapeutic adventure programs have produced gains in self-esteem, positive behavior changes, growth in personal relationships, increased empathy and sensitivity to the needs of others, and a greater willingness to take risks (Anderson et al., 1997; McAvoy & Estes, 2001).

Implications for the Gifted (including those with AS/HFA)

In helping to guide the social and emotional development of gifted adolescents, Cross (2004) recommended encouraging them to enjoy nonacademic activities to relieve stress and to provide additional areas for personal growth. Opportunities for TA or wilderness activities, such as Outward Bound or the National Outdoor Leadership School, could help to fill that need while promoting physical health and well-being. In addition, since leadership is an area of giftedness for some, TA would present an opportunity to hone and develop those skills. In one of the few empirical studies which involved gifted students and TA (Smith, Smith, & Barnette, 1991), the impact of a program model for developing leadership skills in gifted students was evaluated. Similar to the Project Adventure type of physical and simulated challenges, one component of the leadership program consisted of highly structured activities, such as getting a group of ten people over a 12-foot wall.

Cognitive and affective components were integral to the model. Participants rated the physical group challenges as the most influential component of the program in learning about the importance of teamwork, trust, and risk-taking. A follow-up study after three months indicated that the students were still applying program knowledge and skills.

Identity development is another product of therapeutic outdoor opportunities, according to the reviewed research (Kaly & Heesacker, 2003). In his study of urban gifted high school males, Hébert (2000) found that participants' success was linked to a strong belief in self, which empowered them to face the challenges of life. This internal locus of control is one aspect of belief in self that has frequently shown increases in TA research literature (Hans, 2000).

Perhaps one of the most beneficial outcomes of TA for gifted adolescents is the increase in group cohesion and cooperation reported by many participants (Goldenberg et al., 2005). Being gifted in the anti-intellectual climate pervasive in today's high schools often exacts a social price. Even if the stigma of being gifted is more perception than reality, such a misperception often creates the same negative effect on social relationships (Coleman & Cross, 1988).

Partly due to asynchronous development of intellectual and social abilities, gifted adolescents frequently express feelings of being different and not fitting in with their peers (Silverman, 1997). For a gifted adolescent, a social disability such as AS/HFA exacerbates this sense of isolation (Church et al., 2000). In a TA experience, preconceived ideas about others are banished as everyone learns to depend upon and appreciate the talents, while accepting the idiosyncrasies, of their group members. In addition, the elements of "safe risk" involved may assist gifted adolescents with AS/HFA in conquering fears of social failure (Schuler, 2000).

Chapter Summary

The initial research reviewed in this chapter explicated the social information processing difficulties experienced by those with AS/HFA. In order to design an effective intervention, one must first understand the problem. The next section reviewed current social skills intervention studies for children and adolescents with AS/HFA and extracted successful common components. In the third section, research in OET was reviewed as an intervention approach incorporating most of the common components of successful interventions for those with AS/HFA. Lastly, TA was discussed as a possible intervention especially suitable for gifted adolescents with AS/HFA. No studies dealing with TA and youth with AS/HFA were found, and only one study involving gifted adolescents and TA was reported. Thus, this study of TA as a social skills intervention for gifted adolescent males provides initial data to the literature in the areas of social skills interventions for AS/HFA, giftedness, and TA.

CHAPTER III

METHODOLOGY

The purpose of this study is to investigate the impact of a 4-day therapeutic outdoor adventure on the social interactions and perceptions of social competency of gifted adolescents with Asperger's Syndrome or High Functioning Autism (AS/HFA). This chapter provides the methodology used to explore the following research questions:

- How does a therapeutic outdoor adventure affect social interaction for gifted adolescents with AS/HFA?
- 2. How do the gifted adolescents with AS/HFA perceive the social interactions occurring during the therapeutic outdoor adventure?
- 3. How has the therapeutic outdoor adventure influenced the self-perception of social competency for gifted adolescents with AS/HFA?

Theoretical Framework

Possibly the first recorded qualitative researcher was Aristotle, who taught his disciples that ideas are concepts derived through the senses that are then organized to give those experiences meaning (Rossman & Rallis, 2003). This view, that humans create contextual meaning and learn from experiences, is known as constructivism and is in opposition to the behaviorist view that human actions are the product of external stimuli. "What is seen, smelled, touched, heard, or tasted is not a fixed fact but is much dependent on the person—his or her place, time, and categories of interpretation" (Gusfield, 2003, p. 243). During the data collection process, my goal was to understand

the contextually constructed meaning of the social experiences occurring during the adventure from the perspectives of the participants.

Modern experiential learning theory is an outgrowth of constructivism and is grounded in the work of psychologists (Jung, Piaget, Lewin, Erikson, Rogers, Maslow), theorists (Dewey, James, Bruner), and philosophers (Friere, Illich). Although many scholars have influenced experiential learning theory, its origins are most clearly tied to the works of the pragmatists Dewey, Lewin, and Piaget (Kolb, 1984).

Brennan (2004) identified the dominantly cited model for those practicing outdoor experiential therapy (OET) as Kolb's Experiential Learning Theory. Simply put, Kolb's model involves four stages that operate in a cyclical fashion—concrete experience, reflective observation, abstract conceptualization, and active experimentation. According to Kolb, "The simple perception of experience is not sufficient for learning; something must be done with it" (1984, p. 42). Likewise, Joplin (1995) emphasized the actionreflection process in her view of experiential education.

Kolb's model was used in the design of the therapeutic outdoor adventure in this study. Each day consisted of activities or experiences, a time of group and individual reflection including the possibility for abstract conceptualization, and an opportunity to experiment with the social learning during the next day's activities.

Qualitative Design

Qualitative research is an overarching term that cuts across disciplines, theories, and methodologies, yet there are some characteristics which most researchers agree constitute qualitative inquiry. According to Merriam (2009), "The focus is on understanding the meaning of experience, the researcher is the primary instrument of data collection and analysis, the process is inductive, and a rich description characterizes the end product" (p. 19). Qualitative research operates from a holistic standpoint, describing a phenomenon in an effort to understand unique situations in context, with understanding, not prediction, as the goal (Merriam, 1998, 2009). In qualitative research there is no formal hypothesis. There are no a priori assumptions—only guiding questions that help frame the study (Rossman & Rallis, 2003).

It is with good reason that qualitative research is often known as "field-work." Qualitative researchers work in the real world, rather than the laboratory. They gather their data from "what they see, hear, and read from people and places and from events and activities" rather than relying primarily on written surveys or laboratory trials. Context is of vital importance in a qualitative study, because "researchers assume that human behavior is significantly influenced by the setting in which it occurs..." (Bogdan & Biklen, 2007, p. 5). Rather than attempting to organize, control, and manipulate systems to isolate and measure certain factors within them, qualitative researchers value the messiness of life (Rossman & Rallis, 2003). They are interested in the complexities of an interactive holistic phenomenon.

For 4 days and 3 nights, I was totally immersed in the context of the participants' world. In conducting this study, I camped out and engaged in the outdoor activities along with the participants for the entire adventure, while also listening, interviewing, videotaping, observing, and taking field notes. My primary role was that of an observer, although I also participated in the camping responsibilities and letterboxing activities. My role was considered "an observer as a participant" (P. M. Reeves, personal communication, February 1, 2006).

In order to be free to conduct individual interviews, write up field notes, and primarily spend time observing, it was crucial that other adults were on the trip in the role of chaperones. I was very fortunate in that two of the chaperones, Drs. Ric Schreiber and Dianne Prager, were also trained in educational research. In addition, my husband, Ric, was primarily in charge of the campsite duties, while friends Ken and Dianne Prager, both avid letterboxers, headed up those activities.

As the principal investigator, I was the primary instrument for data gathering. Certain advantages derive from the use of the human instrument to gather and analyze data as opposed to an inanimate instrument, such as a computer. The human instrument can adapt to changes in context immediately, whether they be verbal or nonverbal. The researcher can clarify if necessary, check with interviewees for understanding, and probe interesting or unanticipated responses for further elaboration (Guba & Lincoln, 1981; Merriam, 2009; Merriam & Associates, 2002). Since one of the characteristics of those with AS/HFA is a deficit in conversational reciprocity, it was especially important to know how deeply to probe in an interview situation. I was able to sense if the participant was becoming uncomfortable and redirect or conclude the interview as needed. I was also able to judge when a participant had more that he would like to say and go deeper into that line of questioning or extend the interview.

On the other hand, because the primary research instrument *is* a human being, subjectivity is inevitable. Waiting until the end of the study to admit personal biases is a mistake according to Peshkin (1988). He urged qualitative researchers not only to acknowledge subjectivity, but also to systematically seek it out while the research is in progress in order to create an awareness of how subjectivity may be compromising the study and its outcomes. "Untamed subjectivity mutes the emic voice" (Peshkin, 1988, p. 21).

By creating a researcher bias statement (included at the end of this chapter) and sharing it with my participants before the therapeutic adventure, I acknowledged my potential biases from the beginning of the study. This helped me to proceed with awareness as I attempted to recreate the view of their experiences. Some qualitative scholars refer to this as reflexivity—a metacognitive process involving an ongoing conversation with oneself. "The ideal result from this process is reflexive knowledge: information that provides insights into the workings of the world and insights on how that knowledge came to be" (Berg, 2007, p. 179).

Rossman and Rallis (2003) defined reflexivity in a slightly different way, calling it "a simultaneous awareness of self and others and the interplay between the two" (p. 9). In both shades of the definition, however, self-awareness is an embedded component. I attempted to maintain self-awareness during the study and engaged in a running metacognitive dialogue as I fleshed out my field notes. This process made my observations more precise and meaningful, while providing analytic insight during interpretation.

Reflexivity contributes to the evolving nature of qualitative research. Actions can be altered, even in the midst of data gathering, depending on what the researcher decides is appropriate based on growing knowledge and the participants (Rossman & Rallis, 2003). Since this was a novel environment with a unique population, it presented unforeseen challenges. Having the flexibility to modify my data collection procedures as necessary was a great advantage of being the main instrument for data collection. The data collected during the study were analyzed from the bottom up, by induction rather than deduction. Interview and observations were coded, and categories and emergent themes were identified through the constant comparative method (Glaser & Strauss, 1967). After analysis, when emergent themes were identified, I examined the themes holistically. That addressed my guiding question of understanding the total experience from the participants' point of view. I then determined which themes most informed my more specific questions regarding social interactions and perceptions of social competency. Through my observer/participant lens, I made sense of what emerged from the data and interpreted the results in a meaningful way that allowed the voice of the participants to be heard and that attempted to aid others in understanding the unique world of gifted male adolescents with AS/HFA.

Not only are the content and process of qualitative research distinctive, the product is as well. The use of words and pictures, rather than numerical data, comprises the vehicle the researcher uses to convey findings (Merriam, 1998, 2009). Although one facet of this study involved observational data, the primary focus was the participants' understanding of the social interactions during the therapeutic adventure, as well as their self-perception of social competency. In Chapters IV and V, the context, the participants, and their activities are described in detail. This account is supplemented by direct quotations from the participants. Such a detailed description is offered to facilitate understanding by helping the reader enter the world of the participants. Readers will vicariously experience the therapeutic outdoor adventure through the eyes of gifted adolescent males with AS/HFA, promoting understanding and suggesting possibilities for future research.

In summary, the evolving, experiential, interpretive nature of my study was wellsuited to a qualitative approach. Since my guiding questions were formulated with the goal of understanding the social experiences and perceptions of the participants in the context of a therapeutic outdoor adventure, the qualitative methodology was most appropriate.

Case Study

After an examination of the focus and methodology of the eight basic approaches to qualitative research outlined by Merriam (2002), I decided the case study method was most appropriate for my study to investigate the perceptions of gifted adolescent males with AS/HFA during a therapeutic outdoor adventure.

A detailed examination of one setting, subject, or event is referred to as a case study (Bogdan & Biklen, 2007). The goal of a close examination of a specific case is to understand a larger phenomenon. By providing detailed description of a single event, the reader's understanding will be illuminated and extended to a more complex set of events (Rossman & Rallis, 2003). Merriam (1998) elaborated:

A case study design is employed to gain an in-depth understanding of the situation and meaning for those involved. The interest is in process rather than confirmation. Insights gleaned from case studies can directly influence policy, practice, and future research....Case studies are differentiated from other types of qualitative research in that they are intensive descriptions and analyses of a single unit or bounded system (Smith, 1978) such as an individual, program, event, group, intervention, or community (p. 19).

Like ethnographies, case studies are methodologically eclectic. Case study researchers may employ questionnaires, psychological testing, and educational or medical records, in addition to the more traditional qualitative methods of interviewing and observing (Rossman & Rallis, 2003).

Since "the case" is the unit of analysis, it is "the case" that sets this type of study apart from other methods of qualitative research. Case studies are often combined with other types/methodologies to produce hybrids such as ethnographic case studies and phenomenological case studies (Merriam, 2009; Merriam & Associates, 2002). Case studies are sometimes described by an overarching purpose: description, interpretation, or evaluation (Merriam, 1998, 2009). Therefore, a case study can be identified by a discipline, a purpose, or a combination of both.

Because the unit of analysis in this study was a single bounded system—the 4-day therapeutic outdoor adventure—a case study approach seemed appropriate. The nature of the outdoor adventure, with a limited number of participants and predetermined time frame, was also a good fit for this approach. In addition, according to Yin (2003), when the researcher does not control the interactions of the participants, as was true in this investigation, a case study approach is pertinent. Moreover, the fact that the sample was atypical and that the therapeutic outdoor adventure program was unique only helped to reinforce the applicability of this method.

Abramson (1992, p. 190, as cited in Merriam, 2009) emphasized the value of unique cases:

First, since such data are rare, they can help elucidate the upper and lower boundaries of experience. Second, such data can facilitate...prediction by 93

documenting infrequent, non-obvious, or counterintuitive occurrences that may be missed by standard statistical (or empirical) approaches. And finally, atypical cases...are essential for understanding the range or variety of human experience, which is essential for understanding and appreciating the human condition (p. 46).

The purpose of my study was aligned with what Merriam (1998) espoused as the purpose for case studies: "to gain an in-depth understanding of the situation and meaning for those involved" (p. 19). A case study methodology allows for the presentation of the data in a manner that allows readers to personalize the experience (Yin, 2003).

While no studies were uncovered dealing specifically with gifted adolescents with AS/HFA in a therapeutic adventure context, the case study approach has demonstrated success as a vehicle for giving voice to those with AS/HFA. Portway and Johnson (2005) used purposive sampling and unstructured interviews in their phenomenological case study of the alienation of young adults with AS. Through use of the constant comparative method, themes of being misunderstood, bullying, social rejection, and loneliness emerged.

Similarly, Carrington, Templeton, and Papinczak (2003) employed a case study approach when they investigated student perceptions of friendship by adolescents with AS. The resulting data from these earlier qualitative studies, while arguably not explicitly generalizable, aligned with the purposes of my investigation and helped to solidify my decision to use the case study methodology.

Through the interpretation of the data collected, I have attempted to illuminate the reality constructed from the experiences of 4 gifted adolescent males with AS/HFA on a

4-day therapeutic outdoor adventure and endeavored to describe the perceived impact the trip had on the participants in the area of social competency.

Sample Selection

In a qualitative research study, sample selection is usually nonrandom, purposeful, and small. Since gaining understanding and not generalization of findings is the goal of most qualitative research, there is no need for random sampling. Purposeful sampling is the method that most qualitative researchers employ. This procedure is based on the idea of choosing a sample from which the most can be learned—in other words, cases that are rich in information (Patton, 1990). Some researchers prefer the term "criterion-based selection" because it reflects finding a sample with attributes that meet the specific criteria of the study (LeCompte, Preissle, & Tesch, 1993).

Both the type and size of the sample must be related to the research questions (Ezzy, 2002). A typical sample may reflect the average person, while the unique sample reflects the atypical person associated with a phenomenon. A purposeful, unique sample was selected for this study as it sought atypical information-rich cases.

Criteria and Rationale

In this study, the sample consisted of 4 male gifted adolescents with AS/HFA from the metropolitan Atlanta area. Selection criteria required that the participants be: (a) male; (b) 14-18 years old; (c) eligible for gifted services according to at least one of the Georgia state criteria; (d) diagnosed with AS/HFA according to DSM-IV(American Psychiatric Association, 1994) criteria (Appendix A); (e) willing and able to participate in interviews before, during, and after the trip; and (f) allowed to participate in the study by parents/legal guardians willing to sign consent forms. Why only 4 participants? The rationale for choosing only 4 participants was fourfold. First, my goal was in-depth understanding of unique individuals and their perceptions. Observing more than 4 participants would be daunting, and conducting daily interviews with more participants than that almost impossible. Secondly, gifted male adolescents with AS/HFA constitute a very unusual population. Locating more participants in the Atlanta area might have been difficult. Thirdly, the campground specifications would allow only six tents on a campsite. Knowing that those with AS/HFA often need a place to be alone, I planned the trip so that each participant would have his own tent. With two tents for the researchers, we were at the campsite limit. Lastly, the expense of a larger group had to be considered. To encourage the young men to participate, the entire trip—including food for 4 days, camping expenses, and letterboxing supplies—was complimentary. Scholarship funds received to complete my doctoral study made this possible. Budgeted funds could support a maximum of 4 participants.

Why all adolescent male participants? Although adolescent females are diagnosed with autism spectrum disorders (ASD), males outnumber females in a 4:1 ratio (Centers for Disease Control and Prevention, 2009). Moreover, data from the Belin-Blank Center Assessment and Counseling Clinic reported the male to female ratio as 7:1 among those who are gifted and referred for ASD assessments (Assouline et al., 2009). In addition to the relative rarity of gifted girls who have been identified with AS/HFA, the potential problems of chaperoning a mixed-gender group on a 4-day trip helped confirm my decision to recruit only males.

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The age range of 14-18 was also determined in consideration of the extended overnight nature of the trip. The degree of independence required would have been inappropriate for younger children. Furthermore, the therapeutic adventure demanded a level of hiking and camping skills that younger children typically do not possess.

Recruitment

The adolescent participants were recruited with the help of an autism intervention specialist in a metropolitan Atlanta school district. Since the intervention was not a school sponsored event, flyers were not distributed at the schools. After work hours, the intervention specialist spoke personally with the parents/guardians of those students who met the above criteria and explained the basics of the study. If the parents/guardians were interested in the possibility of their son participating in the study, the intervention specialist requested permission to give me their contact information, so that I could explain the study in more detail. She then provided me with telephone contact information for four young men.

After the telephone contacts, the parents of all four of the young men expressed an interest in attending a parent informational meeting to find out more about the therapeutic adventure trip. However, one of the young men told his mother that he "wasn't like those boys" and flatly refused to go. She suggested that I try e-mailing her son to explain more about the study and the trip to encourage him. I did so, but he still adamantly refused.

Even though I was 1 participant short of my goal of 4, I felt it necessary to proceed with the planned parent informational meeting. The adventure trip had been

planned to take place April 4-7, 2009, during the week of spring break, so that the students would not miss any school time. That was only 2 weeks away.

Informational Meeting

During the luncheon meeting at a local restaurant, I distributed informational packets containing my recruitment flyer (Appendix D), the Stone Mountain Adventure itinerary (Appendix E), parent permission form (Appendix F), participant assent form (Appendix G), medical information forms (Appendix H), request for withdrawal from the study form (Appendix I), letterboxing information (Appendix J), and maps of Stone Mountain Park.

Ric, Dianne, and I introduced ourselves with a brief biographical sketch that highlighted our careers as educators and, in my case, presented my researcher bias statement. I then explained the purpose of the study, reviewed the criteria for participation, assured the parents of confidentiality, discussed the logistics of the trip, and fielded questions. I also made sure that the participants and their parents completely understood the permission forms and were aware that either the participant or his parent/guardian could request to withdraw from the study at any time without penalty.

Dianne explained the hobby of letterboxing, an activity we would be participating in during the therapeutic adventure, asked the young men to choose a "trail name," and instructed them to be thinking of a design for their handmade signature stamps.

One potential participant was unable to attend the informational meeting, so I met with him and his mother two days later at their home. After hearing about the purpose of the study and the logistics of the trip, they both readily signed the necessary permission forms. I also began in earnest to explore other possibilities for recruiting the fourth participant. I first tried talking with co-workers who have relatives with AS/HFA. Unfortunately, either the children did not meet the study's age criterion or they did not meet the gifted criterion. As the time remaining before the Stone Mountain Adventure dwindled, my anxiety level intensified. I tried unsuccessfully to contact previous students who I knew met the criteria.

Just when I was running out of options, a parent of another participant called and mentioned a young man who she felt might be interested in participating (snowball sampling). Working through the school intervention specialist, I learned that the young man met the criteria and that his parents were extremely interested in talking with me about the study. Upon a personal visit to their home, I found them eager for their son to participate. The young man himself was an experienced camper and seemed excited about the adventure trip.

Data Collection

Merriam (1998) described the types of data that are collected in a case study as eclectic. Freedom is given to researchers to put more weight on the type of data that best informs their case. I used all three main types of data—interviews, observations, and documents—to varying degrees in this study.

Interviews

Interviewing is the most prominent method of data collection in a qualitative study. Interviews may be structured, following a rigid question protocol; semi-structured with open-ended questions in mind; or completely open-ended (Seidman, 1991). I chose to use semi-structured interviews, because I felt this would best allow me to tailor the interview to the individual participant while still maintaining sufficient direction to inform the research questions. (See Appendix K for interview protocols.) In this technique, a broad initial question defines the parameters of inquiry but allows the interviewee to take the question in any direction within the parameters. It also allows the interviewer to ask probing questions requiring more complex answers when appropriate (Bogdan & Biklen, 2007).

When first contemplating the design for this study, I gave strong consideration to conducting a qualitative study relying primarily on observational data rather than interviews. The concern was that adolescents with AS/HFA, given their characteristic social skill deficits, might not be willing to discuss their feelings. However, it was obvious that observation alone could not answer the research questions which guided the study.

Fortunately, in the course of reviewing research studies, these initial concerns were rendered moot when I discovered two investigations based primarily on participant interview data. One study revealed that the conversational behavior of students with AS was much the same as that of the general population (Adams et al., 2002), while another detailed interviews of adolescents with AS who freely discussed and self-reported their social issues and anxieties (Connor, 2000). Personal experience as a volunteer with young adults with AS/HFA, in conjunction with these studies, was sufficient to determine that interviewing was an appropriate and effective technique to use with this group and could generate high quality data.

During the interviews, I was ever mindful and sensitive to any sign of distress or agitation on the part of the participant and ready to redirect or terminate the interview as necessary. In addition, participants were told that they could decline to answer a particular question or end the interview at any time, although this never occurred during the interviews. All four young men readily answered questions; however, two of the participants gave much more detailed and elaborate answers than the other two.

Seidman (1991) advocated the use of a series of three purposeful interviews. This study employed a similar technique. The purpose of the first interview was to inquire about the participant's social history. The questions in that semi-structured interview served to get better acquainted with the participant and dealt primarily with the participant's previous experiences in the area of social interactions. These interviews were planned to be about an hour long, but ranged from 20 minutes to 90 minutes, depending on the responsiveness of the participant. The interviews took place during late March 2009, either at the home of the participant or at a quiet table in a restaurant. Parents, if present, were not in the room during the interview.

The second set of interviews oriented the participant to the topic of interest and gathered pertinent data (Seidman, 1991). A series of short semi-structured (10-15 minute) daily interviews during the outdoor adventure from April 4-7, 2009, served this purpose. These interviews spoke mainly to Research Question 2: *How do the gifted adolescents with AS/HFA perceive the social interactions occurring during the therapeutic outdoor adventure?* These interviews were audio recorded and took place in a setting that was as private as possible.

The third type of purposeful interview asks the participants to reflect upon their experience and its meaning (Seidman, 1991). The first interview of this type took place on the last day of the trip (April 7, 2009) and was approximately 15 minutes long. The second reflection interview took place in mid-August, 2009, 4 months after the trip

ended. The intent of the delay was to allow participants time to determine if there was any impact the trip may have had after being back in their home environments. It was also an opportunity to ascertain whether any gains in perception of social competency were maintained and/or generalized to a different environment. The responses to the reflection interviews informed Research Question 3: *How does a therapeutic outdoor adventure influence the self-perception of social competency for gifted adolescents with AS/HFA?*

Observations

Observational data are firsthand encounters with the phenomenon of interest (Merriam, 2009; Merriam & Associates, 2002). As an observer participant, I was in a position to achieve an insider's perspective. The observational data added validity to the interview data. While observations were made each day during the trip, written field notes were not always practical, such as while hiking or sitting around the campfire. As a result, I relied on video and audio data more than I had anticipated. Each day, I audiotaped our group debriefing session and videotaped informal interactions such as chores, mealtimes, and leisure activities to supplement my field notes.

Two other trained qualitative researchers were also engaged in observing, videotaping, and taking field notes to help ensure validity. This was a great advantage, as it was like being able to be in three places at one time. While I was doing a private interview with one participant, they were sitting around the campfire observing the social interaction of the other three participants. The field notes from three sources consisted of detailed descriptions of the setting, people, activities, direct quotes, and researcher comments. Two days after the trip, Ric and I met with Dianne and Ken to debrief and discuss our observations while everything was still fresh in our minds. This discussion was audio taped so that I could replay and transcribe key points. Observational data from four sources helped to weave the richly descriptive tapestry for the backdrop of the participants' constructed meanings and perceptions. These data informed Research Question 1: *How does a therapeutic outdoor adventure affect social interaction for gifted adolescents with AS/HFA?*

Documents

The third major source of qualitative data issues from documents, which can be written, visual, or material artifacts (Merriam & Associates, 2002). Documents included in this study were all researcher generated documents, created by me or by the participants at my request after the study was in progress. A document that supplied important perceptual data in this study was the Social Skills Improvement System – Student Report Scales (SSIS-SRS) (Gresham & Elliott, 2008).

The SSIS-SRS is a nationally normed social behavior assessment for screening, intervention planning, and outcome evaluation. Parent, teacher and student rating scales are available. I chose to administer the student report scales, because I was interested in the participants' perceptions of their own social competency. The seventy-five items addressed seven domains on the Social Skills scales: Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement, and Self-Control and four areas on the Problem Behaviors scales: Externalizing, Bullying and Hyperactivity/Inattention. The participants rated the frequency (Never, Seldom, Often, Almost Always) of behaviors that influence perception of social competency. An importance rating for the behaviors was also available on the student rating scales, but I did not ask the participants to complete that portion, because I felt it had limited relevance to the study.

Test-retest reliability coefficients for the SSIS-SRS given after 66 days during the norming process were r = 0.81 for Social Skills and r = 0.77 for Problem Behaviors, indicating the mean scale and subscale scores were fairly stable. The standard error of measurement (SEM) for male students ages 13-18 is ± 3.4 points on the Social Skills scales standard score (SS) and ± 3.3 points on the Problem Behavior scales SS. The confidence interval (CI) for 68% is ± 3 points (95 % is ± 7) on the Social Skills scale SS. For the Problem Behavior scales, the CI for 68% is ± 3 points (95% is ± 6).

The SSIS-SRS was administered three times—before the trip, the last day of the trip, and at the follow-up interview. Intra-participant comparison of the rating scales was pivotal in answering Research Question 3: *How does a therapeutic outdoor adventure influence the self-perception of social competency for gifted adolescents with AS/HFA?*

Although journaling was planned for each day of the adventure, it occurred only once. On the other three days, it was too dark by the time we got back to the campsite to see clearly, and the participants were extremely tired after a full day of letterboxing and other adventure activities. Some nights it was even difficult to find time for the interviews. Journal entries were intended to recount the events of the day and the participants' feelings about things that had happened. The journals were to be collected daily and used to inform the interview process; however, I found that the nightly interview and conversations around the campfire were just as effective. Even the least social of the young men indicated that he would "rather talk than write." Throughout the trip, especially during letterboxing and other adventure activities, digital photographs were used to document and supplement other data streams and augmented a portrayal of the context of the outdoor adventure.

Data Analysis

Quantitative researchers use deductive procedures to find data that support theory; qualitative researchers look for a theory to explain their data (LeCompte & Preissle, 1993). Qualitative researchers use their data to understand the meaning that has been constructed by the participants and build toward theory (Charmaz, 2006). Many approaches in qualitative research use the constant comparative method of data analysis (Glaser & Strauss, 1967).

Simply put, the constant comparative method involves comparing one unit of data with another to determine the similarities and differences and then grouping them together on a certain dimension, which becomes a category. Units of data are arranged in relationship to one another until patterns are seen, and then themes emerge from the data (Merriam, 1998, 2009). According to Ezzy (2002), the process of data interpretation should take place simultaneously with data collection. Failure to do this could "result in significant problems…researchers will have missed many valuable opportunities that can only be taken at the same time they are collecting their data" (p. 61).

Although there was not time to transcribe the pre-trip interviews before the therapeutic adventure, I listened to the recordings again after the interviews to become better acquainted with the participants and to determine courses of questioning to pursue in interviews during the trip. I did not have the time or the means to transcribe the interviews and field notes taken during the trip, but discussing them daily with my fellow researchers helped to clarify my impressions and identify directions in which to take the next interviews. Examining and discussing the field notes each night while on the trip was also a source for informal analysis.

After the therapeutic adventure, I personally transcribed all the interviews and read them while listening to the audiotapes to correct any errors. Although the transcription process was time consuming, listening and reliving the interviews was a powerful analysis tool—so much so that I began memo-writing to record my thought processes at this point, instead of waiting until after the initial coding stage, for fear of not being able to recreate the data-inspired train of thought.

Memo 4-15-09

I have heard more than once, someone talk about liking to be with those who have AS like them. Walter talks of being more patient, because the other young men are just like him. When I tell him how different they are in personality, etc., he reminds me that they are all on the spectrum. Kevin also talks about wanting to start a letterboxing club, but he doesn't want it to be for everybody. He just wants it for the kids with some type of ASD. I wonder if it is a comfort level issue? Kevin is the one who says he doesn't get bullied or picked on, that's why he surprised me when he said that.

Figure 1. Example of memo writing.

Interview notes that were written describing body language, affect, and behavior were also included with the transcripts of the corresponding interview. Field notes were fleshed out and rewritten. Salient points and verbatim quotations from audio and video tapes recorded during informal observations were transcribed. Before the last interview, which took place 4 months after the trip, I had already begun the coding process, which helped to direct the questioning in my final interviews.

Open Coding

After the transcription process, I engaged in open coding which involves reading the data with a careful eye and writing comments or questions in the margins. Strauss (1987, cited in Burg, 2007) suggests four basic guidelines: (a) be specific when "questioning" the data, (b) analyze the data using great detail, (c) write theoretical notes, and (d) never assume that data are relevant until they are shown to be.

I first tried line-by-line coding but found myself "not seeing the forest for the trees" and missing insights due to being distracted by unimportant details. I found analysis at the paragraph level the best fit for both me and the data collected during this study.

Charmaz (2006) referred to this step as initial coding and warned researchers not to leap beyond the participants' meaning, or the insider view will be missing. Patton (1990) also cautioned against forcing the data into a coding matrix just to make it work. I kept his advice in mind as I tolerated the ambiguity of finding portions of data that I considered to be significant but that did not seem to fit anywhere after initial coding.

Next, after several repetitions, I began organizing the hundreds of open coding notations into preliminary categories. I found that placing the first initial of the participant for whom I found evidence of applicability served to remind me of specific instances and helped me to eliminate categories which applied to only one participant.

Open Coding

Felt a friendship connection– W, C, K, M Felt comfortable with amount of conversation– M, K, C, W Solved problems verbally– C, W Solved problems visually– K, M

Figure 2. An example of open coding.

Focused Coding

The second step in the constant comparative method (Glaser & Strauss, 1967) is focused coding in which categories are created by combining and synthesizing initially coded data across interviews and observations. After establishing preliminary categories, I highlighted units of data with different colors corresponding to the categories, using the highlight function on Microsoft Word. One advantage of using this coding process was that it was easy to change and refine categories as necessary.

Focused Coding	
Growing as a person	Yellow
Working with others as a team	Gray
Accepting others	Green
Developing Independence	Blue
Making Friends	Pink

Figure 3. An example of focused coding.

I heeded Charmaz's advice (2006) to use action words to help preserve participant meanings and the emic perspective when doing focused coding. Additionally, Merriam (1998, 2009) gave four helpful guidelines concerning categories. They should be exhaustive, mutually exclusive, sensitizing, and conceptually congruent. I found maintaining conceptual congruence difficult to preserve until I engaged in an analysis method that Strauss and Corbin (1998) described as axial coding.

Axial coding helped to expand on a category by focusing on dimensions of the category, such as "context, strategy, processes and consequences" (Ezzy, 2002, p. 91). In order to understand the dimensions of each category, I engaged in clustering (Charmaz, 2006) by creating graphic representations, with the category in the center and the dimensions depicted as spokes. This allowed me see the categories in a new conceptual framework and enabled me to revise them and establish conceptual congruence.



Figure 4. An example of axial coding.

Selective Coding

During the coding process, I preserved my thought processes through memo writing (Charmaz, 2006) or with audio recordings. These memos and recordings became the building blocks for the emergent themes of the study. The last level of coding employed was selective or theoretical coding (Charmaz, 2006; Creswell, 2007). I was able to synthesize and subsume categories while still maintaining the integrity of the original codes and identify the core categories around which the analysis focused.

Establishing Trustworthiness

In order for research findings to be considered useful, they must show evidence of both internal and external validity, as well as reliability (Merriam & Associates, 2002). The measures taken in this study to ensure rigor are described next.

Internal Validity

Internal validity begs the question: How closely do the findings match reality? Bogdan and Bilken (2007) advised researchers to avoid the word "triangulation," purporting that it is an imprecise term that promotes confusion. They suggested that it is much more accurate for researchers to simply describe what they have done to ensure validity and reliability.

I have utilized several distinct methods of data collection in this study: a series of interviews with each participant; observations in the form of field notes, photographs, and videotape; and documents in the form of digital photos, participant journals, and the SSIS-SRS (Gresham & Elliott, 2008) to present a more diverse picture of the phenomenon. As previously mentioned, two other researchers, Ric and Dianne, were on the trip observing, videotaping, and taking field notes to supplement occurrences that I may not have observed. In addition, Ken also contributed his observations and informal analysis. After my analysis was complete, Ric conducted a separate analysis of the data using different coding methods and reached similar conclusions. In addition, Dianne read and commented on the results. Multiple sources, multiple researchers and multiple analyses added strength to the internal validity of the study.

I also performed member checks. Participants and their parents had the opportunity to review the portrayal and findings portions of the study via e-mail to ensure that the documented account fairly and accurately represented the participants and their experiences. I made minor corrections as requested, but received no requests for major changes. Internal validity was also supported by peer review performed by the autism intervention specialist who helped to recruit the participants.

External Validity

External validity deals with whether results have generalizability. This term has plagued qualitative researchers for some time, because it is thought of in terms of a prioi assumptions, such a representative random sample, that are made in the realm of quantitative research, but do not apply to the qualitative paradigm. Even with multi-site samples, it is not possible to generalize in the statistical sense. "In qualitative research, a single case or small nonrandom sample is selected precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of the many" (Merriam, 1998, p. 208).

The in-depth knowledge of the "particular" is knowledge that can transfer to other similar situations. Erickson (1986, as cited in Merriam, 1998) called these generalizations "concrete universals." This type of generalization can occur in qualitative

research. The most common interpretation of generalizability in qualitative research is "reader generalizability" which refers to the concept that readers will generalize a study in a way that is applicable to their particular situation (Merriam, 1998). Three strategies are mentioned to enhance qualitative generalization: (a) providing a detailed description, (b) describing how typical the program or person is with others in the same class, and (c) using more than one site or case (Merriam, 1998, 2009).

I was able to employ the first two of these three strategies. Multilayered description may enhance the reader's ability to use the data gathered on a therapeutic adventure with gifted adolescents with AS/HFA. Perhaps it will be personally relevant if the reader is the parent or teacher of a child with AS/HFA. Or perhaps this person can apply what was discovered to other special populations or to other social skills interventions. The gifted male adolescent with AS/HFA is clearly an atypical population, but commonalities can easily be drawn between those who are gifted or those with AS/HFA. A description of the criteria that this sample met for inclusion in the study will provide others a basis for comparison.

Reliability

Reliability in qualitative research is more concerned with whether the results follow as a logical consequence of the data than whether the findings can be replicated (Bogdan & Biklen, 2007). Strategies which help to ensure reliability in qualitative research according to Merriam (2002) include peer examination, researcher statement of bias, and an audit trail. The use of multiple sources of data, multiple researchers, multiple methods, and analysis helped to ensure not only internal validity but also reliability. I had a peer examine my findings. A statement articulating my worldview and possible bias is included at the end of this chapter. I have also created an audit trail in the form of a written record, which articulates in detail the study inception, data collection, and analysis methods, in addition to the thought processes that accompanied them. By using these measures, the study demonstrates the rigor needed to be considered reliable (Berg, 2007; Creswell, 2009; Merriam, 2009; Rossman & Rallis, 2003).

Study Limitations

One limitation of the study was the small, non-random sample. In addition, the sample was unique. The participants were all male, adolescent, gifted, and diagnosed with AS/HFA, which limited generalization. Moreover, the participants all resided in the metropolitan Atlanta area, and each participant was privileged to reside in a loving, supportive family environment. They were also independent enough to spend 4 days away from home and to agree to talk with me, a virtual stranger, about their feelings. Thus they cannot be considered representative of all gifted adolescent males with AS/HFA.

The design I chose for the study was also limiting in some ways. Because I chose to base the long-term findings solely on the participants' perceptions, there is a chance that improvements in perception of social competency may be an attempt to please me as the researcher. Parent or teacher data could also have been collected as a comparative measure. Even though I did collect anecdotal evidence from parents, I did not design the study to record it in an empirical fashion. Another limitation was that the duration of the study was fairly short. However, it was total immersion for 4 days and 3 nights and included a follow-up interview after 4 months to document long-term perceptions.

Researcher Bias

I have been a teacher for more than 20 years and have shared my classroom with all types of students. For the past 15 years, I have taught gifted students in a pullout enrichment program. During this time, an increasing number of gifted children have been diagnosed with AS/HFA. My experiences with these children have resulted in feelings of frustration regarding how to help them achieve positive social experiences, as well as a genuine appreciation for them and the gifts they possess.

Later, when I began working on my doctoral studies, it was my privilege to participate in volunteer work with a local group of young adults with AS/HFA as the service learning component of an experiential education course. My interest and understanding of this group's social difficulties grew, and I began to search for effective social skills interventions. I found there were few empirical studies documenting the efficacy of social skills interventions for high functioning individuals with ASD. However, there were indications that high interest activity-based groups may hold promise.

As I began to observe more purposefully in my classroom, I noticed that when the LEGO® blocks were out, my students with AS/HFA were accepted as contributing members at the building center. Positive social interactions also increased during that time. It was as if students with AS/HFA gained social capital by participating in an activity in which they were interested and performed well.

I began to think of other types of activities in which positive social interactions might occur and thought of my own "bonding" experiences. Many of them have occurred when I was on some sort of outdoor adventure which involved total immersion for 3 to 10 days, such as the Bike Ride Across Georgia, a sailing trip in the Florida Keys, a camping trip to Stone Mountain, or an environmental educator workshop. From my own experiences, I believe in the power of therapeutic adventure to create opportunities for social bonding and personal growth.

As it became time to begin work on my dissertation research, I began to consider designing a study to take gifted adolescents on some type of therapeutic adventure to examine whether social skills might be positively impacted. My elementary school students were too young to participate in such a trip. Moreover, involving students whom I did not teach as participants in my study was ethically preferable, so I decided to conduct research with high school students.

About this time, a good friend, Dianne, introduced me to the hobby of letterboxing. I felt certain that gifted teens with AS/HFA would enjoy the combination of hiking, orienteering, and treasure hunting aspects of letterboxing. When Dianne offered to come along and be in charge of the letterboxing logistics, the Stone Mountain Adventure was conceived.

Children and teens with AS/HFA are often teased and bullied because of their odd social behavior. I enjoy and appreciate people who are different, yet I also understand that without the necessary tools to survive in our social world, life can be difficult and unsatisfying. Finding effective interventions to increase social competency is essential for enabling those with AS/HFA to enjoy a high quality of life.

I believe that everybody has a need and a right to feel accepted and to belong. By allowing the voices of those with AS/HFA to be heard, perhaps others will understand that the supposedly odd or antisocial behavior of these individuals is not a choice, but simply a result of the differences in the way their brains are wired. Perhaps then, others will begin to overlook the social differences and appreciate the beautiful, intelligent, and talented people behind the masks that society often forces them to wear.

Without a doubt, my personal experiences with therapeutic adventure and appreciation for those who are gifted with AS/HFA, along with my strong sense of social justice, made it necessary for me to keep my biases in check during the study and its interpretation. Acknowledging my biases by writing out this statement and sharing it with my co-researchers, the participants, and their parents before the study helped me to be more conscious of maintaining objectivity.

CHAPTER IV

THE PARTICIPANTS

The participants were not blank slates when they arrived for the Stone Mountain Adventure, but brought with them all of their previous social experiences, complete with successes and failures. This chapter presents descriptions of the participants' social histories during elementary school, middle school, and high school, gleaned through the pre-trip interviews which took place approximately a week before the therapeutic adventure.

These interviews were not conducted for the purpose of formal analysis, but rather to establish rapport, to aid in understanding the participants, and to suggest how previous social interactions might impact interactions during the trip. A summary section at the end of the chapter discusses how the pre-trip interviews informed those purposes.

In order to maintain confidentiality, I have used pseudonyms and removed identifying information for all participants. Since one of the purposes of the study was to give voice and promote understanding of those who are gifted with AS/HFA, I have attempted to refrain from interjecting my thoughts and words whenever possible. I have also eliminated disfluencies and grammatical errors unless I felt that they enhanced the meaning of the discourse. I have purposefully tried to maintain a simple narrative in this section, letting those who have experienced life as a gifted adolescent with AS/HFA speak.

Walter

Walter was a few minutes late because the Outback Restaurant had an odd entrance and he drove past. Walter was a nice-looking medium-build 18-year-old with auburn hair. He was wearing jeans and a casual shirt. As we sat at a quiet table in the corner of the restaurant, he told me that one of his buddies had eaten there the previous night and contracted food poisoning. I assured him that I had eaten at the restaurant many times and had never gotten food poisoning. After the waitress brought our soft drinks, we chatted a little to break the ice before I began the formal interview. He talked mostly about one of his current passions, the graphic novel *The Watchman*. Walter was so intrigued with the main character of this graphic novel that he even chose the character's name, Walter Kovacs, as his letterboxing trail name and his pseudonym for the study. I told him that I did not know much about *The Watchman*, so he gave me some background.

At one point during the interview, I was nervously straightening my silverware because half an hour had passed and we had still not spoken at all about his social history. Seeing this, Walter asked if I had obsessive compulsive disorder. I was surprised that he had noticed my behavior and laughingly admitted that I did have some obsessive tendencies. Although it was evident that Walter would rather talk about *The Watchman* and American history than his own social history, we eventually got around to it.

Elementary School

Like many children with AS/HFA, Walter was a loner during his elementary years, having no close friends until fifth grade.

I think that kindergarten really didn't matter about social skills. I probably just played and did the alphabet, although I was a bit ahead of other people. But elementary school, that was when I was highly medicated with Adderall and it just made me anti-social. I really didn't have any friends.

I pretty much just ran around at recess. I'd lose my temper a couple of times and when I lose my temper, I do stuff physical, you know. But I think after like third grade, my dad was like, "You've got to get him off Adderall, because it's turning him into a zombie." He'd ask me a question and I'd just stare off. As far as making friends, it wasn't that easy...it really wasn't that easy. I was picked up and taught by a speech therapist, and I met some friends in there.

By fifth grade Walter had made at least two friends, and one of them he considered a good friend.

I think in hindsight, it seems like I really didn't do much of anything at recess until fifth grade. Fifth grade, Eric, Sam, and me just talked all of the time. Well, only one was a really good friend. The other one kind of tried to change me. He suggested that I change my [style of] clothes, and I was like, "Awww, I don't think I need to do that."

Walter's relationship with his teachers was mostly good, although fourth grade was a little rocky. He stayed out of trouble, unless provoked, and didn't have problems with bullies until fifth grade.

I did have a bully in fifth grade—Austin Evers. All he probably did was tease me, and I think I probably overreacted. I probably overreacted to whole lot of things that now I'd probably just be like "Uh, whatever." In describing his elementary school years, Walter explained:

I really didn't like to do much of anything. Although I tried being in a soccer league, that was for like one year, and that didn't happen. I tried being on a baseball team for two years, and I just quit that because I was like the last person on the roster. I probably only got one good hit.

When I asked if he were disappointed or upset by that, he replied, "It wasn't disappointing for me at all. I think after that I just stayed away from recreational sports."

In his free time, Walter mostly watched television. According to him, "That was when cartoons actually had a purpose. Now it's not even cartoons, it's just Hannah Montana and Jonas Brothers crap." Summing up his elementary social experiences, Walter stated, "I felt like an outsider. They had something that I didn't have."

Middle School

Walter found that the transition to middle school was not as difficult as he had expected.

So middle school was a bit easier; still I had trouble finding friends, at least at the first school. They didn't have the accommodations that I needed. My special class was pretty much like, I came in and maybe there was like the one person who was like me, or not even that. I was just stuck in with a whole bunch of lackeys, pretty much. So my mother was like, "These are not the proper accommodations."

As a result of his mother's intervention, Walter was transferred to another middle school. When I commented how fortunate he was that she had advocated for him, Walter related this about his mother: She stood up for me plenty of times, sometimes where she shouldn't have stood for me, because my dad personally thinks that all of this Asperger's stuff is mollycoddling. He's like militant...he thinks you should work for everything you get, but it's kind of hard.

Walter made friends in the new school setting and described them as having Asperger's Syndrome or other disorders.

I was put with people who were like me...worse. I started making friends and still was friends with my buddy Tyler, but he was more anti-social than I was. Some of them had Tourette's. Some others, like this guy named James, started quoting movies word for word.

When I asked Walter if he had that kind of memory as well, he answered:

I have a pretty good memory. Like I'll remember stuff from way back when. I'll remember stuff from way back when, but yet I'll forget to bring a pencil to class. That's one thing I really struggled with was having to bring a pencil to write with or something to write with. Organization—I'm terrible at it. I mean, my bookbag is a rat pack.

His struggle with organization and tendency to lose things seem to be a frequent source of frustration for Walter, his parents, and his teachers. Although he has tried many strategies, none seems to work well for him.

Walter's favorite subject until middle school had been science; it was then that Mr. Larson, who taught Georgia Studies, turned him on to history.

His stories were kind of like the catapult, but the real catapult was when I played my first *Call of Duty* [video] game. It was, umm, *Finest Hour* and I saw that, and

I just wanted to learn more about that war. And I learned...I started getting books on it and stuff like that and I eventually decided to expand my horizons.

Summing up the people he had interacted with socially during his middle school years,

Walter said, "Most of them were like me. I didn't have many 'outside' friends."

High School

When I spoke with him, Walter was a senior and had almost finished high school. I asked him to describe how that felt.

High school...high school, I feel like part of an elite, you know like in medieval times, you had your peasants and you had your lords and with the kids today ... some of my classmates, they never stop talking and they're always texting, and they're easily distracted. They can't even watch a movie, let alone do a research paper.

I also asked him on what basis his friendships were founded. "Are they more interest-based friends, or is it because you like their personality or both?" Walter answered without hesitation:

I like their personality. I want to be with someone who is not boring, you know, someone that's interesting. That's why I tend to lean towards Eric, and he pretty much punishes stupidity. He might do something we call "owning people" which is basically humiliating them, because they said something stupid....It sounds kind of mean, but we don't do it to everybody, just if people persistently do stupid things and we know that they could do better, or they think too highly of themselves.

Walter did not enroll in as many honors courses in high school as his intellectual capacity would have allowed, probably due to his lack of organizational skills, so in some cases he ended up in classes with students who exhibited little interest in learning. This was clearly a source of frustration for him:

That's one thing I do regret about high school is that I didn't take that many honors classes as I wanted to, because English right now is just unbearable. I have three absolute idiots in my English class....Cedric Johnson is actually thinking about firing Ms. Moss [trying to get her fired], who is a great teacher but who has to condescend to them. I like her because she can actually teach. It's sad that you have to condescend to all of those idiots, the waste of space that are in my class. She even told me, "You should have taken AP." But, my mom didn't think I could handle it. It's like, we're watching the *Sword and the Stone* and they're reading *Heart of Darkness*.

"Do you date or have you had a girlfriend?" I inquired near the end of the interview. Walter paused for a moment and answered:

I had one date; she wouldn't even let me put my arm around her. I opened the door for her because that's what I do, and she was like, "Why are you opening the door for me?" "Cause you're a girl." And she was like, "I ain't no [*sic*] lady."

I'm only going to the prom because I got a pity date. I'm not that good at relationships....I have a hard time making friends. What's it like when someone gets intimate? You know it's got to be a special kind of person, especially for me, because someone with my eccentricities...well, some people don't like me, you know.

Chuck

I met Chuck at his house for the interview at about 8:00 p.m. after finishing dinner and Walter's interview. I had called to tell him that I was going to be about thirty minutes later than expected. His mother assured me that it would not be a problem.

Chuck was a muscular, attractive sixteen-year old boy with short-cropped blonde hair. He was wearing a t-shirt with a donkey on it and a pair of shorts. We sat across from each other at the dining room table. His mother was in the kitchen, and his other family members were upstairs. Chuck was polite, shook hands, and made eye contact when speaking. He shared with me that he sometimes had a tic in his neck which made him turn his head to the side. He spoke with a deep voice and excellent prosody and enunciation, but his speech seemed to have a practiced quality to it, almost a "movie trailer voice." We talked informally for a short time before beginning the interview.

Elementary School

Chuck attended a private Christian school during the elementary years. When I asked about that time period, he shared:

I hated going to school, but it was only because I would rather be at home playing video games, which was mostly what I did when I was growing up. I was a very fat kid and didn't go out that much, but I had friends. Nobody hated us; we were just out there.... I was an eccentric to say the least when I was growing up.

Next we discussed what type of activities Chuck took part in during this time period besides watching television and playing video games. He told of his love for the game of soccer: When I was nine, I started refereeing...Soccer was a love of mine. It was a sport I could do... I mean I could never juggle, I could never get it up in the air, or bounce it or whatever, but I always thought it was because of my cross-eye [no longer a problem].... I just didn't have the dedication to get through it, so I was always a defender. I got called out by a lot of kids sometimes telling me, "It's not football," because I'd be too rough. I'm out of it now because a coach of mine let me know that I couldn't play. He kept me out all game, and sometimes I think I shouldn't have blamed myself for that, but I felt like I really couldn't play because I couldn't keep up with the speed. I didn't exercise as much I should to go as fast as I could.

Chuck obviously had become involved in exercising, as he was very muscular and certainly not overweight. I asked him how he had managed to lose the weight.

Well, about in the fourth grade, I started the Atkins diet with my family. I lost a lot of weight, but then I started playing the card that... "Well, I can keep on the diet and then on Friday, you know, I can just sort of eat what I want"...but I would be very weight conscious and I'd run upstairs and start working out.
Besides being unhappy about his weight, Chuck was very concerned about his appearance in general during fifth and sixth grades.

When I went to Bethel Baptist, I just never liked the way I looked. I would always try to fix my hair, but I was always, "Here's a fat idiot trying to make a bouquet out of trash." That was just how I thought of my appearance; I was happy everywhere else. I just felt like I looked horrible.

When I asked what he did at recess, he told me:

I just walked around...didn't do much. I was recognized as the guy that walked, because when I started getting into the diet, I felt like I needed exercise and a lot of times at recess, I would just walk around the entire playground. I wouldn't do anything...just walk. Sometimes people would walk with me, but it was very rare.

Chuck shared with me that one of his "pet peeves" was being blamed for something he did not do. He related an incident that happened in elementary school in which his actions had been misunderstood and he was not allowed to go on a special field trip as a result.

One time my friend Jace was being flirted with by some of the girls...and I didn't understand what that was. I didn't understand that was when a girl was showing that she liked you. I thought they were trying to hurt him! I tried to help him and he went swinging around and accidentally knocked one of the girls in the head. She got [knocked] down on the ground and blamed me for it.

Middle School

When he left the Christian school in seventh grade to attend a public middle school, it was difficult for Chuck. He described the Christian school experience as "being in a bubble" whereas public school was the real world with "no black or white, only shades of gray." One upsetting occurrence was the loss of his best friend Jace. "I went over to his house all of the time, and he always came over here. We played games, we made comics." With the skill of a good storyteller, Chuck said he would explain what happened between him and Jace later in the interview. In addition to social difficulties in middle school, Chuck also experienced physical and emotional problems that led to his diagnosis of AS in the eighth grade.

I had such problems just dealing with people at school, and I got so upset that I actually got the hives from being upset... I would always rub my nails and my fingers against my arm and, you know, usually that just makes your body freak out, but I liked it and I kept doing it until finally I would get these twinges in my arm and they would tell me, "You got to rub your arm now," and I would do that.

It spread to my entire body and whenever I would get upset, the nerves would go crazy. Whenever I was wearing the wrong clothes, in other words, the clothes were too tight or I was in an uncomfortable position, the nerves would just twinge in my back and it would go everywhere. In fact, what I'm thinking is, that's what started the hives because I would feel that same feeling, but I'd rub it and it would get worse and I'd rub it and it would get worse and finally it just started itching.

The anxiety Chuck was feeling appeared to be related to his perception that he was overweight and the teasing he endured. He was finally willing to go to the doctor to get help.

You see, I honestly think that the reason I got diagnosed, the reason I wanted to go to the doctor was that these [he pulled his shirt front forward with both hands to suggest excessive chest fat] were causing me so much stress I couldn't think or deal with it. So that's the reason that I wanted to go in.

My mom mentioned...me having a hard time paying attention...me having trouble dealing with...what these people did....and both the psychiatrists diagnosed me with Asperger's. I never believed that I had Asperger's, but they insist that I do... two very well-recognized psychiatrists say, "This guy's got it." Even though Chuck felt that his diagnosis of Asperger's was incorrect, he

admitted using it as an excuse sometimes when he did something others considered odd:

I had already overcome it by myself. I would use that [diagnosis] as a crutch whenever I was having problems, I'd just lift that up and say, "Oh, well, I have Asperger's, so it's okay if I talk weird. It's okay if I'm crazy."

Illuminating some of his problems in getting along with others, Chuck recounted several instances of bullying during middle school. He remembered one boy in particular constantly trying to annoy him or pick a fight.

I had my own personal bully. His name was Justin Grevin. You know, there's kind of a new form of bullying now. It's just mental; it's just messing with your head.... He would never do anything physical. It was always mental until I made fun of his mom. When I would try to make fun of his mom, he would come and he would try to punch me. It would hurt, but I would freeze up again and I couldn't do anything back.

Most of the time Chuck did not fight back because of his Christian beliefs, although he said he would now if someone else "threw the first punch." He recalled an instance in which he did stand up for himself as the turning point in his change of attitude:

But this time when he took the waters [two bottles of water] off my desk, I snatched his notebook, right? And I mean this is nothing to a guy like Justin, right? But you know this was all I could think to do and it was a great step for me. So I told him to give me the water bottles back, and he said "No" so I took it [the notebook] and I slammed it on the ground and I said, "Give me them back." And he said "No" again and I slammed it on the ground with a couple of papers ripping out and I said, "Give me them back!" Finally he gives them [the water bottles] back and I shove it [the notebook] on his desk when he gave them back.

Not only did he begin standing up for himself, Chuck also displayed empathy and stood up for others who were being bullied. He related another incident when Justin took a birthday party invitation that Chuck had given to a friend:

He made him cry in the middle of class, and the thing is, I know how that feels, 'cause I actually, I did it once but I kept it to myself. Only one person saw it. But this, the whole class saw and I know how he felt, because he couldn't control it....It was the only way he could deal with it.

In this instance, Chuck managed to snatch the invitation from the bully and give it back to his friend.

Another vivid memory involving peers was an incident that occurred during eighth grade when Chuck went to a bonfire at a neighbor's house. It made such an impression that Chuck was even able to recount the dialogue.

Our next door neighbor over here, Casey, he was into a lot of bad influence drinking, smoking, dipping, and, at one time, steroids. Well, it was on the day he admitted this [taking steroids] to me that this happened....We were all around the fire and he [Casey] was buzzed... and started throwing flaming marshmallows at everybody. He threw one and hit my hundred dollar leather jacket square on the back. After a little while, I marched home. According to Chuck, he talked to his mom and dad about the incident, and his dad suggested that since Casey had done it on purpose just to be mean, Chuck should take a raw egg and throw it at Casey. Chuck said that he took the egg and went back to the bonfire. He explained what happened next:

So I came up to him and this is honestly how it happened. I was holding the egg and I was trying to decide whether I should do it while I was I was at the campfire, and he [Casey] said, "What's that for?" And I said, "My dad told me to splatter it on you," and he said, "Oh, good thing you weren't going to."

After another flaming marshmallow came whizzing by, Chuck smashed the egg on Casey, who retaliated by punching Chuck in the face. Chuck recalled:

I didn't feel it. All I felt was sound go away from me for a while. Then I pushed him.... I grabbed him, pulled out the knife and I flipped it on him....All I remember is I said, "Casey, do you think this is a joke? Do you think I'm a joke?" I walked toward him, and then I blacked out.

Chuck later found out that he had cut Casey in three places on his arm. According to Chuck, Casey had since gotten off drugs and was "a changed guy." They had resolved their differences and were friendly.

Unfortunately, the rift with his former best friend Jace had yet to be repaired. Chuck explained that his problem with Jace stemmed from a misunderstanding in which Chuck was accused of touching a girl inappropriately:

Kelly was a good friend and I liked her, but then again, I would like any girl that gave me a second glance at that point. She's very comfortable with pushing guys around...hitting them, taking their stuff ...just picking on them. It's a way to

show she's playful. Well, once again, I had trouble understanding this, but I grew up and I finally got it that "Hey, this is okay...you know this happens" and I thought I was being liked when I got hit and I said, "It hurts, but it feels good and I'm glad...."

But the day Kelly took Chuck's new watch, things turned out badly. First, she noticed a little break in the link, but when Chuck asked for it back to fix it, she wouldn't give it to him. When he reached for it, his hand accidentally brushed against her breast. Chuck then recounted a convoluted chain of events involving the spread of rumors that he had done it on purpose and threats from some of Kelly's friends to beat him up.

He knew things had really gone too far when his parents sat him down for a talk one day after school. They told him they had received a call from his school, that a girl had reported him for touching her inappropriately. Eventually things were resolved, and Chuck was not charged with anything. However, according to Chuck, Kelly told Jace that Chuck *had* touched her inappropriately. Chuck sadly explained, "Jace believed her, and he just stopped talking to me. This was my best friend; he was going to be my best man. He stabbed me in the back."

Chuck said that it wasn't the first time Kelly's rumors had caused him problems. He described another time she had spread rumors that precipitated his getting into a fight at school:

She even made stuff up to a guy, Joe, who is a friend now...that I was calling him Papa Smurf. One day someone left a book, *Sisterhood of the Traveling Pants*, and he said, "Oh, it's probably yours, you faggot." I just mumbled under my breath, but Joe thought I called him "Shorty." So he came over while I was walking out and just punched me in the face. Then once again, I blacked out. I grabbed him by his bowl-cut hair. I started upper-cutting him into the face.

Ironically, another boy who was infamous for fighting at school broke up the fracas this time. Chuck and Joe were both suspended from school for the incident. That was not the end of it though; Joe and two of his friends kept calling Chuck "fat" as he was on his way to class. Rather than get into another altercation, Chuck went to the assistant principal to "get them off my back."

According to Chuck, the only other time he got into a fight at school was in seventh grade, when another student "kept talking crap about me that I didn't know how to fight, so I just pushed him against the wall, and I only got in-school suspension."

High School

In spite of a tumultuous middle school experience, Chuck's high school days had been calmer. In high school, people often find their niche and settle into a group. In Chuck's words, "high school has opened so many doors." Although at first he did not have a group that he felt he fit in with, he described how his experiences evolved:

I would sit in the morning in Ms. Jackson's room as kind of a favor for what my mom did for her. I would sit on the couch in her room and just sleep, because I was scared of going out there. You know, it was ninth grade and I thought I was over all of this, but in eighth grade, it kind of declined. I kind of lost friends and I kind of felt, you know, lonely again, and then I found James and Caleb Grainger, who were on my soccer team, and then I just got to know everybody else.... Belonging somewhere is always nice.
Chuck said he still felt depressed sometimes, however. Some of the feelings of depression seemed to be related to problems with his girlfriend, Sasha. According to Chuck, Sasha was jealous of Chuck's friendship with another girl, Meg:

You know, there were big fights. If you see any phones that are broken....like you see that phone over there that is missing its antenna...that's my fault, because of the fight. I was talking to Sasha, and I'd get mad.

Chuck recalled that one time Sasha told him that he didn't care about her. To prove that he did, he took money that he had earned refereeing soccer and walked to the grocery store to buy roses. Then he walked almost all the way to Sasha's house, which was about ten miles. He made it to a nearby elementary school, where he called her from his cell phone. She refused to see him.

I sat down, and my feet were black with soot. I sat there with the roses in my hand, and I called my parents. They came and got me and I came home and washed my feet off and got cleaned up and then I hung out with them the rest of the day.... I couldn't handle it.

When I asked Chuck whether it would bother him if Sasha had a close male friend, he replied:

She does. Well, sometimes I was jealous, but I'd get my head after a while. I encouraged her to hang out with her friends more. I encouraged her to go to Anime Club. In fact, her friends blamed me for taking her away, because she chose me every time. And her friends got mad at me. I got upset and had to tell her. I said, "Talk to your friends, please just tell them." I don't like defamation of character.

Even though he had a steady girlfriend, Chuck still made time for his buddies and they were all still heavily involved in video games. Although he and Jace were no longer close, Prescott, who was at the Christian school, was still one of Chuck's good friends. Chuck had this to say about Prescott, "We got to talking and he'd tell me about his life and I'd tell him about mine. We became best buds, so yeah...yeah...he's a cool guy...He doesn't have the X-box Live, so I have to call him to come over." Chuck also described finding a friend in Pete, a boy who had also been diagnosed with AS.

You know what's funny, one of my greatest friends, who can't talk like I can, has Asperger's, and it was funny that I found this guy because I thought he was just kind of dim in the head. But he's a smart guy and the only problem with him is ...and I can relate to him sometimes, because when he gets interrupted, I hear him pause, and I kind of see the expression on his face and I'm like, you know I've felt that before. Then I turn around to him and I say, "What were you saying Pete?" And I listen to him, because I don't want anybody to feel the way it feels to not have anybody pay attention to you.

We had been talking for more than an hour, and it was clear that Chuck had an excellent memory for events, along with the skills of a good storyteller. I was not surprised when Chuck told me before we concluded the interview that he loved to write screenplays and had even started a few books. "I would write the beginning to these books and I was always good with dialogue, but I was never good with finishing the actual story."

However, in the instance of this interview Chuck was able to "finish the story" and summed up his social life thus far. The majority of my life for me was staying inside, either reading or playing video games, and yet look at all of the crap that I got into. You know, it just goes to show, the tongue does hurt like a sword. Sometimes, I don't control what I say and I get involved in these things.

Kevin

Kevin and his grandparents treated me to dinner at a local restaurant. Kevin lived with his grandparents but had contact with his parents, who lived in a nearby city. He was nicely dressed in jeans and a polo shirt and seemed relaxed. Kevin was 16 years old with curly dark hair, café-latte skin, a nice smile, and beautiful green eyes. Kevin spoke with a slight impediment and rather formalized prosody. It was 4:30 on a weekday, so there were no other people in our section of the restaurant.

We ordered beverages, but asked the waitress if we could have some time before ordering food and she was agreeable. Kevin's grandparents offered to move to another table in a different section, allowing us to talk privately. Before leaving the table, they warned me that Kevin was not very talkative. I assured them that we would talk only as long as was comfortable for him. As the interview progressed, I found that although Kevin rarely elaborated on the open-ended interview questions, he never seemed to be distressed, anxious, or in a hurry for the interview to end.

Elementary School

Like Chuck, Kevin had attended a private Christian school during his elementary years. He stated that the other kids were nice to him. He did not feel excluded and was not bullied, but he did not have any close friendships with other children either. When asked who his best friend was, he replied, "The principal, Mr. Luckner." At recess, while the other children played, Kevin would "go out and collect rocks I found." Sometimes other children would join him. When they did, according to Kevin, he enjoyed interacting with them.

Kevin remembers his elementary school days as being pretty happy and filled mostly with "watching TV, playing electronics and doing a lot of homework." His favorite subject was then, and continued to be math. When I asked for some events that stood out in his mind during that time, he shared that there was really nothing that he remembered as a significant event.

Middle School

Kevin left the Christian school to attend public school in the middle of sixth grade. He spoke of the changes, "It was a big change in some ways...the dress code and all of the rules. There were less rules at the public school." He said that he had "lots of friends" in middle school but only one friend that he had ever associated with outside of school. After middle school, they ended up going to different high schools and lost contact. That friend happened to be Mike, who, partly due to Kevin's referral, would also be going on the Stone Mountain Adventure trip. Kevin expressed excitement about the opportunity to get reacquainted.

While in middle school, Kevin learned to dance but admitted that he did not enjoy it much. He said that he was also on a baseball team during that time but did not remember what position he played. However, he did relate that he was treated nicely and felt included as part of the team.

High School

When asked how high school differed from middle school, Kevin indicated "the amount of work" was the biggest change. He was in advanced freshman math, which covered twice as much material as general freshman math. Although math was his gifted area, he still received tutorial support two days a week to help with his homework and to stay on track.

When I asked about what he liked to do in his free time. Kevin shared with me that he liked to "take things apart" and added proudly, "I took a chainsaw apart once and got it to run."

Kevin appeared to know a lot about larger engines, as well. He told of owning a vintage motorcycle and a convertible BMW that he was always tinkering on. Therefore, it was not surprising when Kevin related that "racing his remote control race cars and going to NASCAR races with his grandfather" were also activities that he enjoyed.

As much as he liked cars and engines, however, Kevin enthusiastically stated that his favorite outdoor activity was fishing. He confessed that he and his grandfather often go to a pond or stream and spend the entire afternoon fishing. Kevin then spoke of plans to bring his fishing pole and tackle box on the adventure trip, since our campsite would be located on a lake.

It was obvious from his account that Kevin and his grandfather were very close and spent a lot of time together, but when asked about socializing with peers outside of school, Kevin's answer indicated that it seldom happened, if at all, since he and Mike had lost contact. Although he said he had thought about calling a classmate to see if they wanted to go to a movie with him, he had never followed through with it, admitting it was a hard thing for him to do. Likewise, when asked about extracurricular activities at school, he mentioned that he had thought about joining the Chess Club but had not actively pursued doing so.

In high school, as in elementary and middle school, despite the lack of close friends, Kevin reported that he had not been picked on or bullied and that, "I'm happy like I am. I have lots of friends all over the place." I asked him how he would describe himself as a friend to others and he replied, "A trusting friend." Yet, although Kevin indicated he was well-liked and had many acquaintances, he confided that the kind of close friend he was looking for should be "reliable" and, most importantly, "someone who likes me for who I am."

Mike

Mike was about six feet tall. He was thin, but not skinny, had attractive features and a beautiful smile. He was neatly, but casually dressed in jeans and t-shirt. Mike seemed a little clumsy and walked with his toes pointed a little farther outward than usual. Although he spoke to me and was polite, he was very quiet during the casual conversation with his family. His speech was somewhat flat and had a nasal quality. He also spoke with a slight lisp, but otherwise had very crisp diction. He did not have a problem making eye contact most of the time while speaking.

Before the interview I chatted a bit with Mike and his parents about the trip, letterboxing, trail names, and our itinerary, since they had not attended the parent informational meeting. Mike, who was very artistic, already had a design for his signature stamp based on a logo he had drawn for art class. He and his parents seemed excited and intrigued about letterboxing and had already visited the AtlasQuest website to learn more about it. Mike's parents were very gracious and expressed several times their appreciation for Mike's invitation to participate. Mike's dad explained that they had done some camping and hiking together in Boy Scouts and both enjoyed it. Mike had his own tent, but planned to use the one provided by UGA, so his tent would be like everyone else's.

Mike chose to complete the Social Skills Improvement System Student Rating Scales (SSIS-SRS)(Gresham & Elliott, 2008) before the interview rather than after, as the other participants had. While he worked on the rating scale in the dining room, I talked with his parents in the living room. Several times he came and asked for clarification about the questions on the scale. It took him about 45 minutes to complete it, which is about twice as long as it typically takes. I got the feeling he was analyzing each question and giving lots of thought to his responses. After he completed the scale, I asked whether he felt up to doing the interview or would prefer that I come back another time. He said he wanted to go ahead with it.

Elementary School

I explained to Mike that I was mostly interested in what he had experienced socially while growing up and inquired about elementary school.

Well, it was kind of hard in some cases. I don't like being touched that much, and sometimes kids I didn't even know would run up and touch me and run away. And, of course, back then I wasn't as good as I am now [socially] and I would always run down, chase them back, try and touch them. And, of course, I always succeeded many minutes later, but sometimes it took away time out of my lunch time or recess trying to catch them.

According to Mike, the other kids were purposely doing this to annoy him. Although he did not have many friends during this time, Mike told of one close friend, Steve, who moved away near the end of elementary school. Mike said they had stayed in touch.

When asked how he felt about his teachers during that time, he remarked that he had gotten along with most of his teachers, but that there were occasional outbursts. He explained, "I think that's [third grade] when they just decided to put me into special ed. class under Asperger's. And so far, I've been much better." I then inquired about what they had worked on in the special education class and probed to find out what types of strategies they taught him.

It was more of strategies of when I got upset. Because back then, when I got upset, I would often yell or shout. It was really bad back then. Of course, I'm very different now...fortunately. They would often teach me to go to a quiet location, such as the library, or just draw because I used to draw. In fact, I still do draw.

I drew so many pictures I couldn't even keep them in my binder, my school folder. I used to draw so much it just became a problem, because I was barely like getting 70's or 80's in my classes. They said that I would draw so much they would see me doing this [imitates drawing motion] and the teacher would be up there trying to have us take notes. It was just awful back then, how much I drew—drawing during class time and not during free time. We had a short discussion about how it was sometimes difficult to moderate our special interests. After that, I commented on the beautiful artwork he had created that was displayed in his home and inquired about types of things he liked to draw.

It was mostly cartoons back then, but now I'm more interested in landscapes or three dimensional objects, such as like houses or buildings and often like to mix them into different landscapes. You know what's really ironic? Most kids back in elementary school and preschool, they said they want to grow up to be like an astronaut or a fireman or a policeman—just the really common jobs that children often dream of—and I said I wanted to be an architect.

Mike also enjoyed riding his bicycle during his elementary days. He spoke happily of a time when his dad took him and a friend on a ten-mile bike ride. In addition, he talked about the fun he and his friend Steve had playing video games. In his words, "We would often do weird, crazy things on the video game, like where we try to find all of these little glitches to break through and exit the game."

However, recess time at school was not so happy. According to Mike, although he was not physically bullied, the other children were constantly trying to annoy him and sometimes called him names.

When I would just go out to recess and just either kick a soccer ball around by myself, just kick it against a part of a swing set or something...not really destroying property...but just so it would bounce back or just go on the swing. Someone would often come over and try to push me off ...or try and get the ball away or try and get me away from it and they'd try and take over.

Mike summed up his elementary school days as a lonely time, although he did have couple of close friends. It was also a time when he began to make social progress. "I'm a lot better than I was back then. Back then if someone was mean to me, I would be mean back and not try to just avoid them," Mike recalled.

Middle School

Before the interview began, when Mike and I were chatting informally, he showed me a photo mural of himself with his winning project at the state science fair. Mike told me that his project was about "breaking down limestone with certain chemicals. That was basically my big highlight of 2008."

When asked about middle school friends, Mike mentioned meeting Kevin in eighth grade, as well as his long-time friend Steve. Even though Steve had moved to Wisconsin, he and Mike had stayed in touch and planned to get together in the future. Mike expressed his view on friendship:

I feel that it's best to have a couple of friends that are really close than to have a lot that you just acknowledge, you just see them every day. You just smile. Because if you get a problem later on, then you won't really have anyone to call or help you with that kind of thing.

Although Mike was happy with his social progress and felt more accepted during middle school than he did in elementary school, he still related a few instances when others called him names or were unkind to him. Mike recalled that he seldom participated in school social activities, but recounted one instance in eighth grade when his parents suggested that he try going to one of the school dances: It was really different from what I was expecting, because it was really crowded there. People were shouting, dancing... some were doing this crazy dance kind of thing. Just being surrounded by a group of people and ...the music was extremely loud. I had to keep my ears plugged, although it was nearly 200 hundred feet away from me. When I went up to it, of course I had my ears plugged, right in front of it. I could actually feel the vibration that was more of air-conditioning than music. I just sat in the seat. I just sat there and stared at the floor the entire time, because there was nobody I knew there.

High School

Since he entered high school, with Kevin at a different school and Steve in Wisconsin, Mike said he had no friends at school, although he was trying to make friends. He spoke of his efforts:

Right now I'm still trying to make friends with some of the kids in resource class, because they're the ones who most likely understand me because we share the same problems. I often sit by myself [at lunch], because the only people I basically get along with in that school are basically the teachers and the kids in resource, because I don't think the other kids really understand how I think. I think more logically, they think far more emotionally. Where if they feel a certain way, they always have to express it and state their opinion, where if someone told me that I had to do something, I'd just do it.

I asked Mike if he knew whether most of the students in his resource class had also been diagnosed with Asperger's Syndrome. He replied:

Well, some are gifted like... like what you say I am and a lot of teachers say I'm really gifted, but there's a lot of kids that attend different periods of social skills or study skills.....where it's....in my period...second period, most of everyone I can relate to. But the other periods I don't go to, when they just come in because they have a problem or a test to take, they are a lot different from us because they rarely try at all.

They always come up with some kind of excuse to get out of their work, like they say, "Oh it's too hard. I'm tired. My hand hurts." Where, like if I'm sick that day or something...not really, really sick, but if I just have a bad cough, I would still try and push through my work and just try and get to lunch and then afterwards see how I feel.

Mike's academic dedication was reflected in his accomplishments. He is a talented artist and a state science fair winner. However, he admitted that he was still bothered by making "careless mistakes" in math, like forgetting to reduce an equation. When I suggested that he might be a perfectionist, he disagreed.

Besides school, Mike's current special interest in rocks had opened other avenues for socialization.

I go to two different rock meetings, and there's a lot of people in my school...and in my local area... specially at my house or at school....I'm basically like the person who knows everything on rocks, but when I go to those meetings, I feel like I know absolutely nothing. Although Mike talked of how much he enjoyed the meetings and even of having flown to other states to go to rock collecting events, he did not mention any friends he had made as a result of his participation.

After chatting a bit longer about rocks, I broached the subject of dating. According to Mike, he had not started dating yet and felt that at 15 he was too young to be thinking about it. He also expressed the opinion that many of his classmates were trying to grow up too fast.

Most kids my age would probably be more interested in R-rated movies kind of thing or going out on dates with their girlfriend or going to dances. I'm not really big on that kind of thing because I feel I'm definitely not old enough to start doing that. But some kids are dating at a really young age. In fact when I go to school, I see some...like a couple....one boy and one girl...in some parts of the hallway kissing each other.

Similar to dating, "joking around" is considered to be an integral part of adolescence and is sometimes an inroad to acceptance. But according to Mike, this was an area he avoided:

I have a very poor sense of humor because I take things quite seriously and because jokes can be taken differently by different people. You don't really know until you actually say it, but by that time it's too late, whether you'll either get a big laugh and it's really good or it's really bad and they don't like you after that like it insults them. So I don't really tell jokes, just in case. But also sometimes people tell jokes to me and I don't understand them at all.

Summary

The four participants, Walter, Chuck, Kevin and Mike, had been selected based on very specific selection criteria that had been expected to produce a somewhat homogeneous sample. After the first interviews, I realized that the participants had other important socio-economic factors in common. First, they were all young men from 15-18 years of age. Second, they had all grown up in comfortable, supportive, well-educated family environments in the Atlanta area. Third, they were all gifted and talented in some way. Fourth, they had all been diagnosed with AS/HFA. Yet the heterogeneity of interests and personality characteristics among the four participants was striking.

Chuck and Walter were both very talkative, while it was difficult to coax Kevin into giving more than one-word answers to the interview questions. Mike claimed that he did not like to talk much, but he answered the interview questions very thoroughly and perceptively.

Of the 4 participants, Chuck seemed to be the most extroverted, as he took great interest in relating social incidents and discussing his interactions with friends. However, he also related the greatest number of negative social interactions, primarily bullying and fighting. Based on his responses in the interview, Walter appeared to be somewhat outgoing within his group of friends and with strangers as well, I suspected, if the topic of conversation interested him. Mike claimed to be an introvert, yet he was quite capable of carrying on an interesting conversation, while Kevin was extremely quiet, but not shy about meeting someone or making eye contact. There were other stark contrasts— Chuck loved to make jokes, yet Mike was uncomfortable with humor. Walter was extremely intellectual, and although Kevin was intelligent, he was also extraordinarily practical.

All of the participants had mentioned playing alone at recess in early elementary school, and all had been diagnosed with AS before the fourth grade, except Chuck who was not diagnosed until the eighth grade. However, their degree of awareness about being socially different from their peers varied. Mike and Walter appeared to understand and accept their differences, while Chuck claimed that through hard work, he had overcome his differences. Kevin never acknowledged that he felt socially different from typical peers, saying that he had many friends. I felt he might be confusing friends with acquaintances.

The young men were all gifted in some area, but there was a great deal of diversity and little overlap of talent areas. Mike had demonstrated his talent and high level of intelligence in the areas of science, and art. In contrast, Kevin had exceptional mathematical ability, along with an intuitive mechanical ability. Walter's knowledge and understanding of history was amazing, while Chuck's area of expertise was language arts. In addition, Walter had talent as an orator, delivering sermons at his church on occasion, and Chuck had perfect pitch, sang in a youth choir, and was a talented musician.

After overcoming my initial surprise at the range of diversity among a group with many fundamental commonalities, I began to consider how that diversity might impact the study and to make some informal predictions regarding the course social interactions might take during the trip.

First, I contemplated the design of the study. Was the experiential framework upon which the therapeutic adventure was based broad enough to accommodate the wide range of varying social needs, strengths, and learning styles, or should I consider some changes? After careful contemplation, I felt that the partially open-ended nature of the therapeutic adventure would allow incidental learning opportunities for both the varying levels of social development, as well as the wide range of personality styles and interests.

Next, I considered whether I felt that members of the group would be honest, open, and willing to answer interview questions each day, and whether they would be comfortable camping out with people they did not know well for 4 days. I felt I had established a rapport with each participant and, based on the interviews along with the rating scale data, I determined that I could expect honesty and cooperation from each. I also glimpsed within each participant the necessary level of independence and maturity to participate in such a trip. The vote of confidence echoed by the parents of each served to strengthen my resolve.

Last, I made informal predictions as to what I thought might occur socially. My first predictions were that the two "talkers," Chuck and Walter, would "hit it off" immediately, and that Kevin and Mike would pick up their friendship where they left off when they went to different high schools more than a year ago. One concern was whether the group would be compatible as whole if it split into dyads or if an "us against them" division might emerge.

Despite any misgivings, I predicted that by the end of the trip, a feeling of group cohesiveness, similar to what I had experienced in my own outdoor adventures and what had occurred in other studies of therapeutic adventure, would develop. Other than that, I adopted a "wait and see" attitude and was thankful that I had been blessed with such an interesting and agreeable group of participants.

CHAPTER V

FINDINGS

A therapeutic adventure does not have a specific curriculum or therapy goal. Instead, the opportunities for personal growth and social development are inherent in the context of the experience. The nature of the 4-day Stone Mountain Adventure facilitated independence, teamwork, and physical challenges. The young men were responsible for setting up their own tents, keeping the fire going, taking care of their hygiene needs, preparing some of their meals, and managing their belongings. This required a certain level of maturity and independence.

Letterboxing, a hobby requiring both physical and mental efforts, comprised the bulk of our activities. Over the years, fellow letterboxers have hidden more than 200 boxes within Stone Mountain Park (SMP) and published the clues to finding them on a letterboxing website. The first task for the young men was to decide which trails we would hike and which boxes to look for on those trails. Then, as we were hiking, we all worked as a team in order to figure out the clues and locate the boxes. Some of the clues were verbal, while others were picture clues tapping into visual strengths.

Physical limits were expanded both by design and by chance. In many cases, letterboxing in Stone Mountain Park requires strenuous hiking. On Sunday, the day that we hiked up the mountain, we walked over six miles with full backpacks and did the Sky Hike ropes course. That night we broke out the flashlights and did some nightboxing by following reflective tacks on trees. We were all too exhausted for interviews that night! In addition, Mother Nature did not smile upon us. It was unseasonably cold for April in Atlanta. One night the temperature got down to 17 degrees, and snow fell the next day. The fire was not just for roasting marshmallows; it became essential for heat. Natural consequences are a part of all experiential adventure-based programs. We never had to remind the group to help keep the fire going. They realized the consequences of being in freezing temperatures without it.

Integrative Model

In order to clarify my findings, I have developed an integrative model which demonstrates the relationship between the emergent themes in this study.



Figure 5. Integrative Model of Therapeutic Adventure

The three main contextual factors of this outdoor therapeutic adventure that coalesced from the data were *independence*, *physical challenge*, and *teamwork*. Independence and physical challenge were found to be linked with *acceptance of self*, while teamwork was more strongly linked to *acceptance of others*. On the next tier, *acceptance of self* by understanding your strengths and weaknesses and pushing your limits by taking safe risks leads to personal success, while the *acceptance of others* leads to social success.

Embedded within the experiential nature of the therapeutic adventure are opportunities for success. Personal success and social success, although not identified as emergent themes, are the stepping stones to *increased self-efficacy* and *increased perception of social competency*. These two share a symbiotic relationship. If social competency increases as a result of social success, then self-efficacy will be enhanced. Likewise, if self-efficacy improves, then feelings of social competency will be elevated. Both these main themes, increased self-efficacy and increased perception of social competency, were found to result in *increased pro-social behavior* of the participants during the 4-day therapeutic adventure.

The emergent themes have been integrated into the story of the trip to provide context and allow for a natural flow. The first section of each day is an observational chronology of socially significant events that occurred that day with the major contextual components of the therapeutic adventure as subheadings. The pro-social behaviors observed that day are then discussed. The participants' perceptions of the significant social events are included next. Portions of the interviews for the day that depict the main perceptual elements "acceptance of self" and "acceptance of others" are labeled. In the section dealing with participants' perceptions on the last day of the trip, portions of the interviews which demonstrate the consolidated themes of "increased self-efficacy" or "increased social competency" are labeled. Please note that not all themes were observed each day and that sometimes a theme may occur more than once, particularly in interview data to preserve the flow of the interview. The following outline illustrates the format for the presentation of the thematic factors within the story of the trip:

Day - Date (Observational Chronology)

I. Teamwork	Contextual Factor
II. Independence	Contextual Factor
III. Physical Challenge	Contextual Factor
IV. Pro-social Behavior	Resultant Factor
V. Participants' Perceptions (not a theme - differentiates interview data)	
A. Acceptance of Self	Perceptual Factor
B. Acceptance of Others	Perceptual Factor

Last Day/ Follow-up

A. Increased Self-efficacy	Perceptual Factor
B. Increased Social Competency	Perceptual Factor
C. Pro-social Behavior	Resultant Factor

The remainder of the chapter will tell the story of the Stone Mountain Adventure and illustrate the basis for the emergent themes, using the participants' words whenever possible. Next, the scores on the Social Skills Improvement System-Student Rating Scales (SSIS-SRS) (Gresham & Elliott, 2008) will be presented along with the individual participant findings. In mid-August, a 4-month follow-up interview was conducted and the SSIS-SRS was again completed by the participants. Maintenance and generalization of gains the perception of social competency, self-efficacy and pro-social behavior will be considered.

Day 1 – Saturday, April 4, 2009

The Stone Mountain Adventure began at the campground pavilion on a chilly, sunny spring morning. Mike and Kevin were the first to arrive. They were immediately drawn to the rocking chairs around the open pit fireplace. Walter rode with me because his parents had gone out of town. He walked over to the fire pit, introduced himself and began talking to Kevin. It turned out they were in a class together, but did not know each other well. Walter also tried to initiate a conversation with Mike, asking, "What's your favorite subject, Mike?" Mike responded to the question but did not reciprocate so their conversation was short.

Chuck and his mother arrived last. He and Walter immediately struck up a conversation. Before the parents left, Ken, Dianne, Ric, and I answered any questions they might have about the trip and double checked contact information.

Next we moved to a picnic table to go over a short booklet about letterboxing. There are several different kinds of boxes and while there are no specific rules, there are unwritten conventions of etiquette that should be followed. Chuck took the lead and suggested that they each read a paragraph aloud. While the reading and discussion were going on, Kevin was not very attentive. His eyes were constantly wandering over to the fire. All of the young men seemed to have trouble sitting still. At one time, all four were bouncing their legs up and down under the table. However, they were respectful and didn't interrupt. Walter appeared to be very focused on what was being said. Chuck took the liberty of summarizing the last couple of pages near the end and afterwards said, "OK, we get this. We know the basics."

After that, Ric led them in a short orienteering lesson and gave each of them a compass to use on the trip. Mike was especially interested in this. He had observed earlier that SMP had printed their maps wrong—with South pointing up!

After our letterboxing orientation, we had lunch at a family restaurant in the park. Everyone ordered properly and there was some conversation around the table, but it was minimal. Chuck was a daredevil and ordered the meat loaf, even though Ric told everyone that he heard it was the only bad thing on the menu. Mike entertained himself for an extended period by trapping the carbon dioxide bubbles in his Sprite with his straw. This led to a short conversation about chemistry and the properties of carbon dioxide.

Chuck, Walter and Kevin browsed the shops and bought some souvenirs after lunch, while Mike looked for small rocks near the designated meeting spot where I was stationed. When everyone returned, we decided to get the yearly SMP adventure passes next so that we would be prepared when the group decided to do the Sky Hike, go to the 4-D movie, ride the cable car up the mountain, or do any of the other special activities that were available.

The line to get pictures taken for the IDs was not that long, but it was moving very slowly. The guys all waited patiently, but Mike got very upset when he asked to see his picture and the employee sarcastically told him, "It's terrible." Not understanding that the man was joking, Mike asked to have the photo retaken and was told that he could not. Mike could not understand why he couldn't see the picture or have it retaken, and he became very agitated, standing with his fists clenched. At Ric's suggestion, they walked outside for a moment to cool down, and Mike regained his self-control.

While we were in the van returning to the campsite, the other three young men offered Mike reassurance, telling him that the employee was just kidding and that his picture was fine. Mike repeatedly asked, "But why did he do that? Why wouldn't he let me look at it? It was on the screen, wasn't it?"

We had reserved a large group campsite with a big fire pit, several pine trees, and a couple of picnic tables. The site was beautiful and convenient. It overlooked a large lake on one side and the bathrooms were just a short walk away in the other direction.

Independence

Ric and I were setting up our tent but told the young men to ask if they needed any help, as each participant had his own tent. Chuck was not an experienced camper, and he immediately asked Ric for advice on choosing a site and pitching his tent. Ric helped him get started, and Chuck had no problem finishing on his own. Walter needed a little help positioning his rain fly. Mike and Kevin set up their tents all on their own. I didn't observe any of the participants work together or offer to help anyone else set up.

Mike set his tent up well away from the other four tents. He found a piece of higher ground and fastidiously cleared the area of pine needles before putting down his ground cloth. He explained that he wanted to be sure there were no spiders, recounting an incident on another trip when a fellow camper told Mike that a spider was in Mike's tent. The boy had probably just been teasing Mike, but Mike, as usual, took it quite literally, taking precautions to prevent it from occurring again. Kevin had a big inflatable mattress in his tent to sleep on, complete with an air pump, which we found out later doubled as a fire starter. He and Mike were both fascinated with fire. Before we even unpacked they lit a small fire in the fire pit by using a magnifying glass. Mike had also brought a flint which he and Kevin learned to use.

Teamwork

That afternoon we all piled into the van for our first letterboxing foray. Dianne and Ken took us to an area near the carillon where they knew there were several boxes. On the way the way there, Chuck and Walter discussed movies, while Kevin and Mike were quiet. Kevin noticed some dead trees that we could possibly get for firewood and looked for some good fishing spots when we drove near the lake. I had given everyone their hiking sticks, logbooks, stamp pads, pens, and a personalized "signature stamp" hand-carved for each from designs they had chosen. They had also each selected a trail name. This would be written in the logbook of the letterbox along with their signature stamp. We were all set!

On the trail to the boxes, Walter discussed some letterboxing particulars with Dianne and Ken using the proper terminology. After finding two boxes together as a group, Kevin took the lead on Box #3 which was a nearby "bonus box," meaning its clue was in the box we had just found. He quickly announced, "I found it!" Chuck, immediately made a joke saying, "Oh yeah, that's where I buried that dead hooker." Kevin was soon back with the box and told us later that the site of one of the photo clues was nearby.

Chuck was extremely considerate of letting the others stamp in first. Walter was also good about taking turns. Kevin sometimes didn't care if he stamped in or not; he was more interested in scouting out the next box. Mike grew impatient waiting for the stamp sometimes, but when he got it and stamped in, he made a perfect impression. His logbook became a work of art. Walter, Chuck, and I had trouble keeping up with our pens, so I always took several extras after that.

Overall, we had a very successful first afternoon of letterboxing. Everyone had worked well together, although there was not much conversation, except for discussing the letterbox clues or asking who still needed to stamp in. On the walk back to the van, Kevin, always on the lookout for resources, cut a small branch to use as a skewer for roasting marshmallows later. He also proposed starting a letterboxing club. Mike, meanwhile, was fascinated by the abundance of interesting rocks and looked for small ones on the ground to add to his collection.

That evening we invited a local couple, retired teachers and long-time letterboxers, to roast hot dogs with us and tell us more about letterboxing. Their trail names were Granny and Paw Paw, and they have planted many boxes in SMP containing intricate hand-carved stamps. They related information about letterboxing and its history in the area and explained various aspects of the hobby, including the social nature involved in letterboxer gatherings. Granny told some interesting tales about nightboxing and getting lost on the back side of the mountain. Then Paw Paw showed us how to carve stamps under a magnifying lamp using a Speedball gouge on a special piece of rubber.

Walter was extremely attentive throughout the talk. He was able to answer every question that Paw Paw asked about the different kinds of letterboxes, just from our discussion of the introductory brochure that morning. Mike was interested in trying the

carving because he is talented in art, but was not as interested in the other parts of the talk. He and Kevin were wandering back and forth to the fire to add little bits of wood to it. Kevin roasted a few more hot dogs, as well. Chuck stayed at the table, but he was either doing something on his cell phone or sticking the souvenir knife he had bought into the wood of the picnic table.

After Granny and Paw Paw left, we had our group debriefing and planning session around the campfire. Everyone agreed that the first day had been enjoyable. The only criticism was that we had spent too long in the pavilion that morning, talking with parents and getting things organized, before getting started with the letterboxing. I agreed that we had gotten off to a slower start than I had planned and thanked them for their input.

The young men also discussed how some of the letterboxing clues had been misleading or ambiguous. One of those happened to be a box that Paw Paw had planted. Showing a sensitivity to the feelings of others, Chuck said, "I'm glad you saved that [comment] until he left."

Next we started making plans for the following day. The young men had already decided to go letterboxing for part of the day and also do some SMP adventure activities, prior to this excerpt from the meeting.

<u>Catherine:</u> OK, so are you thinking Cherokee Trail in the morning or the Walk-up Trail?

Chuck : I've never been on the Cherokee Trail, so whatever is good for me.

Dianne: Cherokee is the one that goes around the base of the mountain.

Kevin: Let's walk up the mountain, then we'll have an opportunity to ride down.

<u>Mike:</u> Yeah, that'd be cool. There are some parts where you do have to be careful that you watch your feet. Near the top there is a rail that you have to hold onto and the ground is kind of slippery. There's also wash rock, but once you get to the top it is very flat up there on the top; it's just all granite.

Kevin: Yeah. Then we could also do the Cherokee Trail after that.

Walter: I want to do that Sky Hike tomorrow maybe.

Chuck: That's cool.

Kevin: I wish we could take this fire up there with us and roast some hot dogs.

<u>Mike</u>: Well, we will be able to search for letterboxes on the way up and then we can have lunch and then after the picnic, we can come back down, watch a movie, that kind of thing.

<u>Kevin:</u> Walter, we can do letterboxing in the morning, hike up and ride down, then we can go to the movies. After that we can go letterboxing at night.

Ken: Nightboxing?

<u>Catherine:</u> Nightboxing tomorrow? If it's not raining.

<u>Chuck:</u> Now, what if we did it in our boxers?

(Everybody laughed.)

Dianne: I hope you will, but just have something on over them.

Mike: What's that, letterboxing? What was it?

<u>Catherine:</u> He said, 'go boxing in our boxers'. He's talking about boxer underwear.

Pro-social Behavior

Already, even though it was only the end of the first day, the level of reciprocal conversation had increased as the young men got to know one another better through the letterboxing and other activities. While most of the conversation was goal-oriented and revolved around planning activities for the next day, the level of engagement was clear.

There was also a great deal of respect shown for the person who was talking and for other's ideas. Nobody interrupted and if anyone disagreed, he did so agreeably. An interesting group dynamic was evolving. Kevin, who was always pleasant, but up until this point had scarcely talked, took a leading role in this planning session. Mike supported Kevin in his ideas about where to hike and volunteered valuable information based on personal experience without being prompted. Walter also took a leadership role in the planning. Chuck supported Walter's idea of going to the movie in the afternoon and could not resist interjecting some humor, as well. Mike did not understand the joke, but it was apparent that he felt comfortable enough to ask for an explanation without fear of being ridiculed.

While letterboxing earlier in the day, there was a spirit of cooperation present as we figured out the letterboxing clues. Another pro-social behavior noted was the empathy shown by the others when Mike was upset after the photo incident.

Participants' Perceptions

After the group debriefing on Saturday evening, I talked with each of the young men individually. All of them expressed their enjoyment of the letterboxing activities and said that in general it had been a good day. I asked them how they felt about the others in the group and their interactions with them. Acceptance of others. Walter told me that he thought Kevin "blurted out a little bit too much" while we were letterboxing, but that it was "tolerable." He said, "I deal with that every day, although, if it is over stupid stuff, I might snap." I told him that I hadn't seen him snap at all, so he must be using good self-control. He commented that he hadn't gotten to know Mike very well yet, but that he got along fine with Chuck. "There are just some people, it's like, 'Oh, my gosh! We connect!'"

Acceptance of self. At one point in Walter's interview, I mentioned to him that I was impressed that he could almost quote the letterboxing pamphlet after hearing it only once. I asked him if he'd always had that ability and he explained,

Yeah, I think I've probably just got a photographic memory. I mean, I can remember stuff [facts]... but my mind is so crazy that I'll forget my pencil and not have anything to write with in class. I *lose* everything. I've gone through five wallets, three driver's licenses, a set of car keys, and one car! It can be frustrating sometimes...Someone said the reason that my brain is so bad [at remembering mundane things] is my mind kind of thinks faster. It...overworks. Plus you say what you think.

When I commented that it was obvious that he was extremely intelligent and that gifted people often have trouble being patient with others who are slower at learning, Walter spoke of his frustration with others in his class at school:

These people [in his class at school] are so...are so scatterbrained. They can get scatterbrained watching a movie and you know watching a movie is even mature for my English class, because they are always talking—they're always texting and

stuff. I'm very cut off from my school. I only hang around with a select group of friends.

I asked if he planned to stay in touch with his friends after graduation and he indicated that they would probably never see each other again after he went away to college, but he also believed in his ability to make friends. "I'll make new friends and that will be the new clique."

Walter expressed understanding that he is not the "typical teen" and seemed to accept that. "I think I'm out of touch with what's normal for a teenager. I mean, a teenager my age is supposed to listen to, I don't know...um...listen to someone scream or something like that." But he was willing to accept Chuck's difference in musical taste. "Chuck listens to that and I don't begrudge him for it. I mean, he's a cool guy."

Acceptance of others. Chuck immediately mentioned Walter when I asked whose company he had enjoyed most that day. However, he was also quick to add, "The other two guys were nice. I mean, I can't relate to them, but they're nice." When I told Chuck that I appreciated his good manners and thanked him for reminding Mike about saying "Excuse me," when he burped, Chuck was concerned that I might consider his reminders as "being mean." I assured him that was not the case.

Acceptance of self. In his interview, Chuck displayed self-acceptance by recognizing how far he had come socially. Part of that social growth he attributed to reading about the interactions of others in literature. He told of how he began to love reading after becoming obsessed with *The Chronicles of Narnia* by C.S. Lewis.

I was kind of a big giant nerd about him. If you have ever heard of an Asperger's kid trying to give you unneeded information and they don't pick up by your body

language that you don't want to hear it...I was that way about C.S. Lewis and J.R.R. Tolkien. I would sit there and tell you about it in my [storyteller] voice.

Acceptance of others. Mike enjoyed reconnecting with Kevin after more than a year. "We do share a lot more in common. The other two kind of talk amongst each other....But eventually we talked to each other occasionally."

Acceptance of self. I asked Mike if he felt excluded by Walter and Chuck. "Well...I didn't feel like I was excluded... I'm not really talkative, so I would feel excluded if no one talked to me, but uh....I would feel kind of nervous if I was talked to a lot by someone that I didn't know really well."

Mike seemed very confident in his camping and hiking abilities and talked of hiking experiences with his dad. "We went the whole Cherokee Trail and then after that we went up the mountain and then back down....So that's a total of 12 miles."

Acceptance of others. When I asked Kevin who he had liked spending time with on the trip, he replied enthusiastically, "Everyone!" I was not surprised, remembering that in his pre-trip interview, Kevin had said everyone was his friend. When I commented that it was a good quality to be able to get along with everyone, he added that sometimes it might *not* be good. "If I get along with everyone, I might get along with the wrong person....but I can usually tell which people to stay away from just by looking at them."

Acceptance of self. Kevin demonstrated the beginning of heightened selfconfidence at one point in his interview. "That one [letterbox] I did by myself was easy. If those two boxes had been in opposite places, that would have been a good time to use the compass."

Day 2 – Sunday, April 5, 2009

Teamwork

Early Sunday morning, a car alarm went off and woke us all up about 7:00 a.m. The young men started the fire and even though we had brought a cord of firewood with us, they began to scavenge wood. Ric showed them how to use an axe safely, although several times they had to be reminded. Walter took the large axe and found a big fallen tree on which he worked for about 45 minutes, finally severing it and asking for help to haul it back to the fire. Chuck and Kevin both helped him drag it back. Chuck was accustomed to cutting firewood and used the hatchet to split it into smaller pieces.

Meanwhile, Kevin brought smaller scavenged pieces of wood to the fire. Mike used his long legs to advantage and stayed busy picking up the little pieces and running back and forth to keep the fire burning strong. Although there wasn't a lot of conversation, there was a strong sense of teamwork as everyone worked together to achieve a common goal.

The group had decided the night before to hike up the mountain on the Walkup Trail letterboxing. The first box we looked for that day was difficult to find. Walter, Chuck, and Kevin did not want to give up on it. Mike was indifferent. To increase our possibilities, we split into two groups. Each group was sure that they had found the correct "gnarly cedar," "pool of water," and "twin pine" described in the clues, but none of them turned out to be the right one. There was a light-hearted game of "my cedar is gnarlier than your cedar" competiveness.

Ric and I were not sure that our group was going the right way, but Chuck and Walter had such a sense of adventure that we did not want to give up. They pushed the envelope a little by going down some fairly steep rocky areas, and we ended up on the wrong side of a fence in what was supposed to be an off-limits area. I was a little worried because there were some slippery areas and steep terrain, but the young men were careful. We finally had to crawl under the fence to get back on the trail. Chuck and Walter were concerned that they would be in trouble, but I told them that Ric and I were the ones at fault. I explained that if a park ranger came to see what we were doing , we would explain that we had gotten separated from our group and somehow ended up off the trail. This was truly turning into an adventure!

When we met up with the others at the top of the mountain, everyone was a little disappointed that we had not been successful in finding the Gnarly Head letterbox, but both groups had great stories to tell. Dianne explained that perseverance was good, but that sometimes in letterboxing you had to be willing to abandon a search, especially if you were not sure that you had the right starting point. (We found out later that we did not.) She shared that she rarely looks for a box more than thirty minutes, because sometimes boxes have been vandalized or are no longer available. That was good lesson for all of us.

We ate lunch at the snack shop on the top of Stone Mountain. The four chaperones sat together and all of the young men sat together, except Mike, even though an empty chair was available for him at the table with the others. After lunch we found some boxes at the top of the mountain and then rode the sky lift down to the SMP Adventure area. As we got off the sky lift, an entertainer was making huge soap bubbles. We had to drag Mike away. He was enthralled, running after the bubbles and trying to pop them with his hiking stick. At first, Kevin had been the only one who wanted to go to the 4-D movie. Chuck and Walter wanted to go straight to the Sky Hike, and Mike was tired and planned to go back to the campsite with Ric. As it turned out, they all went to the movie together and then to the Sky Hike.

Physical Challenges

The Sky Hike has three levels of ropes courses with the highest being about 30 feet. All four of the young men started out on the first level. Mike was the last of the four to go up. On the second level, Chuck was busy talking with a young lady beside him in the line. Walter slipped, dropped his shoe, and had to be rescued. When he came down, he was not upset but then realized that he had misplaced his jacket. Kevin is flatfooted and after all of the hiking we had done, his feet were hurting badly so he didn't venture past the first level.

Mike was amazing! Before the trip, he had told me was a little afraid of heights and his dad had advised me that Mike would probably not go on the Sky Hike. As it turned out, Mike was the only one who went up all three levels. On the highest level, he walked across a narrow beam and did not even use the hand rails. I have video footage of him on a narrow beam thirty feet in the air, grinning from ear to ear. He even swung himself back and forth on the very top. It was obvious that he was relishing his fledgling confidence.

I called Mike "Mountain Goat" after that, but he didn't understand the figurative language, asking, "What do you mean? I don't have white fur all over!" I tried to explain it in terms of a Venn Diagram since he is a visual learner, but I still could not make my meaning clear.

Teamwork

Letterboxing was again their choice of activities after the Sky Hike. As before, the young men were each using their strengths to help the team. Kevin has outstanding visual skills. While letterboxing, he had an uncanny knack for noticing something that was out of place and could often locate a box, even without the clue, if he knew the general vicinity.

Mike is also very visual and has a talent for puzzles and figuring out how things fit together. He was quite skilled at reading the compass and since he was very careful with his belongings, his was the only compass that worked because it alone had not been dropped and broken. Once, while we were at the campground, Mike found a small piece of wood that had fallen completely apart. Ric remarked that it reminded him of a puzzle, because it seemed as if the pieces might fit back together again. Mike looked at them intently and agreed. Then he gently picked up all of the pieces and headed off to his tent.

Walter and Chuck are both excellent verbal problem solvers. They were quite adept at figuring out riddles, codes, and metaphorical language. Walter has an outstanding auditory memory. If a clue was read aloud one time, he remembered it. Chuck is very clever with words and understands the subtleties of language. He was always ready with a joke or witty remark, sometimes mumbled under his breath, if he was not sure whether it was appropriate. In letterboxing, most of the clues are verbal, but some are visual, such as photo clues. We encountered both types in SMP so there were plenty of opportunities for everyone's talents to be appreciated and most of the time everyone worked well as a team. However, Walter and Kevin were becoming slightly competitive in the quest for being the first to the box. When a bonus box clue was found, Dianne, remembering that Kevin had found the last bonus box on his own, went off with Walter to find it while the rest of us were stamping in. Kevin finished stamping in quickly and headed off to find them. He caught up with them and grabbed the box just as Walter was getting ready to pull it out of its hiding place.

After that, Dianne called a short group meeting and talked about letterboxing etiquette in a group. "You take turns and don't pull out the box if someone else has followed the clues and is about to find it." Kevin looked a little hurt, but the others rallied around to console him.

Next, we walked over to an outside cafeteria style restaurant. That's when Walter noticed that he had left his high tech hiking stick on top of the mountain. I called security and luckily, they were able to retrieve it and send it down to us. At supper, Ric and I sat down first as the others were still getting food. Mike sat down with us, but put his backpack on the seat beside him. I asked him to put it on the ground so that Kevin could sit with us. He did, and they had a good conversation about some of their activities of the day. After dinner, they both got cotton candy and Mike actually used a metaphor, telling Kevin that it was "like eating a cloud."

After supper we trekked over to an area near where the laser light show takes place to search for a few letterboxes. Ric went back to the campsite to make sure the fire was blazing when we returned, because the temperature was already dropping. As I sat on a nearby bench to flesh out some field notes, Dianne and Ken headed down a trail with the group. I noticed a security guard walk by and go into the woods behind them.
Later I found out had they had been questioned as to what they were doing and nicely asked to leave the area. This prompted a discussion, in which all of the young men participated, about Homeland Security and the events of 9/11. As we were walking back to the van, Chuck remarked in surprise, "You know, I haven't listened to my iPod all day!" The others each chimed in, "Neither have I!"

It had been a very long, physically challenging day, but the group was still eager to do some nightboxing, so we went to a spot that was not too far from a parking lot. By shining our flashlights onto trees and finding fire tacks (reflective trail markers) to follow, we successfully found "The Night Watchman" letterbox, containing a beautiful hand-carved stamp. It was pretty exciting! On the way back Kevin said, perhaps as an expression of his exuberance, "I wish I could ride on top of this van and flap like flag."

We had a short debriefing/planning session in the van. Walter suggested bacon and eggs for breakfast the next morning, so we decided to have a big breakfast at the Stone Mountain Inn the following day and plan our day there. After a long day of hiking, I was exhausted and figured the young men were tired too, so I told the group that since it was so late, I would not be doing the individual interviews that night, but that we would talk about some of the things that happened today during tomorrow's interviews. There was a severe cold front coming in overnight with strong winds, so I reminded all the campers to be sure to bundle up and to let me know if they needed an extra blanket.

Before turning in for the night, we were all sitting around the campfire for a few minutes. Chuck was charging his cell phone with a portable wind-up generator and eating sunflower seeds, a persistent habit of his since he arrived at the park. Mike and Kevin were feeding the fire. Walter came out his tent upset, because he could not find his letterboxing signature stamp. The chaperones all looked at one another, telegraphing an unspoken, "Not again!" Understanding how much the hand-carved stamp meant to Walter, Dianne and Ken kindly offered to go back to the spot where we were nightboxing to see if he had left it there.

Walter had forgotten to pick up various things during the long day of letterboxing. Most of the time Ken checked to make sure that nobody had left behind hiking sticks, backpacks, letterboxing supplies, or trash. Several times Walter had been saved from losing things through Ken's vigilance. Walter knew he had a problem with keeping track of things, and as we sat around the campfire, he skillfully initiated and moderated this conversation to see if others had the same problem and how they had dealt with it.

<u>Walter:</u> I think that maybe when you lose stuff, you get into a panic and you're not looking as good. My parents have found several things that I had looked for, because I was in a panic to get it and I didn't find it.

<u>Chuck:</u> Do you know why my mom was here on Saturday?...I lost my phone and she found it.

<u>Walter:</u> Oh, really.... Kevin, you ever lost something? Do you lose stuff all of the time?

Kevin: I do it all of the time.

<u>Walter:</u> Like what?

Kevin: All different things.

<u>Walter:</u> Anything important? Like homework or something like that? <u>Kevin:</u> Yeah.... One time I lost my motorcycle keys and you can't get any keys for it....It's a 1978 and we had to get a new lock for it. Ric told of "losing" his glasses when they were on top of his head and everyone laughed. Then they all began to share organizational strategies. Although Walter was the one who had the biggest problem with losing things, he had tried to work on it.

<u>Walter:</u> I have a cup that I keep all of my valuables in. When I come home I take out my wallet and I put it in this large halo cup [plastic cup with a wide circular base] that we got and that is my file cabinet for everything that I want to keep up with. My license, my wallet... anything that I need. I might start doing this: any assignments that I might have to do that can fit in that cup, I'm going to put them there! But as far as organization, I'm the worst. I don't even have a notebook for English. So my papers could be anywhere.

<u>Kevin:</u> No, you aren't really that bad. There's this one kid I know...he'll lose every paper that he needs within one class period.

<u>Walter:</u> Well, so Mike, you seem like you're the best one here that doesn't lose anything. How do you do it? How do you keep everything organized and present and accounted for?

<u>Mike:</u> One thing I do is that if I do something, I plan ahead, know where everything is and when I'm going to use it. Then when I need it, I take it out, use it, and put it back where I found it.

Later Ken and Dianne returned with the news that they did not find the stamp.

<u>Walter:</u> It's probably in my tent. I'm going to kick myself if it's in my tent. It's probably in my tent under all of that stuff. (As it turned out, he was right.)

Pro-social Behavior

This reciprocal conversation involving all four young men clearly showed empathy as Kevin and Chuck shared their own woes over losing things. Walter drew Mike into the conversation, complimented his organizational skills, and asked for advice. Mike helped by sharing his strategy.

In addition to this conversation, there was a great deal of pro-social behavior throughout the day. All four young men were initiating and engaging in reciprocal conversations during the letterboxing activities, at meals, and in the van. As Chuck had mentioned, nobody had felt the need for an iPod. They were socially engaged in some manner the entire day. While Chuck and Walter engaged in conversation most often, Mike had been talking more than the previous day and Kevin was initiating conversation much more often than before. Moreover, empathy had been shown to Kevin earlier, when the other young men realized that it was his behavior that had prompted the "letterboxing etiquette talk."

In the pre-trip interview, Walter's conversation had centered on *The Watchman* and the Vietnam War. Although he might have spoken to Chuck about those topics, I did not hear them mentioned in any of the group conversations. His demeanor had also changed. At the informational meeting when we first met, Walter kept his head down and eyes downcast. He seemed almost like a different person by the end of the second day. He had excellent posture, made eye contact, and was very willing to engage in conversation with others.

Mike, too, had changed. After the Sky Hike, Ric noted that whereas before, Mike would sit down on the ground whenever a rock or something caught his interest, now he was always on top of something—balancing on it or walking across it.

Mike's newfound confidence seemed to extend to the social area as well. It was clear that although Mike did not like to talk much, he was conversing more and felt as comfortable about asking for help in understanding figurative language as Walter felt in asking for help with his organizational skills. They both understood their personal strengths and weaknesses. Most impressive was the fact that nobody made fun of anyone else, teased in an unkind way, or called names.

We had spent two days and nights together without any major disagreements or problems. The young men, who by their own admission frequently opted to spend time alone, had tolerated two full days of forced togetherness with seven people they had just met, often in the close confines of the van. We had endured climbing the mountain and had physically and mentally challenged ourselves trying to find some difficult letterboxes. In addition, the young men had all gone up on the Sky Hike together. I felt as if we had all "bonded." We were all part of the same team; the spirit of camaraderie was palpable.

Day 3 – Monday, April 6, 2009

Independence

Kevin was up before everyone and had already gotten the fire started. Every morning during the trip he did this without being asked. A cold front had blown in during the night with freezing temperatures, so having a place to warm up was especially nice while we were trying to get ready to go to breakfast. After a huge breakfast at the Stone Mountain Inn, everyone piled into the van and Kevin said, "I'm sure the back bumper is going to be scraping now." Everyone laughed, except Mike, who said, "I don't understand."

Kevin explained that he said that because everyone had eaten a lot at breakfast. Mike argued the logic that they couldn't actually eat enough to make the van that much heavier. Kevin explained that it was just a figure of speech, not to be taken literally. Mike admitted that he just did not understand figures of speech or jokes.

Walter explained that a figure of speech "is just an exaggeration, such as 'raining cats and dogs' or 'a nose as rough as sandpaper.' You just have to consider the context and don't take it literally." Then Chuck told a blonde joke about a blonde who was escaping from an island. She swam halfway and was tired so she swam back. Again everybody laughed except Mike, who again did not understand the humor: "How did she know that she was halfway?" Chuck patiently tried to explain, but Mike could not get past the logic that there was no way she could have known where the halfway point was.

There were several letterboxes at the Songbird Trail area. We chose to go there, because it was somewhat sheltered from the wind. We were all cold and still tired from the day before, so none of us was in the best frame of mind. Mike was getting annoyed by the strong, cold wind, and Walter kept accidentally stamping his signature stamp in his own book instead of the letterbox logbook. Mike finally asked him, "Why do you keep stamping your signature stamp in your own log book?"

"Well, it's not because I want to," Walter replied.

Teamwork

The opportunity to play a prank on Ric raised everyone's spirits a little. On the previous day Ric had played a joke on Walter and Mike, by saying, "Look at that!" and pointing to a large rock. Thinking there was something behind the rock they ran over to investigate. Finding nothing, they asked, "What is it?"

"It's a rock," Ric replied. I encouraged them not to let him get away with that, so they planned an impromptu prank of their own.

Ric had gone back to the van for another jacket when we accidentally found a geocache on the Songbird Trail. Kevin was carrying around about 40 dollars worth of quarters in his backpack in case he wanted to buy something from the snack machine at the campground. Thinking they could make Ric believe he had found a hidden treasure, Kevin decided to put the quarters in the geocache.

When Ric came down the trail a few minutes later, the guys told him they needed his help with a letterbox, giving him clues which led to the geocache. While Ric searched, Kevin and Mike pretended to look too—in all the wrong places. Imagine Ric's surprise when he opened the geocache and found all of those quarters, only to learn they were not his to keep. Mike, in particular, seemed to enjoy the joke.

Independence

We had packed peanut butter sandwiches for a picnic lunch, but it was so cold and windy that a picnic was not appealing and everyone decided we should eat at the pavilion by the fire pit. At least we would have a little cover from the wind there. After lunch, nobody was too excited about leaving the fire to endure the elements and go letterboxing. Yesterday's six miles of hiking, plus the lack of sleep due to the extreme weather, had left everyone exhausted, so we had a restful afternoon. If Sunday was the mountaintop, Monday was the valley. We sat in the rockers by the fire or used a laptop to log our letterbox finds on the Atlas Quest website. Some of the young men listened to their iPods, which had been neglected for the past few days.

Physical Challenges

Monday was probably the least enjoyable day of the trip, but still nobody complained. We sat around an open fire pit in rocking chairs for the group debriefing. When I asked how they thought the day went, Chuck answered without hesitation, "Cold." Walter added, "Plus we're probably not going to have much sleep tonight, because it's going to be a cold night."

I asked if they were able to sleep the previous night and Mike answered, "I couldn't sleep that well because the wind was feeling like we were going to have a tornado touch down right at the base of the mountain."

Walter also claimed he also had trouble sleeping: "It would quit for a minute and then quake for fifteen minutes, so I couldn't ever get to sleep. I'm hoping to get a good night's sleep, because I haven't slept a wink." I understood completely. I too, had slept fitfully the night before. I was cold, tired, and extremely disappointed that we were not having the nice spring weather that I had anticipated.

We then discussed the next day's schedule. We had to strike camp in the morning and pack up our belongings. Then we were going to go letterboxing before meeting back with parents that evening. Since we were not having an action-packed day and it was still light enough to write, I asked the group for a journal entry. They all complied without protest.

Independence

After the journal writing, Kevin took off to try his hand at fishing, even though he soon abandoned it due to the cold and windy conditions. Ascertaining that we would leave for dinner at 6:00 p.m., Mike went fishing with Kevin for a short time and then retreated to his tent for a nap. We made a group decision to go to the Stone Mountain Inn again for dinner, mostly just to get out of the cold for a while.

Dinner was an almost festive experience. The inn was warm and had a limitless buffet. The young men displayed excellent manners throughout the meal, and we had some interesting dinner-time conversations. Mike talked with Ken for quite a while about the prank they had played on Ric that morning. Ken, knowing that Mike had trouble understanding jokes, explained that a joke was just a verbal prank. Mike then told Ken about a prank he had played on his mother involving a fake spider.

Walter and Kevin discussed politics and the pros and cons of legalized drugs. They both had strong opinions, but they listened respectfully to each other's views and did not interrupt. Chuck was more interested in interjecting humor and added a light touch to an otherwise serious conversation. Just before we left the restaurant, I was trying to give Dianne money to pay for her dinner but she would not take it, so Chuck grabbed it playfully. I told him to give it Dianne. "You'll settle one dispute, but start another one," Kevin said insightfully.

Pro-social Behavior

Even though the weather was miserably cold and everyone was tired from the long day of hiking on Sunday and not sleeping well on Sunday night, nobody complained or got angry with anyone else. Most of us were a little quieter and less cheerful than usual, but the day of rest and two good meals in a warm restaurant revived us. Even on a difficult day like this, pro-social behavior was evident. Chuck and Walter spent most of the afternoon together playing video games on their cell phones or talking to each other. Kevin and Mike visited for a while too, but Mike was really tired and wanted to take a nap, and Kevin was determined to go fishing at least once.

The implementation of the prank on Ric was a well-coordinated group effort. In addition, conversations at the restaurant, at both breakfast and dinner, were initiated by all four young men at various times. The conversation was reciprocal, appropriate, and sophisticated. There were no long monologues, and everybody listened respectfully as others talked. Kevin, in particular, demonstrated an increase in both the amount and the level of his conversation.

Participants' Perceptions

Acceptance of self. When I interviewed Mike later that night, I asked about the prank he had helped to plan involving the geocache filled with quarters.

Everyone was telling me that we need to get him back, because I was a part of that [the prank Ric pulled on them] and I knew that we would have to do something. He actually believed that he was the first one to find it!

I noticed a sense of being part of a team in his answer. He used the word "we" and felt like an integral part of the group.

Acceptance of self. I also told him that I was very surprised when he not only decided to do the Sky Hike, but went up to the highest level and showed no fear.

Yeah, actually, I did want to do it, but I didn't want to do it at that very time, because the line was too long and when I looked at the sign from where I was standing it looked like the sign said, 'your wait here is 90 minutes,' when it said, 'your wait here is 30 minutes.' So I thought, if it is a 90 minute wait, I'm not going to want to go near that line.

Also, I thought it was that they would have a rope ten feet off the ground, give you a pole and have you walk across it. That's what I thought it was. Not so much where you are harnessed to this thing and you walk across boards thirty feet up

Acceptance of others. Chuck was more reticent than usual. He seemed to be slightly depressed, so I asked if anyone here had done anything to upset him.

It's been good. I mean naturally I've been homesick, but this...I'm not saying that I expected this to be bad, but it turned out to be a lot better than I thought it would be. Nobody here can give me a hard time. There's nothing to be upset about really. No, no, nothing about the food, nothing about the way we are. I mean if I had to pick anything to be upset about, it's just not being able to find the boxes.

Acceptance of self. When I complimented Chuck on his excellent manners and kindness to others, he told me, "I kind of need reassurance now and again, and I appreciate it." I confided to him that this was something we never outgrow and he commented, "Well, it [good manners] has nothing to do with me and has everything to do with my parents." I also complimented him on his ability to talk to people. He had even engaged strangers in the park in conversation. Shaking his head, Chuck explained:

You didn't know me back before. I did have trouble. It was very painful sometimes. 'Cause I would look how I am in the mirror...see how it sounds and I

would say, 'No, that sounds wrong,' because in my mind I was fine. I was just right. I had this one bully and I kept trying to talk back to him. I kept trying, I kept trying, and finally I got it down and I got him back. I'm not saying it's right to do, but you know...

As Chuck and I conversed a little more, I discovered that problems with his girlfriend were causing him to feel down rather than something related to the trip.

Acceptance of others. In his interview later that night, Walter brought up his political discussion with Kevin at the restaurant.

The only person that I had any problem with is that I didn't agree with some of Kevin's viewpoints. They seemed a bit authoritarian. You know, let's let people write prescriptions for alcohol, and I don't think that's the way to do it, because if you do that, you might as well do that for ... candy or coke or stuff like that. Where does it end?

I thanked him for disagreeing agreeably and listening to Kevin's viewpoints, pointing out that it was a big step for Kevin, a man of few words, to feel comfortable enough to express his opinion.

Walter also brought up Mike's inability to understand jokes. "We've had to explain every joke that has come out of anybody's mouth." While I agreed that was a weakness for Mike, I mentioned that he had strengths, as well. Walter then complimented Mike by saying, "He's very well-organized. I admire that about him, but he just kind of has that distant personality."

I also mentioned how Mike had understood the joke they had all played on Ric. Walter thought that Kevin had carried it on a little too long, but he and Chuck had not spoiled their fun. I told him that I appreciated his patience during the trip, especially since on his SSIS-SRS he had indicated that he was usually impatient with others. He said the reason he was not impatient was because "these people are just like me."

These aren't the kind of people who would get on my nerves. Like if someone can't interpret a joke, I can handle that. If someone likes to take a lot of credit for things that aren't his...I can handle that. And here's the thing, we haven't really had anybody cut up here. You know, nobody's been....blatantly prideful or nobody's been blatantly lazy. Everybody's pitched in.

I agreed and commented how wonderfully everyone had gotten along, especially because young people with AS are often associated with blowing up or having a meltdown and I had not seen anybody get upset even once on the trip. Walter explained, "You haven't seen it, but maybe it's because the people you selected don't want you to see that. It's respectful. They say, 'Hey, I need to act appropriately."

When I interviewed Kevin and asked what he thought of the day, he cheerfully replied, "This was a very *cold* day, but it was a very *good* day." I told him how much I appreciated the way he did not complain and let things get him down, as well as how selfsufficient and resourceful he was. I recalled one morning when I awoke to find him roasting left-over hot dogs for breakfast, and we both laughed. He was very talkative that night—far more so than his usual one-word answers. It was as if someone had turned on a switch.

I also talked with him about an incident that had happened on Sunday while we were letterboxing. In his excitement, Kevin sometimes ran up and grabbed the box before someone else in the group could get to it. Dianne had talked with them all about how letterbox etiquette involved taking turns getting the box when you are with a group. Later Dianne told me that she was concerned that she may have hurt Kevin's feelings. I asked Kevin if he had felt singled out by the talk or if it had bothered him.

Acceptance of others. He indicated that it had not bothered him and that he thought everyone was working well as a team. "Well, the first one, Walter really helped me find. If I hadn't been paying attention to where he was climbing the rocks, I would have never seen the box in the first place."

Acceptance of self. Next we talked about what boxes we were going to try to find tomorrow. Kevin was convinced that the site of one of the photo clues was located near the carillon where we had been the first day. It also appeared that he had remembered Dianne's lesson about not spending too much time if you cannot find a certain box.

I know for a fact that is exactly where I saw that, because that one boulder that was out of place is the same place as the one I saw. But the picture was taken during a regular dry season and it's been raining a lot this week and the mud washed up on it. That's the only thing that's different about it. If we find the next spot within five minutes and we keep going in the right direction, we can spend forty minutes on it, if we're going in the right direction. But if we're going in the wrong direction...we don't need to spend more than thirty minutes.

He mentioned that he was making plans to pack all of his clothes before going to sleep, so that he would only have to take his tent down in the morning. Knowing we were facing another cold night in the tents, he pointed up to the stovepipe saying, "I would love to sleep up in that pipe." I laughed and reminded him of the night before when he had asked, "Can I ride on the top of the van and flap like a flag?"

Day 4 – Tuesday, April 7, 2009

Physical Challenges

We awoke to snow the next morning, but with a blazing fire and a warm breakfast from McDonald's it was not so bad. The group had planned to go up the mountain again, but the Sky Lift had been shut down due to the weather and it would have been a cold and slippery hike. So we changed our plans and decided to try to find letterboxes that involved only short hikes or were "drive-bys," which are letterboxes that can be found near the road. As a consequence of the weather, we spent time more time than usual riding in the van together.

Teamwork

Conversation almost always took place during these times. On the first two days, Walter and Chuck were mostly talking to one another, while Kevin and Mike were quiet, but now the conversation often included the whole group. This conversation, which took place when we were driving around the park looking for a letterbox photo clue involving a "No Bicycling" sign, illustrates the personality of each of the young men as well as their acceptance of one another.

Ken: There's a deer over there on the left hand side.

Kevin: Wow, look!

Walter: Alright, Ken, get out your 44.

Dianne: Hey! That might be Bambi's mommy.

Ken: There's a "No Bicycling" sign up there.

Mike: Who's Bambi?

<u>Chuck</u>: Yeah, there is.

Mike: Who's Bambi?

Chuck: Bambi's a cartoon character.

<u>Chuck:</u> Is it [the sign] bent in the middle?

Walter: Wait, I thought we got that one [letterbox].

Dianne: No, it's not the one [sign]. It's got to have a fold going down the middle.

Mike: There's a deer right next to it, see it?

<u>Chuck:</u> Yeah, that's what we saw.

Kevin: What if we had a double barrel shot gun with buckshot?

Dianne: Heeeeyy! We wouldn't use it on Bambi's mommy, right?

<u>Chuck:</u> Well, it's too young to be a mommy.

Dianne: Sister? That might be Bambi!

Chuck: No, that's a doe.

<u>Walter:</u> Bambi grew up into a buck.

Dianne: Oh, that's right, Bambi was a boy. Sorry, my bad.

<u>Chuck:</u> You were never able to tell though at the beginning of the movie.

Mike: Who's Bambi?

<u>Dianne</u>: Do you remember the Disney movie *Bambi*?

<u>Chuck:</u> I don't think that was the sign. It didn't have the green around it.

Mike: What's Bambi?

<u>Dianne:</u> You don't remember the Disney movie about a little deer? It's a cartoon. <u>Mike:</u> No. Kevin: Mike, I have the movie, and I'll let you use it for a little while.

One of the boxes we located that morning was a letterbox that Walter especially wanted to find called "Mermaid." When we reached the area where the box was hidden, Kevin got to it first, but instead of opening it, he handed it to Walter. Chuck, ever prepared with humor, made a few sophomoric jokes about the mermaid while we were stamping in, but only Dianne and I reacted to them. Heading back on the trail, Mike initiated a conversation with Kevin. The first day I did not recall him initiating a conversation with anyone unless it was a request for information.

Independence

After a morning of letterboxing, we headed back to the campsite to strike camp. Mike and Kevin each took down their tents with no problem. Chuck and Walter asked for a little help. All of Walter's nylon packing bags for the tent were gone. We figured he had probably left them out and they had blown away. Finally we all tore ourselves away from the fire and finished packing. Ric offered to stay behind and organize everything into the cargo van while the rest of us went to lunch and did some more letterboxing.

We went to a fast food restaurant in the park. I sat down with Ken and Dianne, while Walter sat with Chuck at a table with two chairs. Kevin was sitting alone, but instead of sitting with him, Mike got his food and sat down at another table by himself. Kevin seemed a little disappointed, ate his food quickly, and went out to watch the glassblower. Later, when I brought this incident up with Mike privately, he said that he thought one of the chaperones was going to sit with Kevin, so he sat alone. Maybe he was just tired, or maybe he just sits alone for lunch out of habit, but I did not discover any bad feelings between the two.

Although they had a choice to stay in the SMP Adventure area or go to a nice warm museum in the park for the afternoon, everyone chose more letterboxing. Kevin was insistent about the box with the photo clue near the carillon. When we got there, only he and Ken got out to look for it. The rest of us were skeptical and stayed in the warm van. It wasn't long before Ken called us on the cell phone. Kevin was right; the box was there! Dianne told Kevin, "We'll never doubt you again," and that really made his day.

Teamwork

Chuck was interested in finding a box that was in the quarry area. One of the clues mentioned "facing the sea of granite." When we said that had to be the mountain, Mike was incredulous, "How can that be a sea? It doesn't have waves." That launched an interesting discussion about metaphors. We all tried to explain. Chuck had the best grasp of the concept and patiently tried his best to help Mike understand.

In the late afternoon, all the young men except Mike were on a letterboxing quest with Dianne and Ken. It was almost time to meet the parents for dinner, but they wanted to try for "just one more box." Mike was very tired and opted to stay in the van for a short nap. I stayed with him, because I was tired too, and used the time to call all of the parents to let them know that due to the frigid weather our plans had changed from having a picnic in the park to having dinner at the German Inn just outside the gates of Stone Mountain. When I talked to Mike's parents, they expressed their surprise that he had not called them even once during the four days of the trip, although he had a cell phone.

Pro-Social Behavior

We had been together for four days, yet the comfort level that the young men seemed to feel with one another, as evidenced by the conversation in the van, was like that of long-time friends. Everyone engaged in reciprocal conversation with others in the group off and on during the day. While Mike had been talking with others in the group since the first day, on this day I heard him initiate a casual conversation with Kevin as they were walking down the trail.

Kevin had shown consideration for Walter by not opening the "Mermaid" box even though he got there first, and Chase had been extremely patient and not condescending as he tried to explain the concept of metaphor to Mike.

Our letterboxing team was working like a well-oiled machine. Over the 4 days, we had found about 40 boxes! Later in the individual interviews, both Walter and Chuck were very kind in expressing their appreciation to me for arranging the trip. They also thanked the other chaperones for all that they had done.

Chuck expressed empathy for others in this journal entry when he wrote, "I hope the repercussions of this trip are positive and provide help for others."

Participants' Perceptions

I interviewed Mike in the van while we were waiting for the others to get back from the quarry. I complimented him on his camping skills and asked how he felt he had gotten along with the rest of the group. **Increased social competency**. Mike thought he had gotten along with everyone "pretty fine." He stated that the others in the group didn't exclude him and that they treated him as a member of the team. Mike felt that he had grown socially as a result of the therapeutic adventure:

Well, it has definitely gotten easier to talk to people, because well...mostly

because I think I could relate to the other kids here. ...All of us had some kind of

Asperger's and probably got rejected a lot at school.

When I asked if he thought he would see Kevin again, he indicated that it was a friendship he planned to continue, adding, "We got along fine."

In response to the whether he felt he had grown as a person in any way in the past four days, he replied, "Well, I've been doing pretty well so far, but I don't think I've changed that much. I haven't really done much changing my entire life."

We then talked about the hardships caused by the unseasonably cold weather. "The weather was against us completely. This morning, I woke up at two o'clock in the morning and I felt like I was about to get frostbite." When I asked if he had any regrets about the trip, he mentioned the letterbox we hunted for about an hour and couldn't find. "That one with the gnarly cedar and the twin pines..."

Increased self-efficacy. Walter made these concluding remarks about how he had grown personally as a result of participating in the study:

I guess it's also shown me that I need to have more confidence in myself. Because I'll say, 'Well, I don't think I did a good job,' you know. 'I might have messed this up,' but I think I over-criticize myself.... I still lost a lot of things, so some things are still the same, but I feel like this has helped me to improve.

One thing that Walter indicated had made an impression on him was a late night fireside discussion with Ric.

He told me I need to hear people's opinions and not just strike them down and if I'm going to debate them, I need to debate them intelligently. That's probably what screwed up the media; it's not intelligent debate. It's a shouting match.

Increased social competency. Walter very graciously expressed his appreciation to me for the way in which I had handled the therapeutic adventure.

I appreciate you, because you tried to meet our needs and you weren't either looking out for your best interests... I mean we got frustrated, we got tired, but I think we kept it in.

Walter also indicated that he and Chuck were planning to stay in touch. "Chuck and I, we got each other's numbers. We're going to call each other...and stuff like that. He told me where his house is."

Increased self-efficacy. Just prior to the trip, Chuck had been going through a tough time with his girlfriend and felt that being on the outdoor adventure had helped him to clear his head and get re-centered. "The last couple of days I've felt off my rocker and now that I'm here, I don't know, it's a chance to get away from it all...like I can bring it back together...you know what I mean?"

Increased social competency. Chuck also expressed his appreciation for being asked to go on the Stone Mountain Adventure.

I thought it was fine. I mean the weather was killer, but I enjoyed it. I especially enjoyed the hospitality of the hosts. I was feeling down the last couple of days, but I've been feeling a lot better. I do feel that I got a new hobby. I like that. It's something that I definitely plan to do later in life.

Increased self-efficacy. Kevin felt the biggest change in himself as a result of participating in the therapeutic adventure was the fact that he *did* participate. He also expressed that he felt better about himself and how he relates to others. In addition, he was amazed by his natural ability to analyze and figure out the location of the letterboxes. "I'm surprised that I'm able to actually pinpoint a degree without a compass or a map. Like where the 'Mermaid' [letterbox] was."

Increased social competency. Kevin felt he had grown as a result of the physical challenges as well. "I know I gained a lot of muscle from this." While all of the young men enjoyed the letterboxing activities, Kevin was perhaps the most excited. During the entire trip, he talked repeatedly about starting a letterboxing club at his school and had even begun to plan the logistics.

I have a couple of friends that I know would enjoy this....Since we [young men on the trip] go to three different schools, we can each be in charge of the groups at the schools. ... Mike and I could get together on the week-ends and do all the carving. I could talk to my principal and see if he'll allow another club. Yeah, and he might allow us to hide a couple around the school. That would get a lot of kids out of the house from watching so much TV and get them to exercise. And most of the time the kids probably won't even notice that they're doing exercise. If you're really concentrating on one [letterbox], you don't even pay attention to how far you are going.

Reuniting with Parents

Most of the parents were already there to welcome us when we arrived at the restaurant. There were hugs and smiles and an explosion of conversation. Kevin's grandparents, in particular, were amazed at how much he was talking. Instead of just sitting at the table with them after ordering, he was walking around talking to everybody, "working the room." Mike was talking almost non-stop to his dad and at one point, I even heard him refer to Stone Mountain as a "sea of granite." His dad was very enthusiastic, and Mike wanted to show him everything. Walter was also sharing accounts of his adventures with his dad, and Chuck was filling his family in on the details of the trip.

As Dianne aptly observed, "There was a huge difference in all of them between the first day and the last meeting at the dinner. Even though they were all tired, the amount of conversation was amazing." Mike, who had told us at the beginning that he didn't like to be touched, came around and shook hands with everyone. I even convinced him to give me a little hug! Just for fun, we gave out the following letterboxing awards:

- Best at Reading a Compass: Mike
- Best at Remembering and Solving a Picture Clue: Kevin
- Best at Following Letterboxing Etiquette: Chuck
- Best at Figuring out and Solving Verbal Clues: Walter

Then on a more serious note, I expressed my heartfelt appreciation to the participants and their parents.

I want to thank you for allowing your sons to participate in the Stone Mountain Adventure. I hope they had as much fun as I did. I applaud you for the fine job you have done in bringing them up. In a trip this long, often misunderstandings, and sometimes even angry interchanges occur. I never once saw that happen with your sons. Even when they were tired, cold, and had peanut butter and jelly sandwiches for lunch, they didn't complain. They were always courteous and respectful to the adults on the trip. Above all, there was a spirit of acceptance and most of all kindness that the group displayed to one another. Their voice needs to be heard, their story told. It is my hope that other gifted young men with Asperger's Syndrome will ultimately benefit from the contributions of the 'Boys of Spring.'

Follow- up Interview Data

I was able to arrange a follow-up interview with everyone except Walter, who was away at college. The interviews were conducted in mid-August 2009 at the participants' homes or at a restaurant.

Chuck

One thing I wanted to ask Chuck during his follow up interview was how he had managed to overcome his social problems. He talked about working really hard to overcome them, but didn't say exactly what strategies he had used.

He told me that he used to rehearse what he was going to say in front of the mirror, but things often didn't happen as he planned so he had to learn to change midstream. "Eventually, it just clicked. Like I said, I didn't start fitting in until a little bit after ninth grade, and now it's easier." **Increased social competency.** Chuck also shared that he and his girlfriend Sasha had broken up and that when it happened, he "felt healed." When she tried to apologize, he told her, "It's not because it is your fault; it's because we didn't belong together." He is dating someone new and seems happier.

Increased self-efficacy. I asked Chuck what, if anything, about the trip had made a lasting impact on him.

Funny thing is...out there I kind of became someone I'm not really. Normally, I'm just kind of lazy, but when I got out there and I had an agenda it was kind of ...you know...fun. I like being out there in the mountains... it was... the fresh air, the doing stuff. I wasn't getting as depressed as often. And really I just said instead of letting it go whenever somebody said something weird, I'd just say, "You have to excuse me, you know I have days when I don't know what I'm really saying." It gave me a chance to really see what I could do.

Pro-social behavior. Chuck told me that he and Walter had talked several times on the phone but they had not seen each other over the summer.

Kevin

Increased self-efficacy. When Kevin was asked if the trip had impacted him in any way socially, he replied, "It made me more able to have friends outside of my special ed. classes." He also said it was easier for him to talk to other people now and that he felt more confident. Kevin was proud of the outdoor skills he had learned during the trip, too, like using the compass.

Pro-social behavior. He spoke of having had a great summer and showed me an invitation for an international trip in which he had been invited to participate. I asked if

he had gotten together with any of the young men from the trip. "Yeah, I got together with Mike, his sister, and one of the kids that we went to school with in middle school." He told me they had all gone letterboxing and that he had gotten two friends interested in the hobby. I suggested that he invite them to our reunion trip the following Saturday, and he did.

Mike

When I met with Mike on a Saturday morning at his house, he had plenty of summer adventures to share. He had been spelunking in Canada with his dad and had been on several other trips.

Increased social competency. When I asked if he thought the trip had any lasting effects on his social skills, Mike replied, "It probably did, because I learned to interact with them [young men on the trip] better, and we actually got along alright. I still have a little bit of trouble getting to know people, but I'm a lot better at it." I also asked him what kind of social skills classes he had participated in and what they were like.

Well, what they would do is that we would read from books, but mostly we would act things out and we would actually do things rather than just read about it, because you won't really get any practice just from reading. You have to have the experience. The thing is, just about all of the people I've met in school that are like me go to resource class with me, so we are able to understand each other, but we feel that we are just about the only ones in the whole school. **Increased self-efficacy**. "Overall," Mike commented, "it [adventure trip] probably made me feel more confident, because, I was able to get along with the people in my group, as well as the other people that were leading it."

Pro-social behavior. Mike had been in contact with Kevin over the summer. He had called him and invited him to go letterboxing along with another friend. Mike said they all had a good time

The interview follow-up data add support to the emergent themes of the study and, along with the results of SSIS-SRS, suggest that the gains in self-efficacy and perception of social competence have been at least partially maintained. There are also indicators of pro-social behavior and friendships that have deepened as a result of the adventure trip.

SSIS-SRS Findings

The data from these rating scales indicate that the therapeutic adventure had a positive effect on the participants' perception of their social competency. By comparing the means of the standard scores (SS), the average mean gains or losses for each of the three administrations of the SSIS-SRS were computed. A confidence interval of 68% was used. This means that after adding and subtracting the standard error of measurement from the SS, there is a 68% probability that the true SS lies within that interval. When comparing scores, if the intervals created by the comparison scores do not overlap, a reliable difference is indicated—one that is probably not explained by measurement error (Gresham & Elliott, 2008). The average mean gain in participant perception of Social Skills on the last day of the therapeutic adventure was 10.25 points (*n*4). Using a confidence level of 68 % the average rise in perception of social competency was 4 points. The average long-term mean gain in participant perception of Social Skills was 7 points (*n*3). Using a confidence level of 68 % the average gain in long-term perception of social competency was 1 point. The average loss in participant perception of Problem Behaviors on the last day of the therapeutic adventure was 4.25 points (*n*4). Using a confidence level of 68 % the average loss in perception of Problem Behaviors does not indicate a reliable difference. Average long-term loss in participant perception of Problem Behaviors was 2.33 (*n*3). Using a confidence level of 68 % the average loss in perception of Problem Behaviors was 2.33 (*n*3).

These data support the finding that indicates that there was an overall gain for the participants as a group in perception of social competency and that the gain was maintained to a lesser degree after 4 months. Although there was a wide variance in the individual profiles, only one score decreased from the first administration (Kevin on 4-7), and he left too many uncompleted items for validity. His follow-up SSIS-SRS, however, demonstrated gains when compared to the first administration.

When interpreting the SSIS-SRS as measure of perception of social skills, I realized that the some of the participants might not have a true picture of their social skills and that teachers, parents and researchers might rate them quite differently. The data I was most interested in would indicate whether there were increases in certain skill

areas or decreases in specific problem areas. Regardless of whether the ratings were realistic or not, that data could demonstrate a rise in perception of social competency, which, as the study findings illustrated, leads to an increase in pro-social behavior.

Some interesting trends and implications emerged in the comparison of the SSIS-SRS subscale data for the individual participants. These were examined in conjunction with observation and interview data to formulate a summary of the findings for each participant.

Chuck

During the pre-trip interview, Chuck recounted several instances of bullying, fighting, and being blamed for things he did not do. He had been overweight during elementary days and was frequently teased. Chuck's diagnosis of AS was not made until eighth grade. By that time, he claimed, he had already figured out the social world himself through plenty of hard work. Chuck expressed doubt that he had AS.

On the SSIS-SRS (Table 1) that Chuck completed before the trip, he scored average on all Social Skills subscales except Cooperation, where he was below average. However, regarding Problem Behaviors, he was far above average on the Externalizing and Hyperactivity/Inattention subscales. It seemed that Chuck had a lot of pent up aggression from all the social injustices he had endured and sometimes he acted out without considering the consequences. Apparently he was often distracted, as well.

Did Chuck need to learn how to talk to people, how to use good manners or how to show empathy for another person? No, he was already doing well in those areas. Chuck needed to be away from his normal routine. He needed a place where he could be calm and think things through. That was exactly what he gained from the therapeutic adventure. In his interview, he said it gave him a chance to put things into perspective and re-center.

His scores on the SSIS-SRS on the last day of the adventure reinforce that. Communication increased by 3 points, while Hyperactivity decreased by 3 points and Externalizing decreased 2 points. Chuck was visibly calmer at the end of the trip. He was no longer compulsively eating sunflower seeds, he did not exhibit the tic in his neck, and he could sit still and focus. His self-confidence had also improved. Of the group, he was perhaps the most socially advanced. During the therapeutic adventure he did not need to worry about constantly playing catch up socially as he has had to do with typical peers. His gains were also demonstrated on the follow-up data in August. In fact, Externalizing continued to decrease and is now 10 points lower than it was in March. Chuck's overall Problem Behaviors on the follow-up have dropped 7 points from the first SRS indicating a reliable difference using a 68% CI.

Social Skills	Before		Last Day of		4-Month	
Subscales	Therapeutic		Therapeutic		Follow-up	
	Adventure		Adventure			
	3-26-09		4-7-09		8-14-09	
	Raw	Behavior	Raw	Behavior	Raw Behavior	
	Score	Level	Score	Level	Score	Level
Communication	12	Average	15	Average	13	Average
Cooperation	9	Below	12	Average	11	Average
		Average				
Assertion	17	Average	15	Average	16	Average
Responsibility	13	Average	15	Average	13	Average
Empathy	16	Average	15	Average	14	Average
Engagement	15	Average	13	Average	14	Average
Self-Control	8	Average	11	Average	11	Average
		SS 98		SS 102		SS 99
TOTAL	90	43%ile	96	55%ile	92	47%ile

 Table 1. Social Skills Improvement System Student Rating Scale - Chuck

Problem Behaviors Subscales	Before Therapeutic Adventure 3-26-09		Last Day of Therapeutic Adventure 4-7-09		4-Month Follow-up 8-14-09	
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Externalizing	18	Above	16	Above	9	Average
		Average		Average		
Bullying	2	Average	3	Average	2	Average
Hyperactivity/	14	Above	11	Average	11	Average
Inattention		Average				
Internalizing	7	Average	9	Average	7	Average
		SS 118		SS 115		SS 111
*TOTAL	33	82%ile	34	83%ile	30	76%ile

*TOTAL is not equivalent to the sum of the subscales.

Mike

Upon first meeting, Mike was friendly and cooperative. He answered interview questions thoughtfully and was very conscientious about completing the SSIS-SRS (Table 3). He recounted his elementary and middle school days as somewhat lonely, with other children picking on him. He told me that he did not like to be touched and did not understand figurative language or jokes. His defense mechanism had been to withdraw socially.

Academically, he was a star, winning the science fair, and shining in advanced science and art. Socially, however, he admitted that he had no friends at school other than his teachers. On the first SSIS-SRS, Mike rated himself as below average in Assertion, Empathy, and Engagement. His Problem Behaviors were all in the average range.

Mike came to the therapeutic adventure with a need to feel accepted. He needed an emotionally safe environment in which in which he could risk social engagement. It was very helpful that he had known and liked Kevin when they were in school together, even though they had been out of touch for a year.

Initially Mike was hesitant to engage. He seemed to feel safe with Kevin from the beginning, but it took a little while before he realized that Walter and Chuck were not going to ridicule him. In fact, they tried to help explain jokes when he asked. Soon Mike relaxed and began to engage in conversation. He even tried to help Walter with his organizational problems.

After the Sky Hike, Mike's self-confidence seemed to soar. The SSIS-SRS on the last day of the trip reflected his newfound confidence. His Assertion score was 3 points higher, while engagement rose by 4 points. Mike demonstrated long-term upward trends in Empathy, Assertion, and Engagement. At the follow-up, the perceptual gain in Assertion remained, but the gain in Engagement had diminished, perhaps coinciding with the start of school in August. His Empathy score had risen, but that may correlate with what he said in his interview about understanding the students in his resource class.

Mike needed to feel safe enough to engage socially. The therapeutic adventure provided him with that opportunity. Overcoming physical challenges and being accepted as part of the team also boosted his self-efficacy. In addition, Mike found a new hobby letterboxing! He has demonstrated pro-social behavior since the therapeutic adventure by inviting Kevin and another friend to go letterboxing. He invited a friend to the letterboxing reunion, as well.

Social Skills	Before		Last Day of		4-Month	
Subscales	Therapeutic		Therapeutic		Follow-up	
	Adventure		Adventure			
	3-30-09		4-7-09		8-15-09	
	Raw Behavior		Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Communication	12	Average	11	Average	11	Average
Cooperation	19	Above	18	Average	16	Average
-		Average		_		_
Assertion	8	Below	11	Average	10	Average
		Average		-		
Responsibility	18	Average	20	Above	17	Average
		_		Average		_
Empathy	5	Below	6	Below	9	Average
		Average		Average		_
Engagement	5	Below	9	Below	7	Below
		Average		Average		Average
Self-Control	13	Average	12	Average	12	Average
		SS 90		SS 95		SS 92
TOTAL	80	26%ile	87	38%ile	82	29%ile

 Table 2. Social Skills Improvement System Student Rating Scale – Mike

Problem	Before		Last Day of		4-Month	
Behaviors	Therapeutic		Therapeutic		Follow-up	
Subscales	Adventure		Adventure			
	3-30-09		4-7-09		8-15-09	
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Externalizing	2	Average	1	Average	0	Below
_		_		_		Average
Bullying	2	Average	1	Average	0	Average
Hyperactivity/	3	Average	2	Average	3	Average
Inattention		_		_		
Internalizing	8	Average	6	Average	9	Average
		SS 94		SS 90		SS 93
*TOTAL	13	34%ile	9	23%ile	12	31%ile

*TOTAL is not equivalent to the sum of the subscales.

Kevin

When I first met Kevin, he was very pleasant but gave mostly one-word answers in his interview, even though I tried to encourage him to elaborate. He stated that he was liked by everyone, but had no close friends and although he had thought about socializing with his peers, he had not taken the initiative to do so.

At Stone Mountain, Kevin entered a new set of circumstances. As our expert fire starter for four frigid days, he gained considerable social currency. In addition, his ability to remember visual cues and recognize obscure landmarks earned the respect of all members of our group. Kevin's pre-trip SSIS-SRS (Table 3) shows that he perceived both his Social Skills and his Problem Behaviors as being in the average range, as they were also on the last day of the adventure, although he skipped too many items on that administration to consider it a valid score. These scores do not tell Kevin's story. His Communication score went down 2 points, whereas his conversations and actual time talking had increased tremendously. When his grandparents came to pick him up at the end of the trip, his they were astounded to see Kevin circulating among the group talking to everyone. In his interview, Kevin also expressed that he felt better about himself and his abilities.

In the follow-up interview it became obvious that Kevin's perception of his social competency had blossomed. His SSIS-SRS Social Skills SS rose 10 points from the first rating which is a reliable gain at 68%CI. His Problem Behaviors SS also went down by 3 points. In one area, Engagement, he now saw himself as above average. He had visited socially with friends over the summer, was considering going on an international youth

trip, and told me that it was much easier to talk to other people outside of his special education class. He also invited two friends to the letterboxing reunion trip.

What Kevin needed to gain from the therapeutic adventure was the selfconfidence to engage with others, both in conversation and by taking social initiative. His pro-social behavior and the gains in his overall perception of social competency are indicative that he was successful.

Social Skills	Before		Last Day of		4-Month	
Subscales	Therapeutic		Therapeutic		Follow-up	
	Adventure		Adventure			
	3-29-09		4-7-09 **		8-20-09	
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Communication	13	Average	11	Average	13	Average
Cooperation	14	Average	14	Average	17	Average
Assertion	14	Average	14	Average	16	Average
Responsibility	14	Average	14	Average	17	Average
Empathy	14	Average	12	Average	13	Average
Engagement	16	Average	15	Average	19	Above
						Average
Self-Control	12	Average	12	Average	16	Average
		SS 103		SS 99		SS 113
TOTAL	97	57%ile	92	47%ile	111	80%ile
Problem	Before		Last Day of		4-M	onth
Behaviors	Thera	apeutic	Therapeutic		Follow-up	
Subscales	Adve	enture	Adventure			_
	3-2	9-09	4-7-09		8-13-09	
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Externalizing	2	Average	2	Average	1	Average
Bullying	1	Average	1	Average	0	Average
Hyperactivity/	5	Average	1	Average	4	Average
Inattention						
Internalizing	4	Average	3	Average	2	Average
		SS 90		SS 86		SS 87
*TOTAL	9	23%ile	5	12%ile	6	15%ile

Table 3. Social Skills Improvement System Student Rating Scale - Kevin

*TOTAL is not equivalent to the sum of the subscales.

Walter

Walter was a very intriguing person to talk to. He was an intellectual with a keen interest in politics and history. Walter was also a connoisseur of movies and books. Although he was extremely intelligent, Walter had problems staying organized and frequently misplaced items. While he had an incredible memory for facts, he stated that he often forgot to bring a pencil to class. His struggle with staying organized was a constant source of frustration for Walter, and he was very critical of himself. He also expressed intolerance of his classmates who were unmotivated and disrupted class.

On the first administration of the SSIS-SRS (Table 4), Walter's perception of himself was below average in every area except Cooperation, Assertion and Responsibility. He had two Problem Behavior areas in the above average range— Hyperactivity/Inattention and Bullying. Walter was frustrated and self-critical, and his scores on the SSIS-SRS reflected that.

What Walter needed from the therapeutic adventure was to feel better about himself and his abilities. He and Chuck began conversing almost immediately. By the second day, they were like old friends. Walter displayed a talent for figuring out puzzling letterbox clues. He was delighted when his persistence in deciphering the meaning of a cryptic clue paid off on a box that even Ken and Dianne, our letterboxing guides, had been unable to find. Being the oldest, Walter was looked up to as a leader and he filled the role, modeling maturity and tolerance.

By the end of the adventure, Walter realized that he had been too hard on himself and that everyone had weaknesses of one sort or another. His self-efficacy rose, as did
his pro-social behavior. On the last day of the trip, his perceived social competency was average in every area, and his total Social Skills SS had risen 25 points, which indicated a reliable difference at a 95% CI. The sub-scale of Empathy demonstrated a large gain in perception. The Problem Behavior SS was also notable, as it had fallen 10 points and indicated a reliable difference at 68% CI. I regret that I was unable to collect follow-up data from Walter to see if his remarkable gains had been maintained.

Social Skills	Before		Last Day of		4-Month	
Subscales	Therapeutic		Therapeutic		Follow-up	
	Adventure		Adventure		No data available	
	3-26-09		4-7-09			
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Communication	9	Below	14	Average		
		Average				
Cooperation	17	Average	14	Average		
Assertion	10	Average	15	Average		
Responsibility	13	Average	13	Average		
Empathy	5	Below	14	Average		
		Average		C		
Engagement	8	Below	17	Average		
0.0		Average		C		
Self-Control	5	Below	13	Average		
		Average				
		SS 80		SS 105		
TOTAL	67	12%ile	100	62%ile		
Problem	Before		Last Day of		4-Month	
Behaviors	Therapeutic		Therapeutic		Follow-up	
Subscales	Adventure		Adventure		No data available	
	3-26-09		4-7-09			
	Raw	Behavior	Raw	Behavior	Raw	Behavior
	Score	Level	Score	Level	Score	Level
Externalizing	13	Average	11	Average		
Bullying	9	Average	4	Average		
Hyperactivity/	14	Average	9	Average		
Inattention						
Internalizing	6	Average	6	Average		
		SS 114		SS 104		
*TOTAL	33	82%ile	23	58%ile		

Table 4. Social Skills Improvement System Student Rating Scale - Walter

Each of these young men had vastly different specific social needs, but the one commonality they shared was the need for greater self-efficacy. Through the opportunities for personal and social growth afforded by the therapeutic adventure paradigm, all experienced some degree of success. Findings suggest that therapeutic adventure might be a powerful tool for increasing self-efficacy, perception of social competency, and pro-social behavior for gifted adolescent males with AS/HFA.

CHAPTER VI

DISCUSSION AND IMPLICATIONS

In this chapter I will provide a summary of the findings and will present and discuss the conclusions, theoretical framework, and study design interwoven with related literature. This will be followed by implications and recommendations for future research. The chapter ends with a description of the Stone Mountain Reunion.

Summary of the Findings

This model depicts the effects of a 4-day therapeutic adventure on the social competency of gifted adolescents with AS/HFA. The inherent components of a therapeutic adventure create opportunities for social success. Experiencing social success increases self-perception of social competency, leading to an increase in pro-social behaviors. This in turn leads to more social success and thus the cycle continues.



Figure 6. Integrative model of Therapeutic Adventure

Conclusions

In this investigation, 4 gifted adolescents with AS/HFA were invited on a 4-day therapeutic adventure. For the brief time that we traveled the same path, they allowed us to view their social world through their eyes. In the context of therapeutic adventure, the quality and quantity of pro-social interactions increased—the researchers observed it; the participants articulated it. The initiation and engagement in reciprocal conversations and demonstrations of empathy among the participants were specifically documented; moreover, other positive behaviors, such as getting along with others and making friends, were also observed.

An increase in perception of social competency and self-efficacy was revealed through the Social Skills Improvement System-Student Rating Scales (SSIS-SRS) (Gresham & Elliott, 2008) and/or interview data for all four participants. In addition, the follow-up data suggested that this increased perception of social competency and selfefficacy was generalized to the home setting and maintained after 4 months. This reinforces the findings of an outdoor adventure study with urban youth that likewise documented social self-perception increases immediately after an outdoor adventure and to a lesser degree 4-months later (Garst, Scheider, & Baker, 2001).

These results demonstrate that therapeutic adventure produced long lasting social gains in a group of adolescent males with AS/HFA after only 4 days. Given the lack of appropriate social skills interventions documented as effective for adolescents with AS/HFA, this has promising implications.

Theoretical Framework Revisited

In many cases, the findings of this study support current research concerning the way that individuals with AS/HFA process social information. Examining the characteristics of the participants with AS/HFA in the Social Information Processing Framework is an interesting exercise, not only as an addition to the SIP and related literature, but also as a possible informal diagnostic tool to target individual deficit areas before an intervention.

Participant Characteristics in the Framework of SIP

Encoding and Interpreting

The first two steps of the SIP (Crick & Dodge, 1994) involve encoding and interpreting social information. The research reviewed in Chapter II demonstrated that individuals with AS/HFA process social information in the brain differently than typically developing individuals (Dalton et al., 2007; Pelphrey et al., 2004; Schultz et al., 2003). As Mike explained, "I process things logically, they process things emotionally."

Figurative language. Interpreting figurative language and understanding humor are other skills individuals with AS/HFA often fail to grasp (Emerich et al., 2003). Mike was aware that he had problems in this area. However, while on the trip, he was not upset if someone told a joke or used figurative language that he did not understand; he simply asked for an explanation. Perhaps because Mike has strong visual skills, he had no difficulty understanding pranks, such as misleading Ric by planting the quarters in the geocache.

Humor. Conversely, other research has shown that those with AS/HFA are capable of understanding most verbal humor, although they may interpret it more

cognitively than emotionally (Lyons & Fitzgerald, 2004). Chuck, in particular, frequently interjected humorous remarks and jokes. However, sometimes his jokes teetered on the brink of inappropriateness. Kevin did not often tell jokes in the traditional sense, but sometimes he made humorous remarks like wanting to "ride on the top of the van and flap like a flag." Walter's brand of humor leaned more to self-deprecating sarcasm, "My bookbag is a rat pack."

Teasing. Another especially problematic area for adolescents with AS/HFA is teasing because it requires the ability not only to interpret non-literal meanings but also to understand intention and pretense in the social context (Keltner et al., 2001). Individuals with AS/HFA reported that they didn't understand why people teased them and often didn't even realize that they were being teased (Heerey et al., 2005). Coping with teasing has been difficult for Mike because he tries to understand it in a context of logic. When the clerk at Stone Mountain Park (SMP) teased him and said his photograph was terrible, Mike became very agitated and implored, "But why did he do that?"

In the follow-up interview Mike also shared that he was struggling with this issue at school. When other teens joke with him, Mike thinks they are attempting to isolate him, rather than trying to include him. He reasoned, "If they want to show somebody that they like them, they should treat them nicely, not meanly."

Selecting a Goal and Accessing Prior Knowledge

The next step of SIP (Crick & Dodge, 1994) involves selecting a goal or desired outcome of the social interaction. Attwood (2002) found that while many adolescents with AS set one of their goals as having friends, their intrinsic goal is for knowledge.

Knowledge as the goal. Both Walter and Mike indicated the importance of

knowledge in their interviews. Throughout his interviews, Walter spoke with anger about having to put up with others in his classes who were interfering with his opportunity to learn. He vented his frustration regarding classmates who are not interested in learning: "They can't even watch a movie, let alone do a research paper."

Mike also emphasized how important learning is to him. He granted limited tolerance for those in his class who were unmotivated or made excuses to avoid completing assignments. Kevin was serious about school and gaining knowledge, as well. He was willing give up two afternoons a week to attend an extra math class, just to make sure that he did well in the advanced math courses he enjoyed.

Chuck felt social goals were important, but admitted that he had neglected focus on his academics to learn the "social curriculum" at school, which was not an intuitive process for him. He described rehearsing social interactions in front of a mirror until he developed the skills to communicate more naturally. This type of mimicry is known as social echolalia and is sometimes used by those with AS/HFA to mask their social deficits and fit in with peers.

Limited social memory. At step 4 of SIP, the individual draws upon prior social knowledge to formulate a response. Individuals with AS/HFA are often at a clear disadvantage at this stage because of their smaller reservoir of social experiences to draw upon for possible solutions. Moreover, they struggle to access their limited social memories to construct responses (Bowler, 1992). When I asked Kevin about elementary school, he told me that it was "pretty happy" but he was unable to remember any significant event during this time period.

Response is Selected and Carried Out

At Step 5, possible responses are evaluated in accordance with the goal, and one is selected. Self-efficacy is critical at this juncture, because without it, those with AS/HFA may feel that no matter what social response they choose, it will not be the right one.

Awareness of social difficulties. Studies have found that a significant number of participants with AS were completely unaware of having social difficulties (Carrington et al., 2003; Green et al., 2000). In some ways, Kevin appeared to fit that description because he seemed unclear about the differences between an acquaintance and a friend. Although he claimed to have lots of friends, when I asked him what kind of close friend he would like to find, his answer hinted that he understood his differences: "someone who likes me for who I am."

Conversely, another study found participants with AS/HFA were quite cognizant of their social difficulties (Jennes-Coussens et al., 2006). Interview data indicated that Walter and Mike were aware that they did not fit in socially. Walter described himself as isolated from others at his school and "out of touch with what's normal for a teenager." Mike readily admitted that he is not like most people his age.

Anxiety and depression. Although Chuck asserted that he had overcome many of his social difficulties, he acknowledged that it took great effort. While he had arguably the most typical peer relations of the four participants, he was also the only one who talked about suffering from anxiety and depression. At first blush this seemed incongruous, but Barnhill & Myles (2001) explained how such a discrepancy could occur. They found that the greater the depressive symptoms, the more likely adolescents with AS /HFA were to blame themselves and consider the cause to be internal and global.

Even when Chuck talked about bullies and people who had been unfair or unkind to him, he never blamed them for his social problems. Several times during his interviews, he made statements suggesting that he blamed himself: "I'm not making excuses" or "Well, it was my fault."

At step 6 of SIP, the chosen social response is carried out. Children and adolescents with AS/HFA often make inappropriate behavioral choices based on a misunderstanding of social cues. Deficiencies at any stage of SIP compound their difficulties. These social skills deficits often alienate others and create patterns of negative interactions (Church et al., 2000).

Misreading social cues. Chuck told of misconstruing social cues when a girl flirted with him in middle school by pushing and hitting him playfully. Remembering elementary school, Mike related that other kids touched him to annoy him, when they were most likely trying to play.

Social interactions within the framework of an established set of rules may ease the awkwardness for those with social skills deficits. MacIntosh and Dissayayake (2006) reported that children with AS/HFA were just as likely to participate in games with rules as their peers. Bauminger et al. (2003) suggested that the presence of rules can create a comfort zone since individuals with AS/HFA struggle with intuitive social interactions.

Among the participants in this study, Chuck enjoyed soccer and often worked as a referee. Chess was Mike's game. He reported playing the game frequently and participating in the chess club at his high school. Moreover, all of the young men had

enjoyed the letterboxing activities during the therapeutic adventure. Although it is not a game with rules, the established conventions and guidelines of letterboxing provide effective structure for social interplay.

Summary

None of the participants demonstrated all of the indicators of social processing difficulties, but each demonstrated some of the characteristics. Unfortunately, deficiencies at any step of the SIP framework may undermine effective behavioral enactment, subjecting the individual to being evaluated as inappropriate by peers and responded to in a negative manner. This feedback then informs the experience base from which the person draws guidance for future responses. Since individuals with AS/HFA tend to receive negative responses, their social self-efficacy diminishes, making them less likely to engage socially, thus decreasing their experience base even more as compared to typical peers. In order to stop this downward spiral, individuals with AS/HFA must be given opportunities to feel socially successful.

The 4-day therapeutic adventure enabled participants to experience social success, resulting in perceptions of increased social competency and pro-social interaction. The downward spiral in their reserve of social experiences was stalled and reversed through increased social interactions. What was unique about the therapeutic adventure that promoted social and personal success?

Experiential Learning Theory

Part of reason the intervention was successful may have been the strong, but flexible theoretical framework upon which it was based. In addition to SIP, the study was also informed by Experiential Learning Theory (Kolb, 1984), another circular model, which has four stages. The *experiences* were the activities and social interactions that made up our day. Each evening we *reflected* during a group debriefing session, evaluating the day and planning the following day. The next stage is meta-cognitive—*abstract conceptualization*. Participants were given time to think about the activities and the social interactions of the day. Individual interviews provided opportunities to express these conceptualizations. The last phase is *experimentation*, in which new behaviors or skills that were learned are tried out and in turn become the *experiences* of that day. SIP in many ways fits as the social component of this broader experiential model.

The Stone Mountain Adventure was not planned to teach a checklist of social skills. In accordance with the tenets of therapeutic adventure, we simply planned enjoyable outdoor activities that created the opportunities for social and personal growth. In fact, each participant tailored his own social skills intervention through incidental experiential learning. Walter astutely recognized this on the last day of the study:

You didn't treat us like lab rats. I mean we hardly knew there was a study going on. Some people would have like tried to limit what we did or manipulate us, like have an artificial situation, butthat's not the way you learn about people...you just take natural situations.

Later in his follow-up interview, Mike also recognized the power of social learning in a natural environment, saying "You won't really get any practice just from reading. You have to have the experience."

Intervention Design Factors

Positive findings from the study suggest that key factors which were extrapolated from relevant studies on social skills interventions for youth with AS/HFA and used in the

study design may contribute to an efficacious intervention. These factors are: (a) naturalistic setting; (b) understanding peers or others with AS/HFA; (c) developmentally appropriate; (d) individualized according to strengths, interests, and learning styles; and (e) facilitated by an adult (Schreiber, in press). Teamwork centered on a common interest or goal (Klin & Volkmar, 1995; Shore, 2002) and providing opportunities to demonstrate strengths while engaged in non-competitive recreation activities (Williams, 2000) were also considered to be integral components of the intervention design.

Individuals with AS/HFA, especially those who are gifted, are usually quite successful learning social skills which are taught in isolation, but often those skills do not transfer to a naturalistic setting (Parsons et al., 2006). Recent studies have found that naturalistic settings increase generalizability and provide opportunities for incidental social learning (Gutstein et al., 2007; LeGoff & Sherman, 2006). Moreover, Orsmond, Krauss and Seltzer (2004) recommended participation in recreational activities as an enjoyable means for developing social skills.

The Stone Mountain Adventure was a 4-day therapeutic adventure. Social skills were not taught in isolation; rather opportunities for social success were inherent in the design. A therapeutic adventure does not operate from a deficit standpoint; instead it creates opportunities for personal and social growth through teamwork and participation in non-competitive experiential outdoor activities (Itin, 2001). The findings of this study support therapeutic adventure studies with other at-risk adolescent populations that have demonstrated positive outcomes, including improved social skills and self-esteem (Cason & Gillis, 1994; D.B. Wilson & Lipsey, 2001; Russell, 2003).

Letterboxing. In addition to the overall design of the therapeutic adventure, two key factors contributed to the positive outcomes of this study. First was the choice of letterboxing as the primary activity. The hobby of letterboxing takes enthusiasts on a search for hidden treasure, following a set of clues, which may be enigmatic or straightforward. Regardless of the level of difficulty of the clues, every letterbox find generates a rush of success. Participants hiked six miles looking for letterboxes one day and did not even notice their physical fatigue until the day was over and the searching had ended.

The clues to finding the boxes gave both the visually gifted (Kevin, Mike) and the verbally gifted (Chuck, Walter) opportunities to contribute in a positive way to the team. This activity was a good fit for improving communication for those with AS/HFA because it required teamwork to locate the boxes. Activity-based, goal-oriented communication soon spawned social communication. All 4 of the young men mentioned letterboxing as one of their favorite aspects of the trip, and at least 2 of them have continued the hobby and have even introduced it to others.

Many opportunities for incidental learning connected with the letterboxing hikes occurred on the therapeutic adventure. The young men had to learn to be patient in waiting for their turn to stamp in. They learned to be considerate and let others pull a box out of its hiding place first sometimes. They learned to persevere and keep looking for a box when appropriate. And they learned to stop looking when circumstances indicated the box would probably not be found.

Group composition. The other key factor that contributed to the success of the intervention was the composition of the group. Some social skills interventions

recommend including typical peers to model appropriate social behavior (Kamps et al., 2002), whereas others advocate a group composed exclusively of those with AS/HFA (Marriage, Gordon, & Brand, 1995). A homogeneous group creates an environment for safe social risks, analogous to the therapeutic adventure paradigm, which provides an environment for safe physical risks. Having a small group also creates a greater sense of belonging and safety.

For this study, all of the participants were 15- to 18-year-old gifted males with AS/HFA. Although not identified as a major theme in the study, the enjoyment of being with "others like themselves" was mentioned several times by the participants. Walter wrote in his journal: "I'll feel sort of depressed when we leave, leaving people like me, especially Chuck, and going back under a pretty convincing mask."

Kevin stated in one of his interviews that he wanted to start a letterboxing club for those with autism at his school. When I suggested that perhaps anyone who was interested could participate, he replied, "We should have two different clubs, and the clubs could get together once in a while." Mike stated that he could relate to the other participants because "all of us have some kind of Asperger's." This supports Jones and Meldal's 2001 findings that those with AS considered others with AS a source of social and emotional support. One of the participants in that study stated, "It is so wonderful to get to spend some time with my own kind. (p.39)"

In the safety of a small group composed of other adolescents with AS/HFA who understood and would not make fun of them, the participants of the Stone Mountain Adventure risked engaging with others and consequently experienced social success. This led to improved feelings of social competency and provided motivation to increase their engagement with others in the group. Additionally, both dyads of young men stayed in contact long after the therapeutic adventure ended. According to Klin and Volkmar (1995), the formation of friendships is considered a strong indicator of a successful intervention.

Implications for Practice

Insights gleaned from this study contribute to the knowledge base of clinicians, intervention specialists for AS/HFA, and educators, as well as parents. The most critical area is the need for effective social skills interventions designed specifically to meet the needs of adolescents with AS/HFA.

Outdoor educators, camp directors, and recreation specialists may also benefit from the possibilities of an experiential program. Educators, counselors, and teachers of the gifted will benefit from hearing the voices of these young men as they describe school life from their perspectives.

AS/HFA Intervention Specialists

Designing effective social skills interventions for those with AS/HFA is frequently cited as an area of need in autism literature. Strategies for adolescents with AS/HFA are especially scarce (Rao et al., 2008). Although the research base is building, it is still in the early stages of development. This study's positive findings contribute nascent documentation that therapeutic adventure may be a promising model for nurturing pro-social behavior in adolescents with AS/HFA.

Observations during the adventure documented the power of group activities involving teamwork to promote goal-oriented social behavior and create opportunities for incidental learning and social success. Letterboxing was an activity that all 4 participants enjoyed. It seems especially suited to this population, because it capitalizes on mental acuity while providing physical exercise that does not require athletic expertise.

The link between self-perception of social competency and an increase in prosocial behavior was also demonstrated. Providing recreational activities which include only those with AS/HFA, at least part of the time, may be a way to facilitate an emotionally safe environment for social engagement, increasing the likelihood of social success.

Outdoor Recreation Specialists

This study adds to the literature base in the emerging field of outdoor recreation by providing initial evidence that the therapeutic adventure paradigm holds promise for building self-efficacy and social competency for adolescents with AS/HFA.

Although some camp programs claim to build social skills for those with AS/HFA, I found only anecdotal evidence of their effectiveness (Talisail 18+, 2009). Professionals in the therapeutic recreation field often know that their programs work, yet it is difficult for them to find time to document the results. Established camp programs for those with AS/HFA present an ideal situation for conducting research in this area; however, independent researchers are often denied access for proprietary reasons.

Another implication from this study that may be of interest for those in the outdoor recreation field is the enjoyment participants gained from being with others with AS/HFA in an adventure setting. Camp directors may want to consider scheduling an AS/HFA-only camp week in addition to other offerings (Attwood, 2000).

Educators

Gaining understanding of those who are gifted with AS/HFA was an underlying purpose of this study. It is hoped that giving voice to the young men on the therapeutic adventure will offer educators insight into this often misunderstood population. Very little research has been done with this segment of gifted students. Most of the existing research has focused on distinguishing a typical gifted child from a gifted child with AS/HFA (Assouline et al., 2009). Yet twice-exceptional students are often not referred for gifted programs at all because their weaknesses and social deficits tend to mask their talent areas (Henderson, Johnsen, & Kendrick, 2005)

I think of Walter who should have been in an AP English class, but due to his organization problems, had to endure a class with unmotivated students who made learning more difficult for him. I think of Mike, in a school of 1,600 students, eating lunch alone every day.

Then I think of Danny, an elementary gifted student with AS whom I taught many years ago, when my knowledge about AS was very limited. I could have done so much more for him, if only I had understood him better. I could have helped him to keep his papers organized. I could have capitalized on his interest in bats and computers by allowing him create a website instead of writing a report. I could have been more sympathetic when he was angry that the other children did not play Scrabble by the official rules. I could have started an after-school LEGO® Club, and allowed him the opportunity to build social capital with his peers. But I did not understand.

Gifted children with AS/HFA need educators who understand them, advocate for them, and provide opportunities for them to be socially successful. They need educators who are committed to nurturing the amazing talents that many of these students possess.

Parents

The therapeutic adventure did not have a set curriculum, a manual, or a therapist to teach social skills, yet each of young men left feeling better about himself and his social competency. In the same way, parents can help their child with AS/HFA develop social skills and self-confidence by providing opportunities to experience social success (Gutstein & Whitney, 2002).

Letterboxing was enjoyed by all of the participants. This is a hobby which the whole family can share and which seems especially suited to adolescents with AS/HFA because it includes mental as well as physical challenge.

It is hoped that the findings of this study will encourage parents to allow their children with AS/HFA to participate in available community outdoor recreational activities (Scholl, Dieser, & Davison, 2005), including supervised age-appropriate overnight trips. The message here is clear: "Don't be afraid to nudge them out of the nest a little. How high they can fly may surprise you!"

Future Research

This study augments the social skills literature for adolescents with AS/HFA by documenting therapeutic adventure as a promising intervention modality. It also contributes to the literature base in the fields of gifted education and outdoor experiential education. However, because this was an initial investigation of therapeutic adventure as a social skills intervention for those with AS/HFA, both replication as well as variation

studies are needed. Until such studies are completed, caution must be exercised in drawing implications and making recommendations from these findings.

An investigation of therapeutic adventure involving females with AS/HFA may be called for next, as there are relatively few interventions which take into consideration the needs of this unique population (Assouline et al., 2009). Varying the length of the trip, as well as the activity, to see whether similar results are achieved would also add valuable information. Many other possible adventure activities, such as sailing, rafting or rock climbing, could be investigated within the therapeutic realm. Another follow-up study with the participants of this research after one year, to determine whether increases in perception of social competency were maintained and pro-social behavior has continued would also add valuable information.

The pre-trip interviews allowed a glimpse of the physical and mental bullying that many children and adolescents with AS/HFA are forced to endure each day. Three of the four participants in the therapeutic adventure study said that they had been the victims of bullies at some time in their school career. This is in line with a study by Little (2002) which found that 75% of children with AS/HFA or non-verbal learning disabilities had been physically or emotionally bullied. Future studies focusing on preventing bullying, not only for those with AS/HFA, but for all vulnerable children, is critically needed.

Many questions remain to be answered about the role that self efficacy and selfperception of social competency play in motivating those with AS/HFA to socially engage, but this study accomplished much for its participants. On four frigid April days, the "Boys of Spring" connected, achieved, and relished in success. They also made their contributions to research's efforts to better understand those with Asperger's Syndrome/High Functioning Autism.

The Stone Mountain Adventure Reunion

All of the chaperones and three of the young men who had participated in the study (Mike, Chuck, Kevin) met at Stone Mountain Park for a day of reuniting and letterboxing at the end of the summer before school started. Unfortunately, Walter was already getting settled at college and could not be with us.

Mike's parents accompanied us. Since our trip in April, they had also started letterboxing and found it to be an exciting hobby that their whole family enjoyed. They often travel, and Mike was excited to show me the cool stamps from letterboxes he had found while visiting upstate New York. Kevin's grandfather was there as well.

In addition, Mike had invited a friend, Jackson, to come along and Kevin had invited two brothers, Joel and Carson, whom he knew from school. I was thrilled to see that Kevin and Mike were reaching out to others socially.

All of the invited friends ended up riding with Mike's parents, because Kevin drove his convertible BMW, and Joel and Carson's mother was not comfortable with her sons riding with Kevin yet, since he had just recently gotten his license. Chuck rode with Ric and me, because his parents were out of town. He had invited his new girlfriend to come along, but she wasn't able to attend. Chuck shared with me that her parents were a "little overprotective." We talked some more about his girlfriend and how he had spent the summer. Then he sat back and began reading a Harry Potter book until we arrived at Stone Mountain Park. He seemed calm and happy.

I had just seen the young men at various times the week before for the follow-up interview, but Ken, Dianne, and Ric had not seen them since April, so it truly was a time of reunion. Unlike April, this time we enjoyed a warm sunny day.

Ric went out to pick up pizzas while the rest of us munched on a huge salad sent by Kevin's grandmother. As we were waiting for the pizza, Kevin was explaining the logistics of letterboxing to Joel and Carson, while Jackson leafed through Mike's logbook and Mike told him about some of his favorite stamps and where he had discovered them. When the pizzas arrived, the talking stopped until four large pizzas and several chocolate chip cookies had disappeared. The young men were eager to head up the mountain, so we quickly cleaned up the picnic tables, stowed the coolers, and drove to the parking lot where the Walk-up Trail began.

We were on a mission—this time the elusive Gnarly Head with its "twin pines" and "gnarly cedar" would not evade us! Mike was especially determined to find it, and I recalled that he had said his one regret from the adventure trip in April was that we had not found that particular letterbox. Kevin and his two new friends practically ran up the mountain, but Chuck, Mike, and Mike's new buddy Jackson stayed close to Dianne and Ken, knowing that they had the best chance of finding Gnarly by sticking with "the experts." 225

After some false leads, we found a cedar that looked like the gnarliest of them all...and we found it! Dianne asked someone to take a picture of the original Stone Mountain Adventure group holding the box, so we could send it to Walter. We went on to find several other letterboxes that day on the Walk-up Trail, but none was as exciting to find as that one was to us. The only thing that was more exciting to me was to watch Mike and Kevin laughing and talking with their three new friends. As we were all leaving, late that afternoon, I heard Carson exclaim, "This has been the best day!" I had to agree with him.

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APPENDICES

Appendix A

Criteria from DSM-IV --- American Psychiatric Association

299.80 Asperger's Disorder

- (A) Qualitative impairment in social interaction, as manifested by at least two of the following:
 - 1. marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
 - 2. failure to develop peer relationships appropriate to developmental level
 - 3. a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people(e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
 - 4. lack of social or emotional reciprocity.
- (B) Restricted repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:
 - 1. encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus
 - 2. apparently inflexible adherence to specific, non-functional routines or rituals
 - 3. stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole-body movements)
 - 4. persistent preoccupation with parts of objects
- (C) The disturbance causes clinically significant impairment in social, occupational, or other important areas of functioning.
- (D) There is no clinically significant general delay in language (e.g., single words used by age 2 years, communicative phrases used by age 3 years)
- (E) There is no clinically significant delay in cognitive development or in the development of age-appropriate self-help skills, adaptive behavior (other than in social interaction), and curiosity about the environment in childhood.
- (F) Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

Appendix B

Criteria for Gifted from Georgia Department of Education

Gifted Student - a student who demonstrates a high degree of intellectual and/or creative ability(ies), exhibits an exceptionally high degree of motivation, and/or excels in specific academic fields, and who needs special instruction and/or special ancillary services to achieve at levels commensurate with his or her abilities. (SBOE Rule 160-4-2-.38, p. 1) The eligibility criteria for gifted program placement are also provided in SBOE Rule 160-4-2-.38. The Rule describes the four categories for assessment (mental ability, achievement, creativity, and motivation) and the performance standards that must be achieved in each for a student to become eligible for gifted education services. Once a youngster has been assessed in all four data categories, there are two ways eligibility can be established:

Option 1, the Psychometric Approach:

The student may qualify on the basis of mental ability and achievement assessment results only (regardless of the assessment results in creativity and motivation). In this case the mental ability test score must be a composite or full-scale score. The composite score must be at the 99th percentile for students in grades K-2. The composite score may be at the 96th percentile or higher for students in grades 3-12. In addition, students (grades K-12) must meet at least one of the achievement standards described in the SBOE Rule 160-4-2-.38: 90th percentile Total Reading, 90th percentile Total Math, 90th percentile total achievement test battery, or superior product/performance assessment. No student may qualify on the basis of a mental ability test score alone.

Option 2, the Multiple-Criteria Approach:

The student may qualify by meeting the standards in any three of the four data categories, at least one of which must be on a nationally-normed standardized test. Component scores (e.g., Nonverbal Ability), as well as full scale scores, may be used in the area of mental ability. However, component scores must meet the criteria specified in the *Gifted Education Regulations* (Pages 7-13).

We believe that these abilities (mental ability, achievement, creativity, and motivation) may be demonstrated in a variety of ways, thus there are assessment options in each of the data categories. We are also committed to the belief that gifted students may be found within any race, ethnicity, gender, economic class, or nationality.

Appendix C Social Skills Intervention Studies

Study	Participants	Methodology	Additional Information	Summary of Findings
Social Stories				
Adams, Gouvousis, VanLue & Waldron (2004)	1 AS 7 yr	Single case ABAB		A Social Story intervention decreased frustration during homework time.
Bernad-Ripoll (2007)	1 AS 9 yr	Single case AB with		Videotaped emotions and Social Stories improved child's ability to recognize and understand emotions with generalization.
Brownell (2002)	4 ASD 6 – 9 yr	Case study counterbalanced treatment order ABAC/ACAB		Both reading and singing of the Social Stories was associated with lowered frequency of target behavior, but there was no significant difference between the two.
Keeling, Myles, Gagnon & Simpson (2003)	1 HFAD 10 yr	Single subject, multiple-baseline across settings		Special interest was used to support positive behavioral change with an individualized intervention.
Sansosti & Powell-Smith (2006)	3 AS 9 –11 yr	Multiple baseline across participants	Follow- up	Social Story intervention resulted in increased social

				behavior while intervention was implemented, but without maintenance of target behaviors.
Sansosti & Powell-Smith (2008)	3 HFA/AS 9 – 11 yr	Multiple baseline across participants	Follow-up	Computer presented Social Stories and video- models increased social communication with maintenance, but generalization for only one child.
Scattone, Tingstrom & Wilcznski (2006)	3 ASD 8 –13 yr	Multiple baseline across participants		Results showed that Social Stories alone have limited effectiveness in increasing positive social interactions for some children with ASD.
Manualized Instructional Programs				
Barnhill, Cook, Tebbenkamp & Myles (2002)	6 AS; 1 HFA; 1 PDD 13 – 17 yr	Pretest-posttest		Social skills group to teach non- verbal social skills showed minimal improvement in non-verbal skills, but demonstrated an increase social and friendship skills with group members.
Beaumont & Sofronoff (2008)	49 AS 7½-11 yr	Pretest-posttest Waiting list control group	Follow-up	Junior Detective Training Program involved small groups, computer

				game, parent training, and teacher hand-outs. Parent report data indicated improvement of social skills as compared to the control group with evidence of maintenance after 5 months.
Bock (2007)	4 AS 9 –10 yr	Multiple baseline across settings	Follow – up	SODA, a social- behavioral learning strategy had a positive effect on social skills in naturalistic settings with maintenance after one month.
Crager & Horvath (2003)	1 AS 10 yr	Pre-treatement - posttreatment	Single subject Clincal case Study	Negative behavior decreased and positive increased, but not significantly according to parent report.
Laugeson, Frankel, Mogil & Dillon (2008)	33 HFA, AS, PDDNOS 13-17 yr	Delayed treatment Control group		Parent –Assisted Manualized training (PEERS)- parent report indicated significant improvement of overall social skills.
Mrug & Hodgens (2008)	4 AS 7-9 yr	Multiple baseline and treatment components across settings	Clinical case study	The 6-week Summer Treatment Program produced improvements in social skills and relationships.

Solomon, Goodlin-Jones & Anders (2004)	18 HFA, AS, PDDNOS 8-12 yr	Pre-test- posttest 2 intervention groups Waiting list control group		Social adjustment enhancement curriculum reported improvements in facial emotion recognition and real-life problem solving. Older lower-functioning boys and mothers of all children showed a decrease
				in depression.
Webb, Miller, Pierce, Strawser & Jones (2004)	10 HFASD 12 – 17 yr	Multiple baseline across skills with multiple probes		Significant gains were reported in five targeted skills using the SCORE method of social skills instruction- no generalization by parent report.
Non-Manualized Training or Support Groups				
Apple, Billingsley & Schwartz (2005)	2 HFASD 5 yr. – Experiment 1 3 HFASD 4- 5 yr. Experiment 2	Multiple baseline across participants		Video-modeling proved effective in increasing compliment- giving responses. In Experiment 2, self-management strategies increased independence of complimenting.
Barry, Klinger, Lee, Palardy, Gilmore & Bodin (2003)	4 HFASD 6 – 9 yr	Pre-test - posttest		Clinic-based intervention led to improved social skills, but with lowered generalizability to other settings.
Broderick, Caswell, Gregory,	5 AS 12 – 15 yr 4 AS 12 – 15	Pretest – posttest Qualitative	Follow- up Pilot study	Attendance at social skills group with an adult

Marzolini & Wilson (2002)	yr			helper showed increased self- esteem and confidence.
Carter, Meckes, Pritchard, Swensen, Wittman & Velde (2004)	6 AS 8 – 10 4 AS 11 – 15 (2 groups)	Pre-test – posttest Qualitative		Friendship skill groups were perceived as successful by participants, parents, and leaders.
Parson, Leonard, Mitchell (2004)	2 HFASD 14 -17 yr	Qualitative case study	Follow-up	Participants showed a positive response to Virtual Environments, but there was no evidence that knowledge from their sessions generalized to real life.
Ruble, Willis & Crabtree (2008)	4 AS; 1 HFA 9-12 yr	Pre-treatment - posttreatment	Clinical Case Study Follow- up	Initiating and maintaining conversations and problem solving skills increased after taking part in social skills group therapy.
Tse, Strulovitch, Tagalakis, Meng & Frombonne (2007)	46 AS/HFA 13-18 yr	Pre-treatment - posttreatment	Preliminary study	Social skills training group demonstrated gains on social competence and problem solving according to parent and participant report. Generalization also supported by parent report.

Weidle, Bolme	21 AS 11 – 16	Multiple baseline	Pilot study	Peer support
& Hoeyland	yr	across	-	groups were
(2006)	(3 groups)	participants		perceived as
		Qualitative		helpful by
				adolescents and
				parents.
				•
Cognitive				
Behavioral				
Therapy				
Bauminger	15 HFA 8 –17	Pretest-posttest		Cognitive-
(2002)	yr			behavioral-
				ecological social
				skills training
				demonstrated
				social cognition
				and dyadic
				interaction
				improvement.
Bauminger	19 HFASD 7-	Pretest-posttest	Follow-up	Cognitive-
(2006)	11 yr	Replication study		behavioral-
				ecological social
				skills training
				demonstrated
				social cognition
				and dyadic
				interaction
				improvement with
				maintenance.
Lopata,	21 AS 6-13 yr	Pretest-posttest	Preliminary	Two types of
Thomeer,			data	treatments
Volker & Nida				demonstrated
(2006)				overall
				improvement in
				social skills based
				on parent and staff
				reports. There was
				no significant
				difference
				between
				treatments.
Parent/Family				
Mediated				
Strategies				
-				

Gutstein,	16 HFASD 2-	Pre-test, posttest	Long term	Parent-based
Burgess &	7 yr	with multiple	follow-up	cognitive
Montfort (2007)		data points		behavioral
				approach. Before
				treatment all
				participants met
				ADOS/ADI-R
				criteria for autism.
				No child met
				criteria post-
				treatment.
Koegel, Werner,	2 ASD 8 –9 yr	Multiple baseline		Contextual
Vismara,		across		support system
Koegel (2005)		participants		during play dates
				promoted positive
				social interaction.
Stewart, Carr &	1 AS 10 yr	Pretest - posttest	Single	Family members
LeBlanc (2007)			subject case	became trained in
			study	behavioral skills.
				Child increased
				target social
				behaviors.
Peer-mediated				
Strategies		D '		0 1 1 11
Chung, Reavis,	4 HFASD 6 –	Basic .		Social skills
Mosconi,	/ yr	comparison		training was
Dewry,		Pre-Test -		effective in
Matulews α		positesi		approving social
Tasse(2000)				
				SKIIIS.
Kampa at al	5 450 0 10	Single subject	2 studios	and cooperative
(2002)	J ASD 9 -10	roversel	2 studies	loorning groups
(2002)	yı 51 typical	neversal	control	increased social
	Deers 9 10 yr	across settings	Eollow up	interaction with
	$\frac{1}{34} \text{ ASD 7} = \frac{10}{14} \text{ yr}$		ronow-up	hetter
	34 ASD 7 = 14 vr (study 2)			generalization for
	yr (study 2)			the cooperative
				learning groups
				Long-term
				increases in social
				interactions were
				greater for
				familiar and
				trained peers.
				r

Morrison, Kamps, Garcia & Parker (2001)	4 ASD 10 – 13 yr	Multiple baseline across skills/ counterbalanced reversal with alternating monitoring conditions		Adult teaching with peer mediation of skills increased targeted social skills and social initiations. There was little difference between peer and self-monitoring strategies. There was limited generalization.
Thiemann & Goldstein (2001)	5 ASD 6 – 12 yr 10 typical peers	Multiple baseline across skills		Written text and video feedback with peer social partners. Increased targeted social communication skills resulted from treatment. Generalization demonstrated, but not maintenance.
Activity-based Interventions				
Chiang, Lee, Frey & McCormick (2004)	6 HFASD 10 -14 yr 6 typical peers	Pre-test – posttest Mixed methods		A situationally modified social rank based intervention demonstrated increased friendship quality and peer recognition.
Le Goff (2004)	47 AD, AS or PDD-NOS 7 – 10 yr	Repeated measures	Waiting List Control group	An intervention of behavior therapy, peer modeling and naturalistic communication strategies using LEGO® play as the medium

				resulted in improved ability to initiate and maintain social contact with
Le Goff and Sherman (2006)	60 ASD mean 9 yr 60 ASD with alternative intervention mean 10 yr	Long-term comparison study between interventions	Control Group	Three year retrospective study of those receiving LEGO® therapy compared with a control group receiving alternative therapy. Both made gains, but the LEGO® group improved significantly more.
Lewis, Trushell & Woods (2005)	1 AS 7 yr	Single subject case study		Adult-facilitated computer group- work sessions resulted in moderate improvements in social ability and a raised social profile among peers.
Owens, Granader, Humphrey, Baron-Cohen	31 HFA/AS 6- 11 yr	Comparison study between LEGO® therapy and Social Use of Language Program (SULP)	Matched control group with no intervention	Both LEGO and SULP groups showed decreases in maladaptive behavior compared to control group. LEGO group improved most on Gilliam scores .

Appendix D



Appendix E

Stone Mountain Adventure Trip Schedule for 4/4/09 –4/7/09

Saturday, April 4th

9:00 AM	Parents arrive with sons at designated Stone Mountain pavilion
9:30AM - 10:30AM	Introduction to hobby of letterboxing – Special Speaker
10:30AM – 11:30AM	Fundamentals of Orienteering - Ric Schreiber (Chaperone/Researcher)
11:30AM – 12:30PM	Lunch at Miss Katie's Restaurant in the park
12:300PM - 2:30PM	Check in at campground, pitch tents and get settled, receive logbooks and stamps.
2:30PM – 4:30PM	Group letterboxing hike, planned by Ken and Dianne Prager (Chaperone/Researchers)
4:30PM – 6:00PM	Free time, record letterboxes found using laptops brought by chaperones, individual interviews with Catherine Schreiber (Primary Researcher)
6:00PM - 7:30PM	Build campfire, roast hotdogs, make s'mores
7:30PM -8:00PM	Group debriefing
8:00PM - 8:15PM	Trail journaling
8:15PM - 10:00PM	Collaboratively plan next day's letterboxing hike and Stone Mountain adventure activities, prepare for bedtime
10:00PM	Bedtime

Sunday, April 5th

8:00AM – 9:00AM	Breakfast at the campfire (bacon and eggs or cereal)
9:00AM - 10:00AM	Interdenominational church service at the campground meeting area or quiet time at campsite
10:00AM - 12:00PM	Letterboxing hike
12:00PM - 1:30PM	Lunch (TBD)*, free time
1:30PM - 4:30PM	Stone Mountain adventure activities
4:30PM – 5:30PM	Collaboratively plan next day's letterboxing hike and Stone Mountain adventure activities
5:30PM - 6:30PM	Dinner (TBD)*
6:30PM - 7:00PM	Group debriefing around the campfire
7:00PM - 7:15PM	Trail journaling
7:15PM - 8:00PM	Individual interviews, free time
8:00PM - 9:00PM	Laser Light Show
9:00PM - 10:00PM	Log letterbox finds, prepare for bedtime
10:00PM	Bedtime

Monday, April 6th

8:00AM – 9:00AM	Breakfast (TBD)*
9:00AM – 9:30AM	Free time
9:30AM - 12:00PM	Letterboxing hike
12:00PM - 1:30PM	Lunch (TBD)*, free time
1:30PM - 4:00PM	Stone Mountain adventure activities
4:00PM – 5:30PM	Create letterbox(es) to hide on next day's hike. Figure out possible clues and refine them after hiding the box(es).
5:30PM - 7:00PM	Dinner (TBD)*
7:00PM - 7:30PM	Group debriefing around the campfire
7:30PM – 7:45PM	Trail journaling
7:45PM – 9:30PM	Individual interviews, collaboratively plan next day's letterboxing hike
9:30PM - 10:00PM	Log letterbox finds, prepare for bedtime
10:00PM	Bedtime

Tuesday, April 7th

8:00AM – 9:00AM	Breakfast (TBD)*
9:00AM – 10:00AM	Strike camp site, pack-up, lock belongings in chaperones' vehicles
10:00AM - 12:00PM	Letterboxing hike to hide box(es), refine clues
12:00PM - 1:00PM	Lunch (TBD)*
1:00PM – 1:30PM	Group debriefing time
1:30PM – 1:45PM	Trail journaling
1:45PM – 2:15PM	Complete Social Skills Rating System
2:15PM – 4:00PM	Log letterbox finds and post clues to letterboxes planted, invidual reflection interviews
4:00PM - 5:00PM	Mini-golf
5:00PM - 7:00PM	Picnic with boys' families at the designated pavilion
7:00PM	Parents depart with sons

* Meals listed, as TBD (To Be Determined) will be decided upon as a group. There are several fast foods restaurants in the park that would be suitable for lunch and three full-service restaurants that serve both lunch and dinner. In addition there is a small grocery store in the campground area where chaperones can purchase snacks for the group and food for meals to be cooked at the campground.

In case of rain, Stone Mountain Park has a variety of indoor activities, such as the 4-D movie, Memorial Hall and the Antique Car Museum. Hiking may have to be postponed or cancelled if the trails are too wet, for safety reasons.
Packing List for Stone Mountain Adventure

Clothing:

2 or 3 Pairs of jeans or sweat pants 4 t-shirts 4 pairs of underwear 6 pairs of socks 1 or 2 sweatshirts Sweat suit and/or shorts and t-shirt to wear for sleeping 1 pair of shoes or boots suitable for hiking (sneakers are fine) 1 pair of flip-flops or shower shoes Warm jacket Gloves Warm hat Cap or visor with a sun shield Raincoat or poncho

Toiletries:

Toothbrush, paste, floss Comb/hairbrush Shampoo Soap Lotion Lip balm Sunscreen Prescription medication (if applicable) Prescription eye-glasses (if applicable)

Camping needs:

Small flashlight* Small backpack or fanny pack* Small tent* Sleeping bag* Compass* Blanket Pillow

*If you do not have these items, please make a request before the trip and they will be provided

Optional items:

Cell phone and charger Disposable Camera Earplugs Personal music device with headphones Watch Book or magazine Sketchbook Pencils Individually wrapped snacks Playing cards

DO NOT BRING:

Electronic games Laptops

Appendix F

Parental Permission Form

I agree to allow my child, _____ , to take part in a research study titled, "THE EFFECTS OF A THERAPEUTIC OUTDOOR ADVENTURE ON THE SOCIAL COMPETENCY OF GIFTED ADOLESCENTS WITH ASPERGER'S **SYNDROME** OR HIGH-FUNCTIONING AUTISM" conducted by Catherine A. Schreiber from the Department of Educational Psychology at the University of Georgia (770 914-9591) under the direction of Dr. Thomas Hébert, Department of Educational Psychology, University of Georgia (706 542-3678). I do not have to allow my child to be in this study if I do not want to. My child can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which he is otherwise entitled. I can ask to have the information related to my child returned to me, removed from the research records, or destroyed.

The reason for this study is to better understand the social experience of bright boys with Asperger's syndrome or high-functioning autism on a camping trip. Boys who take part may improve their social skills. The researcher hopes to learn something that may help other bright boys with Asperger's syndrome or high-functioning autism improve their social skills in the future.

If I allow my child to take part in this study, my child will be asked to do the following things:

- 1) Answer questions and fill out a survey about social skills prior to the camping trip, which may take up to an hour.
- 2) Participate in camping, hiking, orienteering, and other outdoor activities.
- 3) Agree to follow the safety rules.
- 4) Answer questions about his experiences and feelings during the trip for 10 15 minutes daily.
- 5) Keep a journal about his thoughts and feelings each day while on the camping trip.
- 6) Agree to be observed and videotaped during the camping trip in public areas.
- 7) Answer questions and fill out a survey about social skills and friendships four months after the camping trip, which may take up to an hour.

My child will receive an all expense paid 4-day, 3-night camping trip, in Stone Mountain Park, Atlanta, GA. He will be introduced to a hobby called "letterboxing" which includes elements of hiking and orienteering in a treasure hunt format. He will explore new places and make new friends.

Although there is always some risk involved in hiking and camping, from common occurrences, such as skinned knees and bug bites to extremely rare serious injuries, such as broken bones, following basic safety rules will minimize these risks. I understand that if my child refuses to follow safety rules he will be asked to leave and I will come to get him at Stone Mountain. In addition, I will provide any medical information necessary for the welfare of my child and understand that the primary researcher, Ms. Schreiber, will administer any prescription medication. I will further provide emergency phone information, so that I can be reached at anytime during the 4-day outdoor adventure.

My child will receive a free 4-day camping trip in Stone Mountain Park, Atlanta, GA for answering questions, allowing observations, being videotaped, and keeping a journal during the trip. Even if he wishes to drop out after the study begins, the trip will still be free.

No individually identifiable information about my child will be shared with others without my written permission, except if it is necessary to protect his welfare (for example, if he were injured and need physician care) or if required by law. My child will be assigned a pseudonym and this pseudonym will be used on all of the data pertaining to him. All data will be kept in a secured location. Audiotapes will be erased upon transcription, and videotapes will be destroyed after the final report is written. I will be provided with a copy of the findings.

The investigator will answer any further questions about the research, now or during the course of the project. The University of Georgia is not able to offer financial compensation nor to absorb the costs of medical treatment should my child be injured as a result of participating in this research.

I understand the study procedures described above. My questions have been answered to my satisfaction, and I agree to allow my child to take part in this study. I have been given a copy of this form to keep.

Catherine A. Schreiber Name of Researcher Telephone: 770 914-9591 Email: <u>schreiber_c@bellsouth.net</u>

Signature

Date

Name of Parent or Guardian

Signature

Date

Please sign both copies, keep one and return one to the researcher. Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix G

ASSENT FORM

I, _______, agree to participate in a research study titled "EFFECTS OF A THERAPEUTIC OUTDOOR ADVENTURE ON THE SOCIAL COMPETENCY OF GIFTED ADOLESCENTS WITH ASPERGER'S SYNDROME OR HIGH-FUNCTIONING AUTISM" conducted by Catherine A. Schreiber from the Department of Educational Psychology at the University of Georgia (770 914-9591) under the direction of Dr. Thomas Hébert, Department of Educational Psychology, University of Georgia (706 542-3678). I understand that my participation is voluntary. I can refuse to participate or stop taking part without giving any reason, and without penalty or loss of benefits to which I am otherwise entitled. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The reason for this study is to better understand the social experience of bright boys with Asperger's syndrome or high-functioning autism on a camping trip. Boys who take part may improve their social skills. The researcher hopes to learn something that may help other bright boys with Asperger's syndrome or high-functioning autism improve their social skills in the future.

If I take part in this study, I will be asked to do the following things:

- 8) Answer questions and fill out a survey about social skills prior to the camping trip, which may take up to an hour.
- 9) Participate in camping, hiking, orienteering, and other outdoor activities.
- 10) Agree to follow the safety rules.
- 11) Answer questions about my experiences and feelings during the trip for 10 15 minutes daily.
- 12) Keep a journal about my thoughts and feelings each day while on the camping trip.
- 13) Agree to be observed and videotaped during the camping trip in public areas.
- 14) Answer questions and fill out a survey about social skills and friendships four months after the camping trip, which may take up to an hour.

The benefit I will receive is an all expense paid 4-day, 3-night camping trip, in Stone Mountain Park, Atlanta, GA. I will be introduced to a hobby called "letterboxing" which includes elements of hiking and orienteering in a treasure hunt format. I will explore new places and make new friends.

Although there is always some risk involved in hiking and camping, from common injuries, such as skinned knees and bug bites to extremely rare serious injuries, such as broken bones, following basic safety rules will help to prevent this from happening. I understand that if I refuse to follow safety rules I will be asked to leave and my parents will come to pick me up at Stone Mountain Park.

I will receive a free 4-day camping trip in Stone Mountain Park, Atlanta, GA for answering questions, allowing observations, being videotaped, and keeping a journal during the trip. Even if I wish to drop out after the study begins, the trip will still be free.

No individually identifiable information about me, or provided by me during the research, will be shared with others without my written permission, except if it is necessary to protect my welfare (for example, if I were injured and needed to see a doctor or if required by law. I will be assigned a false name and this false name will be used on all of the information about me. Audiotapes will be erased after they are written down, and videotapes will be destroyed after the final report. I will be provided with a copy of the findings.

The researcher will answer any further questions about the study, now or during the time that the project is being done. The University of Georgia is not able to offer payment for medical treatment should I be injured by participating in this research.

I understand that I am agreeing by signing this form to take part in this research project and understand that I will receive a signed copy of this assent form for my records.

Catherine A. Schreiber		
Name of Researcher Telephone: 770 914-9591 Email: <u>schreiber_c@bellsouth.net</u>	Signature	Date
Name of Participant	Signature	Date

Please sign both copies, keep one and return one to the researcher. Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix H

Please print clearly and complete the form in its entirety.

Medical Information Form

Name of participant	_Date of Birth
Address	
Telephone: day ()	Cell ()
Additional Emergency Contacts -	

Prescription medications currently prescribed (if any).

Prescription medications must be in original containers with the prescriber's name on the label.

Over-the-counter medications currently taking (if any).

Drug allergies (if any)

Other allergies (if any, especially to stinging insects [you must bring EpiPen], peanuts, latex, etc.)

I give permission for(name of participant

in the event of an emergency for which I cannot be reached to be treated in a

local medical facility, or by a local physician.

Signature Parent or Guardian

Date _____

MEDICAL INSURANCE INFORMATION

Name of policy holder/subscriber_____

Name of insurance company_____

Group name_____

Policy no. _____

Contract no._____

What is the best way to help calm your son if he becomes anxious?

Is there any other information that we should know to help insure your son's safety and well being during this trip?

Appendix	I
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Participant Withdrawal of Consent

I, _______withdraw the consent given to participate in the study entitled "EFFECTS OF A THERAPEUTIC OUTDOOR ADVENTURE ON THE SOCIAL COMPETENCY OF GIFTED ADOLESCENTS WITH ASPERGER'S SYNDROME OR HIGH-FUNCTIONING AUTISM" conducted by Catherine A. Schreiber from the Department of Educational Psychology at the University of Georgia (770 914-9591) under the direction of Dr. Thomas Hébert, Department of Educational Psychology, University of Georgia (706 542-3678). I would like to have all of the information about me returned to me and removed from the research records, or destroyed.

Participant Signature

Date

Parent/Legal Guardian Withdrawal of Consent

I, _______ withdraw the consent given for my child to participate in the study entitled "EFFECTS OF A THERAPEUTIC OUTDOOR ADVENTURE ON THE SOCIAL COMPETENCY OF GIFTED ADOLESCENTS WITH ASPERGER'S SYNDROME OR HIGH-FUNCTIONING AUTISM" conducted by Catherine A. Schreiber from the Department of Educational Psychology at the University of Georgia (770 914-9591) under the direction of Dr. Thomas Hébert, Department of Educational Psychology, University of Georgia (706 542-3678). I would like to have all of the information about my child returned to me and removed from the research records, or destroyed.

Parent/Legal Guardian Signature

Date

Appendix J

Letterboxing: The Outdoor Treasure Hunting Pastime

Letterboxing is an intriguing mix of treasure hunting, art, navigation, and exploring interesting, scenic, and sometimes remote places. It takes the ancient custom of placing a rock on a cairn upon reaching the summit of a mountain to an artform. It started when a gentleman simply left his calling card in a bottle by a remote pool on the moors of Dartmoor, in England.

Here's the basic idea: Someone hides a waterproof box somewhere (in a beautiful, interesting, or remote location) containing at least a logbook and a carved rubber stamp, and perhaps other goodies. The hider then usually writes directions to the box (called "clues" or "the map"), which can be straightforward, cryptic, or any degree in between. [*We will be using atlasquest.org to get our clues to the boxes hidden in Stone Mountain Park.*] Often the clues involve map coordinates or compass bearings from landmarks, but they don't have to. Selecting a location and writing the clues is one aspect of the art.

Once the clues are written, hunters in possession of the clues attempt to find the box. In addition to the clue and any maps or tools needed to solve it, the hunter should carry at least a pencil, his personal rubber stamp, an inkpad, and his personal logbook. When the hunter successfully deciphers the clue and finds the box, he stamps the logbook in the box with his personal stamp, and stamps his personal logbook with the box's stamp. The box's logbook keeps a record of all its visitors, and the hunters keep a record of all the boxes they have found, in their personal logbooks.

Retreived from letterboxing.org on 3-20-2009

Appendix K

Effects of a Therapeutic Outdoor Adventure on the Social Competency of Gifted Adolescents with Asperger's Syndrome or High Functioning Autism

Semi-Structured Interview Protocols

Pre-trip Interview:

- 1. What was elementary school like for you?
- 2. What did you like to do by yourself? With friends? With family?
- 3. Who were your friends?
- 4. Did you feel accepted? What was that like for you?
- 5. How did you feel about yourself your ability to interact socially?
- 6. What was middle school like for you?
- 7. What did you like to do by yourself? With friends? With family?
- 8. Who were your friends?
- 9. Did you feel accepted? What was that like for you?
- 10. How did you feel about yourself your ability to interact socially?
- 11. What is high school like for you?
- 12. What do you like to do by yourself? With friends? With family?
- 13. Who are your friends?
- 14. Do you feel accepted? What is that like for you?
- 15. How do you feel about yourself and your ability to interact socially?

Daily interviews:

- 1. What happened today that you would like to talk about?
- 2. How did this make you feel about yourself?
- 3. How do you feel you are relating to others on the trip?
- 4. Who did you enjoy talking with today?
- 5. Who would you like to get to know better? Why?

Post-trip Interview

- 1. Describe some of your favorite things about the Stone Mountain Adventure.
- 2. What do you consider negatives about the trip?
- 3. Who did you feel closest to among the others on the trip?
- 4. Do you feel any differently about yourself and your social ability than you did before the trip? In what way?

Follow-up Interview

- 1. Are you still in touch with any of the other people who were on the camping trip?
- 2. Do you feel any differently about yourself and your social ability than you did before the trip? In what way?
- 3. Would you consider going on another outdoor adventure trip? Why or why not?