SOCIAL SKILLS TRIAD: PROMOTING SOCIAL COMPETENCY IN TEENS WITH

ASPERGER'S SYNDROME (AS) / HIGH FUNCTIONING AUTISM (HFA)

by

HAIDEE A. COPELAND

A DISSERTATION

Presented to the Department of Special Education and Clinical Sciences
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

June 2011

DISSERTATION APPROVAL PAGE

Student: Haidee A. Copeland

Title: Social Skills Triad: Promoting Social Competency in Teens With Asperger's Syndrome (AS) / High Functioning Autism (HFA)

This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Special Education and Clinical Sciences by:

Dr. Jeffrey Sprague	Chair
Dr. Kenneth Merrell	Member
Dr. Debra Eisert	Member
Dr. Gordon Hall	Outside Member

and

Richard Linton	Vice President for Research and Graduate Studies/Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

Degree awarded June 2011

DISSERTATION ABSTRACT

Haidee A. Copeland

Doctor of Philosophy

Department of Special Education and Clinical Sciences

June 2011

Title: Social Skills Triad: Promoting Social Competency in Teens With Asperger's
Syndrome (AS) / High Functioning Autism (HFA)

Approved: _____
                        Dr. Jeffrey Sprague

This dissertation presents the findings of a Type 2 translational research study to
develop and test the feasibility and social validity of a social skills intervention for
middle/secondary students with Asperger's Syndrome (AS) / High Functioning Autism
(HFA). Utilizing a technology adoption model (TAM), this dissertation project sought to
develop and test the feasibility of a three-tiered social skills curriculum/training program
to promote social competency in teens with AS/HFA across multiple settings: school,
home, and community. The TAM was developed in 2004 by Gardner and Amoroso to
provide a more rigorous methodology by which to assess the acceptance of the
technology by consumers. The development of an intervention that includes parental
input in a repeated measurement of social validity and efficiency over time, together with
the inclusion of a unique population parameter (parental groups) within a repeated
measure, reinforced the appropriateness of the decision to use a Type 2 translational
research model.

This study consisted of two distinct phases. Phase 1 of the development process was conducted using separate focus participant groups: Group A (students with AS/HFA), Group B (parents/caregivers of students with AS/HFA), and Group C (educators of teens with AS/HFA). Phase 2, a small pilot study utilizing the newly created curriculum, was conducted using complete triads. This triad consisted of a student with AS/HFA, the student's parent/caregiver, and an educator of said student. These groups (ultimately triads) developed and refined a school-facilitated social skills intervention that utilized the goals and objectives of the student and her/his family in conjunction with existing opportunities within the community to design, implement, track, and modify a social skills program that was functional for the unique needs of the student.

Findings suggest the Social Skills Triad curriculum may be a viable alternative method for teens with AS/HFA to develop and master social skills across settings over time that are meaningful to students, their families, and the home/school communities in which they function.

CURRICULUM VITAE

NAME OF AUTHOR: Haidee A. Copeland

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon, Eugene
Western Oregon State College, Monmouth
Southern Oregon State College, Ashland
Lane Community College, Eugene

DEGREES AWARDED:

Doctor of Philosophy, Special Education, 2012, University of Oregon
Master of Education, Special Education, 2006, University of Oregon
Bachelor of Science, Mathematics and Business Science, 1984, Southern Oregon State
    College

AREAS OF SPECIAL INTEREST:

Autism Spectrum Disorders
Curriculum Design
Individuals with Significant and Profound Disabilities
Positive Behavior Interventions and Supports

PROFESSIONAL EXPERIENCE:

Instructor, Department of Special Education and Clinical Services, University of Oregon,
Eugene, 2010-present

Supervisor, Mid/Sec Special Education Licensure Program, University of Oregon,
Eugene, 2008-present

Instructional Designer, Department of Special Education and Clinical Services,
University of Oregon, Eugene, 2010

Graduate Researcher, Center for Advanced Technology in Education, University of Oregon, Eugene, 2010

Intern, Oregon Department of Education, Salem, 2009

Research Volunteer, Department of Special Education and Clinical Services, University of Oregon, Eugene, 2007-2008

GRANTS, AWARDS, AND HONORS:

Clare Wilkins Chamberlin Memorial Research Awards, 2011

Center for Intercultural Dialog Small Project Grant, 2010

Hill M. Walker Legacy Scholarship, 2008/2009

Helena DeGnath Wessela Memorial Scholarship, 2008/2009

PUBLICATIONS:

Copeland, H. (2010, May 18). The stump: Learning disabilities and the importance of transition planning. *The Oregonian*, http://www.oregonlive.com /opinion/index.ssf/2010/05/learning_disabilities_and_the.html

Copeland, H. (2010, May 13). Guest viewpoint: With autism, early planning can lead to academic success. *The Register-Guard*, p. A9.

Copeland, H. (2009). *50 state survey and ASD task force survey: Summary of findings and collection of autism task force documents and autism specific teacher certification or endorsement*. Salem, OR: Oregon Department of Education.

Copeland, H. (2009). *Guide to Oregon Department of Education's autism website, OAR's & other available resources*. Salem, OR: Oregon Department of Education.

ACKNOWLEDGMENTS

With the support of my family, friends, and community, this dissertation is dedicated to individuals impacted by Autism Spectrum Disorders. Every person, everyday can and does make a difference in the lives of others. Thank you all!

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Specific Aims

This study aimed to describe and document a method to improve social,

behavioral and academic outcomes for adolescents with Asperger's Syndrome or High

Functioning Autism (HFA). The Social Skills Triad curriculum is designed to provide

individualized, professional development and training for educational professionals,

parents and teens with AS/HFA (the triad). The aim of the curriculum is improving social

skill outcomes for teens with AS/HFA. The Social Skills Triad is a social skills

intervention that includes teacher, parent, and student input on the process with repeated

measurement over time. The approach is innovative and addresses a critical unmet need

in the field: the need for assessment of social validity and efficiency of the intervention

for all participants.

To determine the feasibility, and social validity of the Social Skills Triad (SST)

curriculum, the study (Aim 1) developed the three-tiered curriculum/training program

content and conducted a pilot study (Aim 2) to evaluate the program's social validity and

feasibility of implementation within middle/secondary school settings. The training

modules were developed with extensive focus group input and the study assessed the

program's feasibility and social validity, as well as willingness to implement it by triad

members.

Content Development Process

The curriculum development process was implemented from the design perspective that three overlapping modules would need to be created. The three modules included: an end user module for teens, a support module for parents and a master module for educational professionals. The three separate participant group types (educator, parent and teen) worked through a focus group process to guide development of their module. The overall content development process was similar for each participant group type.

The initial focus group meeting consisted of using a predetermined outline of key content areas thought to be essential for a social skills curriculum as a common starting point for the group. Each participant was encouraged to share their opinion and to come to an agreement upon content areas to be retained or rejected. As the investigator, I took the information obtained by all participants to develop the initial draft of the three separate modules for the social skills curriculum. The draft modules were then redistributed back to the participants for them to evaluate them on their own. After the participants had a chance to evaluate the curriculum individually, I created the second version of the curriculum. The focus groups then reconvened for the second and last time. At this focus group, I presented the participants with the final curriculum and shared the results from the other focus groups. However, the master (teacher) and parent modules included additional material unique to their population (see below).

Content development unique to the master (teacher) module. The educational professionals began with the understanding that the module they developed would need

to include: (a) the social skills curriculum for the teacher to teach the teen in the school environment and (b) a parent-support version for the teacher to instruct the parents in how to support instruction at home and in the community. As such the focus group driven development process of the teacher (master) module includes a section creating a train-the-trainer (parent) module, to support the parent and teen in implementation of the intervention at home and in the community.

Content development unique to the parent module. The development process for the parent module also examined this process from the parent perspective, i.e. what information would they need from the teacher to carry out the program at home and in the community? And what information would they like for the teacher to receive?

Content development unique to the teen module. The development process of the teen module focused more heavily on social validity. Initial development driven from the teens' perspective focused on prior experience with social skills curriculum and teen input into what areas of social communication were of most importance to them.

As we moved through the development process in phase one, all focus groups were given a repeat measure of their opinion on the importance of social skills curriculum in general and their willingness to adopt or utilize the social skills training program we were developing. The results from phase one of this collaborative effort are presented in chapter VI.

Curriculum Content

A core feature of all three modules is training in (a) global characteristics of AS/HFA and the impact of special interest areas, (b) problem solving, (c) self-advocacy and recruitment of assistance, and (d) resiliency and friendship. This common knowledge base is utilized to support explicit and systematic social skills instruction.

The Social Skills Triad intervention utilized a web-based support structure to send, monitor and evaluate data via a dedicated Internet site supported by the University of Oregon's computing center. The curriculum itself was delivered via print materials and options for utilizing either the web or a stand-alone DVD package with reproducible black-line forms for use by educators, parents and students. The decision to utilize print materials with an option for a stand-alone DVD was influenced by the digital divide that exists between some schools, families and others (Davis, Fuller, Jackson, Pittman, & Sweet, 2007).

Social skills in general consist of defining common social customs, determining who has the potential to be a friend, learning how to engage others in common social behaviors and practices, and understanding why these skills are relevant. To support teachers in designing instruction that provides students with AS/HFA opportunities to practice their new social skills throughout the day, over time within the school day, the training module for teachers and other education professionals also included strategies and tools for incorporating the Social Skills Triad curriculum into their students' Individualized Education Programs (IEPs), Behavior Support Plans (BSPs), and classroom management plans. Individual lesson plans for each activity-based lesson provided an example of how these strategies might be tied to the individual lesson.

4

Module I contains professional development materials relevant to teachers and other educational professionals. Utilizing a train-the-trainer approach, the study provided educators with interactive training materials in (a) common core training as mentioned above (global characteristics of AS and the impact of special interest areas, problem solving, self-advocacy and recruitment of assistance, and resiliency and friendship.); (b) program facilitation (e.g., team-building skills, negotiations, parent planning, etc.); and (c) training in implementing Modules II and III, Parent and Student Training.

Module II contains interactive training materials targeted towards parents and includes (a) common core training as mentioned above (global characteristics of AS and the impact of special interest areas, problem solving, self-advocacy and recruitment of assistance, and resiliency and friendship.); (b) program facilitation from the family perspective; (c) advocacy on behalf of the student; (d) assistance-recruitment skills targeting nonschool agencies and individuals; (e) transition planning; and (f) training in implementing Module III, Student Training.

Module III, the student training module, consists of two parts. Part 1 covers training in common core materials as mentioned above (global characteristics of AS and the impact of special interest areas, problem solving, self-advocacy and recruitment of assistance, and resiliency and friendship.). Part 2 includes activities and vignettes regarding possible implementation of the newly mastered social skills in a variety of transition settings. While transition planning in school is generally focused on moving from one grade to the next or from school to a postsecondary setting, it can also include more immediate transitions. For some students with AS/HFA, transition planning and problem solving can also include the following types of transitions: increased hours of

attendance during the school day, winter break, a change of term or quarter, or planning

for shorter term academic goals that may lead to a long-term plan such as postsecondary

education or employment.

Aim 1: Development of the Curriculum / Training Modules

In order to provide a common focus or starting point for creating the social skills

training modules, a comprehensive, key word search was conducted to identify currently

available evidence based social skills curriculum for teens with AS/HFA. Using the

results of the literature search, my own experience as a veteran middle / secondary

teacher of teens with AS/HFA, parent of a teen with AS and individual with AS, I created

a matrix of core social skills areas and specifically targeted skills. The initial matrix

included three overarching categories: self awareness, problem solving and transition

planning. Within each of the three categories several specific skills were identified as

critical or commonly agreed upon as critical social skills for teens with AS/HFA. This

initial social skills curriculum matrix was provided to all focus groups as a starting point.

As noted earlier, the focus group participants were surveyed for their input until all of the

areas deemed crucial to the participants were included.

The curriculum development process was supported by the availability of the

curriculum via DVD and accompanying website. The participants were encouraged to use

these resources as options to providing written or in-person feedback to the investigator.

As the investigator, I used a secure database and the accompanying website to: track user

input and assessment and assess the feasibility of implementation and social validity of

the program evaluation by each module. The degree to which the participants found the

curriculum they were helping to create to be of social importance and worth the cost of implementation to themselves and others like them was conducted via survey over time and evaluated (a) the participants' knowledge of the characteristics of AS/HFA, (b) their interest in utilizing this research-based social skills intervention when available, and (c) their awareness of the facilitation, advocacy and social skills tools available.

Aim 2: Pilot Study to Assess Feasibility and Social Validity

Upon completion of the design and development of the individual training modules, the complete curriculum/training program was implemented and evaluated via a pilot study within a middle/secondary school setting. This pilot study provided the opportunity to compare implementer and consumer feedback and fine tune any adjustments needed in the intervention to provide the best possible program.

Theoretical and empirical support and relevant research. I identified eight organizing principles of support for my study on the potential social validity and feasibility of the Social Skills Triad intervention for teens with AS/HFA. From global to specific , the overarching principles are (a) exponential growth in the incidence rate of ASD without clear causal factors; (b) ASD as a key indicator for poor long-term outcomes at a high cost to society; (c) social skills interventions that include generalization training have been the most successful; (d) the universal need to provide social skills training for those with AS/HFA, a subpopulation of ASD; (e) the increased social efficacy and validity resulting from inclusion of participants, family and community in intervention development and implementation; (f) description and practical

basis of the program's content, (g) description of the delivery technology to be used, and (h) rationale for the instructional approach.

Exponential growth in the incidence rate of ASD without clear causal factors. Folktales and historical documents indicate that the disability that has come to be known as Autism or Autism Spectrum Disorder, as depicted in *The Wild Boy of Aveyron*, has long been part of the human condition (Frith, 2003). However, it was not until the mid-nineteenth century that Drs. Leo Kanner and Hans Asperger proposed these psychiatric diagnoses to the scientific community. Since then, the prevalence of ASD has been growing at an exponential rate. In 1966, a study in England found a prevalence rate of 4.5 per 10,000 (Frith, 2003). In 2002, a review of 39 population studies in various countries was conducted and revealed a range of 8 to 30 per 10,000 (Frith, 2003). As noted by the Centers for Disease Control and Prevention (CDC, 2008), the diagnosis rate of Autism Spectrum Disorders (ASD), including AS/HFA, has grown to 1 per 150 within the United States. Since the inception of the diagnosis, the scientific community and advocates have strived to determine the cause of ASDs. From Bettelheim's theory of refrigerator mothers to anecdotal records of shots containing thermasol, we continue to struggle to find a cause (Frith, 2003). This continued struggle is highlighted in the recent work by Hertz-Picciotto and Delwiche (2009) from the M.I.N.D. (Medical Investigation of Neurodevelopmental Disorders) Institute at UC Davis. The scientists examined the rate of ASD diagnosis and longitudinal tracking results in the California Department of Developmental Services database from 1990 to 2006. Hertz-Picciotto and Delwiche's study sought to determine if earlier and improved diagnostic assessment tools, differential

migration, inclusion of milder cases, public awareness, and increased education on ASD could account for the observed increases. While these variables were shown to have an impact, they do not fully account for the increase in incidences of autism. The study found that the "incidence of autism rose 7-to-8 fold in California from the early 1990s through the present" (p. 89) without revealing clear causal indicators. Thus, experts, advocates, families, and individuals with ASD have grappled with the unknown factors causing ASD's exponential growth rate and, perhaps more important, searched for ways to ameliorate the effects of the disorder over the lifetime of the affected individual.

ASD as a key indicator for poor long-term outcomes at a high cost to society. Halpern's (1993) seminal article asserts that quality of life is the critical key to evaluating postsecondary outcomes for individuals with disabilities, and this article summarizes the outcomes needed for these individuals to participate in the full array of adult roles. These roles include leisure activities, the need for socialization and friendships, meaningful employment, and other activities that need to be addressed early in the transition planning phase in order for families and students with disabilities to be fully functional in their advocacy skills by the time the student exits the public school system. To date, the long-term outcomes of employment, depression and suicide rates for individuals with ASD and other disabilities are alarmingly high, in comparison to the general population, throughout the industrialized world. The 2006 National Longitudinal Transition Study-2 (NLTS2) found that approximately 40% of youths with disabilities, compared to 63% of youths without disabilities, find employment after leaving school (Wagner, Newman, Cameto, Levine, & Garza, 2006). Newman, Wagner, Cameto, and Knokey (2009) note

that individuals with ASD have an employment rate of 47% per the NLTS2 survey of youth with disabilities up to 4 years after high school.

Organizations throughout the world have also noticed a positive correlation between higher rates of suicide and disability. In the United States, the National Institute of Mental Health (NIMH, 2009) estimates that 90% of people who commit suicide have a diagnosable mental disorder such as depression, substance addiction or other disability. The strong correlation between suicide rates and disability in not simply an American phenomenon; it is also true for many northern European nations. The European Autism Society notes several reports on the high correlation between ASD and AS in particular and depression or suicidal tendencies. In the United Kingdom, a report on the life experiences of adults with ASD found approximately one third had some exposure to mental health challenges, of which 8% indicated having suicidal ideations (Broach, n.d.). Attwood (2007) hypothesizes that this trend toward negative long-term outcomes is amplified within individuals with AS. The most widely accepted reason for this is their strong desire for friends coupled with very little ability to acquire them without outside assistance such as social skills training (Attwood, 2007; Attwood & Grandin, 2006; Janzen, 2003; Miles & Adreon, 2001).

The devastating outcome of an unfulfilled need for friendships can have on individuals with AS/HFA is also reflected time and time again in blogs, books, websites and other social networking sites around the world. Many of these experiences are reflected in postings and articles on the Autism Society of America's website. In the wake of misconceptions about autism and the lack of research-based interventions, the Autism Society of America was founded in 1965 by Dr. Bernard Rimland, Dr. Ruth

Sullivan and many other parents of children with autism. Today, the Autism Society of America (ASA) is generally viewed as a reliable source of accurate, research-based information. The ASA publishes a quarterly magazine, the *Autism Advocate*, a respected source of information on autism-related issues. In essence, while individuals with AS have a strong desire to acquire friends and the support system provided by a social network, they are unable to attain these goals without outside assistance.

Social skills interventions that include generalization training have been the most successful. A meta-analysis of research on school-based social skills programs for children with ASD supports the hypothesis that interventions established within the school are ineffective if they do not include generalization across the school day or scheduled maintenance of social skill behaviors (Bellini, Peters, Benner, & Hopf, 2007). The most likely cause for lack of generalization of newly acquired social skills across settings is stimulus over selectivity in individuals with ASD (Bakouie, Zendehrough, & Gharibzadeh, 2009; Koegel & Lovaas, 1978). Stimulus overselectivity is a term used to describe learning that resulted in irrelevant stimuli as a necessary component for responding. For example, a student may learn to shake hands when meeting new people for the first time. However, the student may also only utilize this newly acquired skill of shaking hands when meeting new people for the first time, only in the presence of an unrelated stimulus such as a table, while attending a social skills class or only in a specific location. Fortunately, research has indicated that "overselectivity is not permanent but may be reduced with appropriate training" (Koegel & Lovaas, 1978, p. 563). In terms of generalizing social skills training, appropriate training must include

not only programmed instruction in generalization but analysis of generalization error patterns and additional training in problematic settings (Horner, Bellamy & Colvin, 1984). For individuals with AS, the home and community are settings that tend to be problematic for the generalization of social skills (Attwood, 2007).

Universal need for social skills training for those with AS/HFA, a subpopulation of ASD. There is some debate as to the exact criterion for determining whether social skills training programs are educationally necessary for all individuals on the Autism Spectrum who qualify as eligible for specially designed education (American Psychiatric Association, 2000; Individuals With Disabilities Education Improvement Act [IDEIA], 2004; World Health Organization [WHO], 2004). However, for individuals with Asperger's Syndrome, there is consensus that social skills training is a universal educational need (Wang & Parrila, 2008). Since the educational need to provide most individuals with AS/HFA social skills training has been established, the challenge then becomes how best to meet this need. Emerging research areas—e.g., overselectivity or overstipulation in the autistic brain, longitudinal success rates of interventions, and age of intervention—offer some insights into effective and efficient intervention options. Current research evidence supports the hypothesis that individuals with AS have difficulties generalizing skills learned in one area to the next and thus require additional generalization training (Bakouie et al., 2009).

Inclusion of child/youth, family and community members within intervention development and Implementation increases social efficacy and social validity. In an effort to meet the growing educational needs of students with AS/HFA, I have identified

key features essential to the design of an efficient social skills intervention. Given the assertion that skills learned within the classroom are successfully mastered when "generalized to home and community situations" (Horner, McDonnell, & Bellamy, 1986, p. 289) and Wolf's (1978) requirement that social validity should be maximized by including results and treatment procedures that are acceptable to "participants, caregivers and other consumers" (p. 207), it is incumbent upon the interventionist to give all participants a voice in the design and implementation of the intervention. The proposed Social Skills Triad curriculum/training program builds upon these assertions and the many exemplars of successful interventions in early childhood research. Successful early childhood research embraces the philosophy of family and community involvement in the intervention process across settings (Lipkin & Schertz, 2008). As such, the Social Skills Triad curriculum/training program seeks to develop a social skills program that meets the educational needs of teens with AS/HFA through a collaborative process of participant, family and community involvement. While not a "cure" for AS/HFA, the resulting curriculum/training program will help ameliorate some of the devastating negative effects the disorder has upon the growing population of individuals with AS/HFA and the communities in which they live.

Description and practical basis of the program's content. Federally mandated reporting from the Center for Disease Control and Prevention (CDC) reveals that the number of school-age children receiving services for ASD has risen from 22,664 in 1994 to 193,637 in 2005 (*Autism Community Report*, n.d.). Research by Wang and Parrila (2008) found near universal agreement regarding the educational need for some kind of

social skills training for a subset of individuals on the spectrum—i.e., those with

Asperger's Syndrome (AS). As a result, a wide variety of social skills interventions for

individuals with ASD have been implemented (Ruble, Willis, & Crabtree, 2007).

However, according to several meta-analyses or reviews of social skills interventions,

those that include planned generalization are more effective than those that do not

(Bellini et al., 2007; Rao, Beidel, & Murray, 2008).

Utilizing a technology adoption model (TAM), this study developed and tested

the feasibility, social validity and efficacy of a three-tiered social skills

curriculum/training program to promote social competency in teens with Asperger's

Syndrome (AS) or High Functioning Autism (HFA) across multiple settings: school,

home and community. The TAM was developed by Gardner and Amoroso (2004) to

provide a more rigorous methodology by which to assess consumers' acceptance of the

technology. A curriculum for each separate target population of teachers or educational

professionals who work with teens with AS/HFA, parents of teens with AS/HFA, and

teens with AS/HFA was developed with focus group input. Descriptive surveys were

utilized to evaluate feasibility, social validity and efficacy of the developed curriculum

within groups. A 7-week, quasi-experimental pilot study was conducted by recruiting

complete triads, which included not only the teen with AS, but also the teen's parent and

special educator. Descriptive, repeated-measure questionnaires were utilized to evaluate

efficacy, usability and social validity of the multi-component curriculum across triads. A

review of the findings and implications for practice is presented under conclusions and

recommendations for future research.

Placing the Proposed Solution in the Larger Context

Given the aforementioned assertions, it is clear that effective, efficient social skills training is an urgent educational need for individuals with AS/HFA. The question then becomes, are there currently available research-based educational interventions that meet this need? If so, what are they and are they adequate to the task? Research suggests some improvement in social skills given any level of intervention, and recommends further research to determine what is and is not part of evidence-based practice for teens with AS/HFA. Keeping in mind instructional considerations needed to ensure maintenance and generalization of skills (Horner, McDonnell, & Bellamy, 1986), I conducted a key word search of current peer reviewed journal articles.

This study builds upon the research knowledge portrayed in the literature reviewed (Chapter IV). With guidance from the teen's educator, the SST curriculum/intervention was carefully designed to be flexible and accommodate the Special Interest Areas (SIA) of the individual teen, the cultural demands of the family, and the uniquely available resources within the teen's community. Cross-training of the teen and parents provided not only a mechanism by which to instill consistency and promote generalization of skills across naturalistic environments, but also the opportunity to promote self-advocacy skills for both the teen and his or her family.

CHAPTER II

PROBLEM STATEMENT

As the aforementioned research demonstrates, the need for an accessible and usable social skills curriculum for individuals with AS/HFA has risen to a level of significant concern regarding long-term social and emotional outcomes. The Social Skills Triad (SST) has the potential to provide an effective, socially valid intervention that reduces the risk of negative social and behavioral outcomes for teens with AS/HFA. Figure 1 illustrates the relationship between problem areas for teens with AS/HFA and the SST.

As noted in Figure 1, individuals with AS/HFA tend to have pervasive social, emotional and academic challenges (Attwood, 2007). While each person's individual AS/HFA characteristics are unique, they do have some commonalities. I have identified two overarching categories of AS/HFA characteristics as significantly problematic in term of developing appropriate prosocial behaviors: (1) social or theory-of-mind challenges when dealing with others and (2) specific learning challenges caused by issues of stimulus overselectivity, restrictive interests or hyper/hypo sensitivity. Following are brief definitions of both problem areas, the AS/HFA characteristics that have been identified as contributing to these challenges, and an overview of how the SST curriculum targets specific learning skills to ameliorate the negative outcomes for these areas.

Teens with AS/HFA		
AS/HFA Characteristics	Educational Needs	Challenges
1. Social skills challenges in a. Reciprocity of conversation b. Eye contact c. Pedantic language d. Hyper-critical of self/others 2. Learning challenges: a. Stimulus overselectivity b. Hyper/hypo sensitivity to physical and emotional stimuli c. Restricted interest: obsessive special interest areas	1. Social skills training	1. Global recognition of inadequacy of available social skills curriculum to effectively meet the needs of teens with AS/HFA. 2. Strong negative long-term impact for individuals with AS/HFA regarding: a. Economic achievement b. Burden on social services c. Potential societal contributions d. Mental health: suicide/depression

Social Skills Triad: Training across settings, people and activities.

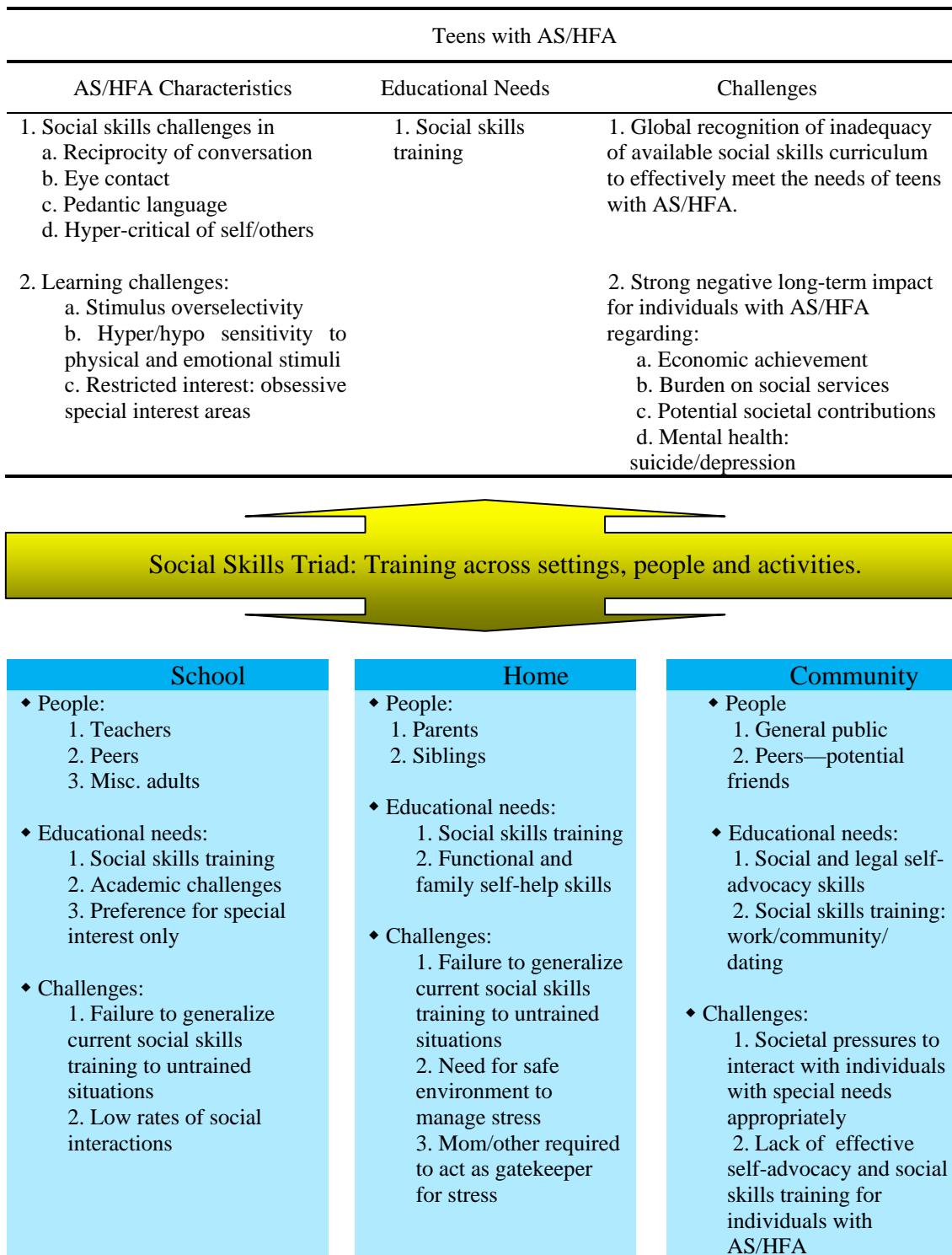| School	Home	Community
◆ People: 1. Teachers 2. Peers 3. Misc. adults ◆ Educational needs: 1. Social skills training 2. Academic challenges 3. Preference for special interest only ◆ Challenges: 1. Failure to generalize current social skills training to untrained situations 2. Low rates of social interactions	◆ People: 1. Parents 2. Siblings ◆ Educational needs: 1. Social skills training 2. Functional and family self-help skills ◆ Challenges: 1. Failure to generalize current social skills training to untrained situations 2. Need for safe environment to manage stress 3. Mom/other required to act as gatekeeper for stress	◆ People 1. General public 2. Peers—potential friends ◆ Educational needs: 1. Social and legal self-advocacy skills 2. Social skills training: work/community/ dating ◆ Challenges: 1. Societal pressures to interact with individuals with special needs appropriately 2. Lack of effective self-advocacy and social skills training for individuals with AS/HFA

Figure 1. Relationship between problem areas and intervention.

Following are brief definitions of both problem areas, the AS/HFA characteristics that have been identified as contributing to these challenges, and an overview of how the SST curriculum will target specific learning skills to ameliorate the negative outcomes for these areas.

Problem Area 1: Social or Theory-of-Mind Challenges

Definition. The 'theory of mind' is defined by Frith and Happe as "the ability to attribute mental states and predict behavior accordingly" (1999, p. 1). In essence, it is the ability of the individual to engage in introspection on the perspective of self and others in order to correctly interpret the beliefs or possible false "misunderstandings" of others (Frith & Happe, 1999). As defined by the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association, 2000), psychologists have long posited that the failure of individuals with AS to correctly interpret the nonverbal behavior of self and others or to seek shared engagement with others may lead to 'mindblindness' or the inability to understand that others may have a perspective different than oneself (Baron-Cohen, 2001). It is posited that mindblindness is the single most contributing factor behind the failure to develop social skills compensatory with similar aged, neurotypical (NT) peers. The failure to develop appropriate social skills is a significant challenge for individuals with AS and is now part of the educational requirements for FAPE under the new authorization of IDEIA (2004). These requirements necessitate the school's obligation to utilize instructional practices that will help to ameliorate the impact of disability-induced deficits in this area.

AS characteristics relating to Theory-of-Mind. As discussed in the aforementioned section, the ability to understand not only the perspective of others but to engage in introspection of one's own perspective extends into every category in some manner. Baron-Cohen (2001), discussed his theory of the evolution of "mindreading ability" in humans and suggested this ability consists of three separate perspectives: (1) intentionality detector (ID) – i.e. he did this because he wanted…, (2) eye direction detector (EDD)–i.e. she was looking at me, (3) shared attention mechanism (SAM)–i.e. ability and interest in noticing what others are engaged in and in sharing one's own perspective that combine to create a Theory-of-Mind (ToM) mechanism that facilitates human interactions. Baron-Cohen posits that is a flaw in the ID to EDD through SAM pathway that creates a sort of "mindblindness" in individuals with AS. This ToM is in keeping with the various diagnostic assessments of AS for which deficits in the desire for and ability to engage in shared attention are noted (DSM-IV-TR, 2000).

While research does not agree upon which cognitive processes are most likely to affect ToM, there was significant agreement among researchers that individuals with AS are painfully aware of the mental "otherness" or difference from NT individuals (Humphrey & Lewis, 2008). "Of those who talked about themselves and their AS in negative terms, the notion of 'being different' or 'not normal' appeared to underlie their comments." (p. 31). That does not mean that it is impossible for individuals with AS to improve or develop their understanding of the perspective of others. It is with considerable cognitive effort that individuals with AS develop their skill in interpreting the minds of others (Frith & Happe, 1999; Loukusa, Leinone, & Jussila, 2006). One

19

current theory is that the degree to which it is possible to develop a ToM may depend upon the ability to engage in introspection of self (Frith & Happe, 1999) or others (Loukusa, Leinone, & Jussila, 2006).

While there are several non-peer reviewed journal articles which discuss methods or possible supports for improving understanding perspectives or pragmatic language (Winner & Crooke, 2011), relatively few articles address interventions which could be utilized to explicitly support or guide development in this area through increase imaginative writing skills, drawing or structured writing prompts (Craig & Baron-Cohen, 2000). Practitioners, consultants and others, who work with individuals with AS/HFA often note that while Pragmatic Language Impairment (PLI) is not part of the DSM IV diagnostic criterion, it is a significant challenge for many.

An example of PLI can be found in the inability to utilize informational clues provided in written or spoken sentences to correctly determine what the author meant to convey. For example, when hearing that a military person is "A.W.O.L.", the common interpretation is that this person is absent without leave. An individual with AS/HFA might interpret it as an attempt at humor or insult. AWOL is often pronounced as "a wall". An individual with AS/HFA could interpret the sentence as nonsense communication as people cannot be walls or an insult given that the person could have meant to say that the person was as "thick as a brick wall" or not very bright.

Unsurprisingly, these same PLI play heavily into challenges individuals with AS/HFA have in using language appropriately as well. The ability to successfully engage in a social discussion or dialog requires that all parties understand the meaning or information conveyed behind the words. Without such understanding the participants

often find the exchange unsuccessful and are less likely to engage in such an activity in the future. We as a field, appear to be stuck in a state of admiration of the problem. Studies either continuing to document the existence of a ToM discrepancy or focus on reactive interventions to manage behavior problems that develop because of this discrepancy.

Overview of how the SST curriculum targets specific learning skills to ameliorate ToM challenges. ToM can beone of the more difficult AS characteristics for which supports are needed. This way is most likely due the inability to predict with a large degree of certainty which situations and under what conditions ToM challenges will occur. In general, individuals with AS are highly literal. Take a seat, means to pick up something you sit on and take it somewhere. Directions to go outside and run around to burn off excess energy during recess often do not achieve the goal desired by the teacher. All too often the teen will do exactly as directed: run out onto the field without regard to what else is happening around her/him. What tends to happen is that the unfortunate teen with AS/HFA finds herself unexpectedly being verbal or physically rebuked for running into the middle of a baseball game, driven away from the game of foursquare for not waiting her turn or in some manner further isolating her for not following the "unwritten curriculum".

Other ToM issues, such as intent are highly salient to this specific population of students. Individuals with AS are highly susceptible to bullying and easily manipulated into doing things because they are not always fully aware of the situational consequences for their behavior (Heinrichs, 2003). Teaching perspective taking for individuals with AS

and other class members is helpful not only to students with special needs but to those who might benefit by understanding the challenges of others. For example, helping students to understand and appreciate that not everybody sees or experiences the world the same way is helpful to students with and without AS. For NT peers, increased diversity awareness that includes disabilities can lead to greater understanding, and acceptance of all peers. That is not to diminish the significant challenges all students experience in learning to live, work and play with others who are different, merely to highlight that disability is often one of many issues of diversity that is commonly left out of the diversity conversation. For students with AS, increased awareness of the fact that not everyone knows what they know is often the first step towards creating an awareness of the ToM of others. Of course individuals with AS might not occasionally attribute intent where there was none, even with an increased awareness of the ToM of others.

Explicit/systematic instructions and scaffolded training are two effective methods the SST curriculum utilizes to reduce opportunities for miscommunications and to teach teens with AS/HFA how to increase their understanding of the "unwritten curriculum" within their own social communities (Steedly, Dragoo, Arafeh & Luke, 2008).

Problem Area 2: Specific Learning Challenges

Definition. Specific challenges with a restrictive "special" interest is part of the DSM-IV-TR (2000) definition for AS. However, it has been suggested that this definition be expanded. ToM challenges in understanding what others are thinking in conjunction with a tendency to have a restrictive / obsessive interest in objects or parts of objects often leads to stimulus overselectivity (Koegel & Lovaas ,1978). This tendency can also

be exacerbated by sensory integration issues. Sensory Integration refers to the body's ability to receive information from all five senses: sight, sound, taste, touch and smell combined with the brain's ability to correctly interpret the information (Viola & Noddings, 2006). Individuals with AS tend to have both hyper (over) and hypo (under) sensory functions (Attwood, 2007). The two extremes have also been found to occur in the same sense. For example it is not unusual for an individual with AS to be hyper sensitive to certain sounds such as the scraping of a serving spoon in a pan, but hypo sensitive to someone speaking directly behind him. These extremes have led some to hypothesize that the discrepancy is caused not by a default of the sensory functionality but of the brain's processing of the neurological input.

AS Characteristics relating to Specific learning challenges. Specific learning challenges caused by issues of stimulus overselectivity, restrictive interests or hyper/hypo sensitivity are often seen in individuals with AS. It is posited that one reason for either a hyper or hypo reaction to sensory input by individuals with AS is that their brain receives the sensory input but fails to process it in the same manner those with NT cognitive functioning (Laurent & Rubin, 2004). When combined with the aforementioned ToM challenges (Baron-Cohen, 2001), it is perhaps more understandable to see how a child with AS/HFA might a specific stimulus intensely negative when others would not. For example, the child may find instruction written on awhite board highly aversive. The child is likely to assign negative intent to the teacher's behavior when the teacher was intending to be helpful. Stimulus overselectivity or the development of restrictive interest can be influenced by hyper/ hypo sensitivity in the student, the student will most likely

23

attend to the strongest stimulus in a given situation.

Many interventions addressing these issues deal with common sense solutions to everyday problems. For example, do not place a child who is very sensitive to sound next to the pencil sharpener, do not place a distractible child next to the window or those sensitive to touch in a high traffic area. In many instances, it is enough to know that sensory input that is normal or even slightly irritating to the average person can be excruciatingly painful to individuals with AS (Menzinger & Jackson, 2009). However, it is equally important to know that the same child who doesn't seem to tolerate even the slightest brush with an object may not notice when her finger is slammed into the classroom door. Hyper / hypo sensitivity can be found even within the same sense, making it critical for the classroom teacher to watch for unusual behavioral reactions and to make accommodations as needed (Attwood, 2007).

Overview of how the SST curriculum targets specific learning skills to ameliorate these specific learning challenges. The SST curriculum builds upon the recommendations for teachers and parents to notice unusual behavioral reactions and to train students to notice these changes within themselves (Atwood, 2007: Buron & Curtis, 2003). The initial activity-driven modules revolve around self-awareness. The student is guided through the process of identifying their own strengths and challenges and led through activities that support the identification of strategies they can use to help themselves. The students are encouraged to identify strengths or behavior supports they can use to reduce the impact of challenges.

In this manner, the SST curriculum guides students through the process of

24

developing a realistic but positive self-image. The students are then introduced to common characteristics of AS and provided scaffolded instructional support to identify how these characteristics relate to themselves. Special interests are also introduced as a positive attribute that they can utilize as a problem solving tool. The teen is provided with instruction on how to use his/her special interest as an individual motivator for accomplishing difficult tasks, for developing self-advocacy skills, and ultimately in long term career goal setting. By beginning with the goal of helping the student identify their own strengths and challenges and developing a program plan for using their individual strengths to overcome challenges, the SST curriculum focuses on teaching procedural flexibility rather than rules for a positive outcome. This process helps us avoid the common pitfall of teaching social skills through rules that the general public is not privy too. Instead the teen begins the process with the full understanding that social interactions are not "scripted" but can often be successfully "negotiated" by focusing on what they can do well and having a plan for times when they are faced with challenges.

Overall the SST aims to reduce the impact of AS/HFA characteristics due to social or ToM and specific learning challenges by providing scaffolded, systematic instruction. Each of the 20 lessons within the SST curriculum has a part one and a part two in class activity and one or more suggested extension activities to apply the newly acquired skill in the home or community setting. Part one focuses on initial skill acquisition using concrete or other scaffolded supports. Part two provides for partner/group social interaction with guided teacher supports. These 20 lessons cover 10 progressively more abstract social concepts within the three problematic areas for teens with AS/HFA. Lesson topics are listed in Table 1. The curriculum is designed to help

teens learn the process for identifying their own strengths and challenges (self-awareness), develop a plan to achieve their social/behavioral goal (problem solving) and to carry out and revise this plan based upon current results of their efforts (transition planning). Comparisons between the SST curriculum and currently available evidence based practices presented in refereed journals are listed in Chapter IV.

Table 1. Lesson Topics and Number of Lessons

Student self-identification of potential areas of special interests	1
Student strengths and challenges	2
Common characteristics of individuals with AS/HFA	1
Special interests	2
Self-advocacy	2
Friendship	3
Recruitment of assistance	1
Resiliency	1
Initial post secondary plan	2
Plan to reach goals that are 2 to 5 years out	2
Lifelong plan with reevaluation built into the plan	2
Example of how to use planning skills to reach a vocational goal	1

CHAPTER III

CONCEPTUAL FRAMEWORK

Logic Model of the Social Skills Triad Curriculum

The logic and theory of change in this study is that an individualized, facilitated

social skills intervention implemented across three settings (community, home and

school) will increase levels of peer acceptance, self-advocacy and academic outcomes,

and reduce mental health adjustment problems. Table 2 outlines the overall logic of the

curriculum via proximal and distal outcomes related to the intervention as a whole.

TABLE 2. Logic Model of Social Skills Triad

Population	Intervention	Proximal Outcomes	Distal Outcomes
Teens with AS/HFA	Social skills triad curriculum	Improved self-awareness of individual strengths and challenges	Increased quality of life
1. Poor social skills	1. Scaffolded supports for: identification of AS/HFA characteristics	1. Strengthened self-advocacy skills	1. Improved academic outcomes
2. Strong special interests		2. Increased peer acceptance	2. Increased likelihood of obtaining postsecondary education or successful work
3. Weak organizational skills	2. Problem solving strategies: self regulation,	3. Improved mental health adjustment	
	3. Program planning for social, academic and vocational needs		3. Improved independent living skills

Description and Practical Basis of the Program's Content

      Program Description. The Social Skills Triad (SST) curriculum/training structure was built upon content from existing social skills training programs and responds to their known limitations by creating a program built around the student's special interests with teen and parental input. See chapter IV for literature review. The result is a multi-component instructional program that can be implemented using explicit, systematic instruction.[1] Curriculum content and implementation addresses the need to program generalization across the three main contextual aspects of the teen's day: school, home and community.

      Social and organizational skills training and support are typically offered in some format to most teens with AS/HFA. These school-based programs are typically offered as a class during the school day. The frequency of the program depends upon the students and the school they attend. Some receive pull-out services that happen weekly or every few days, while others attend a daily class dedicated to social and organizational skills. Other social skills instructional interventions are offered within clinical settings on a more limited schedule, typically once or twice a week. Autism advocates, researchers, parents and individuals with an Autism Spectrum Disorder (ASD) are not satisfied with the available interventions (Denning, 2007).

---

[1] Explicit, systematic instruction is sometimes referred to as direct instruction that includes teaching students strategies for how to learn or solve similar problems for themselves (Steedly, Dragoo, Arafeh & Luke, 2008).

All too often, social skills or routines acquired by the student with AS/HFA during training are not used in other settings within the child's daily life. Advocates are continuing to demand that educational services teach social skills explicitly so they will translate to usable skills after the individual leaves school (Bellini & Akullian, 2007; Bellini, Peters, Benner & Hopf, 2007; OCASD, 2010).The Social Skills Triad (SST) curriculum/training program targets three participant populations in the development and mastery of social and advocacy skills. These three populations are teachers/education professionals, parents/caregivers, and students with AS/HFA. A brief overview of nested curriculum structure is listed in Table 3. It provides a graphic representation of the Social Skills Triad, which uses a nested train-the-trainer model. In this model, the teacher training covers procedural and content training in all three modules. This prepares the teacher to teach the teen at school and to train the parent to teach and reinforce the same content being taught during the school day, when the teen with AS/HFA is home or in the community. In essence, both parent and teacher will train the teen and provide consistent explicit, systematic instruction to facilitate skill acquisition and performance across settings and over time. See Table 2 for a complete curriculum chart.

TABLE 3. Curriculum Chart

Training received	Teachers/educational professionals	Parents	Teens with AS/HFA
Teacher/ educational professionals module	X		
Parent module	X	X	
Teens with AS/HFA module	X	X	X

The parent module includes: (a) suggestions for recruiting teacher / community

29

participation and advocacy tips, (b) home / school communication and data monitoring checklist and (c) copies of the activity driven lessons used in school. This provides the parent and teacher with a quick and simple method of exchanging information. The parent is able to communicate with the teacher social activities that are important to them as a family, and the teacher with a progress monitoring tool as to the success the student and family is having in practicing the skill being taught that week in the home and community environment.

The student module is the core module and included in both the parent and teacher module. See Figure 2. The student module contains two parts. Part 1 covers training in (a) global features of AS and the impact of special interest areas, (b) problem solving, (c) self-advocacy and recruitment of assistance, and (d) resiliency and friendship. Part 2 includes activities and vignettes regarding possible implementation of the newly mastered social skills in transition situations (grade to grade, school breaks, or other changes in routine) and post-high-school transitions (school to work or postsecondary education).
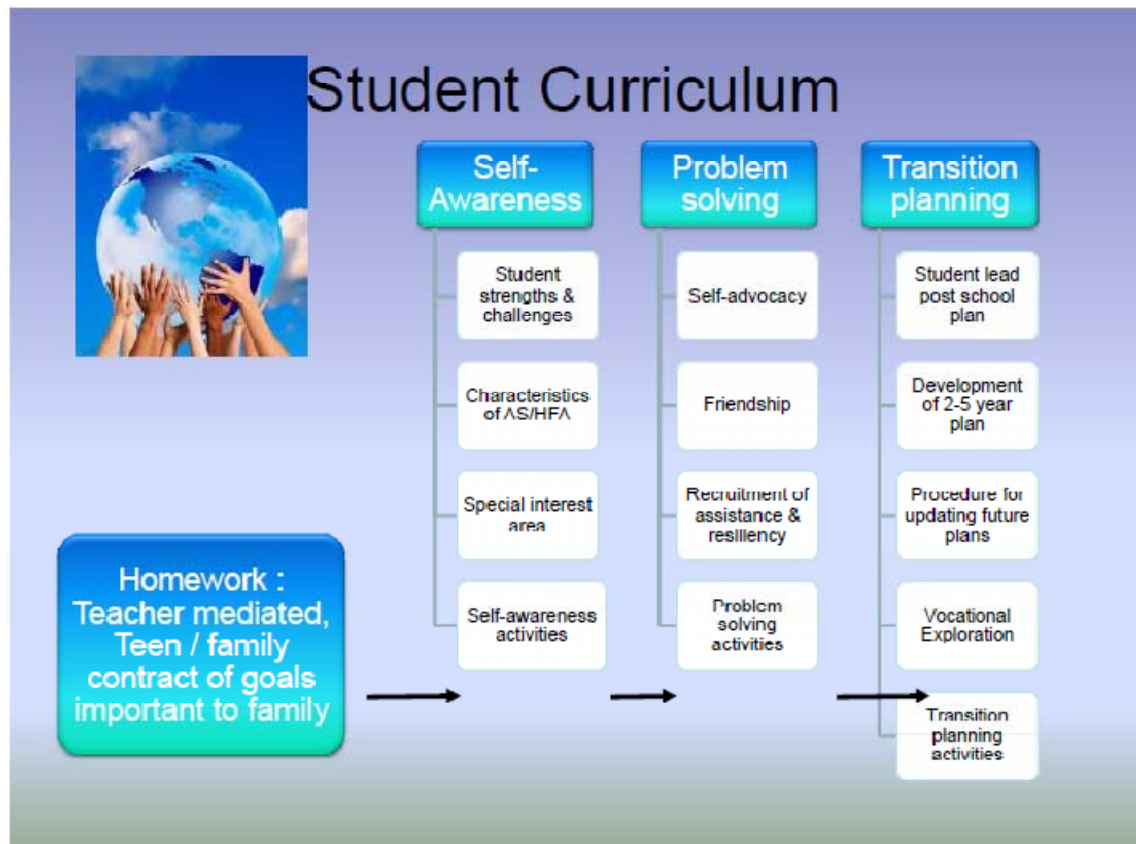
Figure 2. Student Curriculum Chart

Practical Program Basis for Module 1. Secondary school teachers are typically

accustomed to and may even prefer to function as islands unto themselves with relatively

little outside collaboration in classroom management and academic planning or content

instruction (Snell & Janney, 2000). However, due to current cuts in school funding, many

special education teachers and administrators are looking for ways to make their

resources (time, money and efforts) go farther (Kulongoski, 2005). The Social Skills

Triad (SST) curriculum offers a method to achieve improved rates of return on resources

spent by recruiting outside/unpaid assistance to work in conjunction with the efforts of

paid educational professions. The SST curriculum/training program itself intends to

foster relationships that are symbiotic, or mutually reciprocal, rather than parasitical. As the outside agency, social services, community members or parents are often left to deal with the student's lack of social fluency outside of school hours and after graduation from public schools.

Module I: Teacher/Educational Professional Training. The Social Skills Triad (SST) curriculum/training program provides educators a manualized method for recruiting parent/outside agency participation through team building/ problem solving suggestions and an efficient home/school progress monitoring tool. By teaching education professionals how to capitalize on the available parent and outside agency skill set, the SST provides educators with a way to increase the students' opportunities to respond across environmental settings, over time (see Table 4). Through proper parent training and outside agency recruitment, the teacher increases the frequency of instruction provided to the student without the loss of additional academic time within the school setting or extended expense of additional teaching hours.

Ultimately it is the parent, family, community and individual with AS/HFA who will determine the social engagement opportunities the student participates in after she/he leaves the educational system. As such it is important that the teen and the parent receive adequate instruction in identifying social strengths and challenges, and develop an understanding of the problem solving and progress monitoring strategies most effective for the teen to independently address social challenges throughout their lifetime.

TABLE 4. Content for Module I: Teachers/Educational Professionals

Skill development strategies	Program facilitation	Implementation of parent module	Implementation of student module
Team-building skills	X		
Negotiation skills	X		
Parent planning	X		

Advocacy/recruitment of assistance from:
    Educational professionals
    Outside agencies
    Outside individuals
	X		

Implementation and problem-solving activities to assist with adoption of intervention		X	X

Practical Program Basis for Module II: Parent Training. Exploring miracle

cures, implementing bully-prevention strategies and monitoring resistance to

immunizations are just three of the ways parents are playing a key role in the education

and service provisions legally required for students with ASD (CDC, 2008; Heinrichs,

2003; Kaufman, 1994). As reflected by the 2004 reauthorization of the Individuals with

Disabilities Education Improvement Act (IDEIA), the education community and society

in general have begun to demand that not just interventions/services be provided to

students with disabilities, but that these services have some agreed upon scientific rigor.

This study sought to take research-based team building, advocacy and social skills

training programs and provide them in a manner that is culturally competent and socially

valid for the families and children who receive the services (Snell & Janney, 2000).

Module II: Parent Training. Like most parents of teens, parents of teens with

AS/HFA are often faced with new challenges as their adolescent develops

psychologically, listening more to peers and other outside influences and less to them (Myles & Adreon, 2001). Adolescents, who have come to rely on their parents as social interpreters or advocates, suddenly find it socially stigmatizing to have them act on their behalf. This situation leaves many parents in the heartbreaking situation of watching their child suffer the "slings and arrows" of rejection and misunderstanding, while the parents themselves remain unable or resistant to becoming involved. Module II offers parents a solution to this problem by providing content that focuses on the strategies delineated in Table 5.

The skill development strategies are embedded throughout the module. Parents are provided with: (a) suggestions for recruiting teacher / community participation and advocacy tips, (b) home / school communication and data monitoring / checklist and (c) copies of the activity driven lessons used in school and trained in how to extend these tools to other situations. The parent is then able provide scaffolded instructional support and reinforcement at home and in the community. The language and instruction methodology remains consistent across environments' to support student skill acquisition and the parent gains an efficient tool for supporting student skill generalization to untrained situation unique to the home / community setting.

TABLE 5. Content for Module II: Parent Curriculum

Skill development strategies	Program facilitation	Implementation of student module
Home / school checklist / data monitoring tool which allows the users to stipulate variations (frequency, specific activity, etc.) to meet family implementation needs	X	
Negotiation and training for families	X	

Advocacy and recruitment of assistance, as a parent, from
    Educational professionals
    Outside agencies
    Outside individuals
	X	

Implementation and problem-solving activities to assist parent in implementation and reinforcement of intervention for their teen in the home and community setting.		X

Practical Program Basis for Module III: Student Training. By nature, humans

are social beings with a strong need for group identity and shared social experiences such

as affection (Herrmann, Call, Hernández-Lloreda, Hare, & Tomasello, 2005). This is a

particular challenge for many teens with AS/HFA who retain the social need but lack the

cognitive functioning that enables the development of social skills without explicit

training (Myles & Adreon, 2001).

Module III: Student Training. Module III provides students with AS/HFA with

curriculum content that will help them develop strategies to facilitate growth in their

social abilities for current use, as well as strategies to learn how to problem solve for

future possible scenarios. The content that Module III provides is displayed in Table 6.

TABLE 6. Content for Module III: Student Curriculum

Skill development strategies	Current skills	Transition planning skills	Friendship curriculum
Global features of AS and the impact of special interest areas	X		
Problem-solving skills	X		
Self-advocacy and recruitment of assistance	X		
Resiliency and friendship	X		
Activities and vignettes regarding implementation of the newly mastered social skills in transition or post-high-school situations		X	
Weekly goals and objectives developed with parental input			X

Regardless of their role in providing services to individuals with AS/HFA, most people share the similar perspective that the ability to learn and generalize social skills into untrained situations is critical to the overall quality of life for individuals with AS (Attwood, 2007). Many experts in the field of AS/HFA agree that this training should occur as early as possible to provide the student with the best possible outcomes. Disagreement continues over when, where and how much training should occur (Bellini & Akullian, 2007; Bellini et al., 2007). As noted in Table 6, the SST curriculum focuses upon a guided discovery learning process in which the student is supported in developing the ability to self-identify strengths and challenges, develop problem solving and self-monitoring strategies and use them effectively to achieve social goals meaningful to the student and his/her family.

CHAPTER IV

LITERATURE REVIEW

While all individuals with AS/HFA are unique, they tend to manifest the

aforementioned behavioral characteristics of AS/HFA in somewhat predictable patterns.

Students with AS/HFA tend to share one or more of the following characteristics: an

impaired understanding of nonverbal behaviors, hyper/hypo sensitivity to sensory input, a

tendency to be rigid or "rule-bound" in their thinking, a lack of desire for or

understanding of a "shared point of interest," and a markedly intense or focused interest

(American Psychiatric Association, 2000; Attwood, 2007). The first step in determining

how the Social Skills Triad curriculum compared to other available social skills curricula

for individuals with AS/HFA was to perform keyword searches in two of the most widely

utilized referred databases: ERIC via EBSCO and PsychINFO.

Literature Search Method

As Asperger's Syndrome is the overarching diagnostic criteria, three keyword

searches were conducted in ERIC via EBSCO and PsychINFO to select peer-reviewed

journal articles in which the authors discussed the impact of AS on the learning process.

The initial keywords were varying combinations of "Asperger" and "learning." In an

effort to retain as many articles as possible, the initial keyword searches were conducted

to find peer-reviewed journal articles written in English that discussed the impact of

characteristics of AS on the learning process. These searches gleaned 199 articles (160

from PsycINFO and 39 from ERIC). For the articles in PsycINFO, a secondary search

criterion, participants' age, was utilized to eliminate individuals who were not of school age. This approach resulted in three overlapping searches: Search 1 contained 79 articles with participants ranging from birth to 12 years of age, Search 2 contained 56 articles with participants ranging from 6 to 12 years of age, and Search 3 contained 58 articles with participants ranging from 13 to 17 years of age. The remaining 81 articles from PsychINFO were combined with 39 articles from ERIC to form a collection of 120 articles. A manual review of the 120 articles resulted in 12 articles that met the criteria: (a) written in English, (b) discussed learning characteristics of individuals with AS, (c) included at least some participants who were school aged (3 to 21 years old), and (d) discussed or recommended social skills intervention(s) for students with AS/HFA. See Table 7 for details.

In an effort to isolate AS characteristics that impact learning from possible confounding learning characteristics of comorbid conditions such as ADHD and AS, articles that discussed only comorbid conditions were excluded from this search. The only article retained that did not specifically mention the qualifying condition of AS was an article by Keeling, Myles, Gagnon, and Simpson (2003) regarding a behavior support intervention for a student with autism and an IQ of 100. Given the rather ambiguous nature of determining the exact distinction between AS and HFA, we made the decision to retain the article. This was in keeping with the diagnostic criterion set for our study:

AS/HFA articles that discussed family members' perspectives of AS, documented drug trial effectiveness, addressed the validity of a diagnostic assessment tool, or contained other off-topic discussions were also excluded.

TABLE 7. Literature Review Results

Article, Type, # of Participants	Intervention/Program Description	Intervention/Program	Social Skills Triad
Bianco, Carothers, and Smiley (2009) , expert opinion , N.A.	Suggested strategy: Utilize student's interests, learning strengths and skills to design academic and social/emotional supports.	Common: Special interests utilized to engage students Different: Broad-based solutions for known learning deficits in students with AS. School based setting.	Common: Special interests utilized to engage students Different: Targeted solutions taught to increase social exchanges between teen with AS/HFA. Emphasis on integration of activities between school/home and community settings
Bishop and Baird, (2001), research, 124	Use of Children's Communication Checklist as a screening tool for pragmatic communication challenges.	Common: Screening tool is completed by teacher and parents (parent and teacher input). Different: Specific diagnostic tool for one aspect of communication: pragmatics.	Common: Parent and teacher input taken into consideration to identify strengths and challenges. Different: Teen input is also used to triangulate strengths and challenges as they relate to all social interactions—pragmatic communications, reciprocity, nonverbal, etc.
Bock (2007a), research, 4	Use of mnemonic prompt strategy to improve social interaction skills. (SODA: Stop, Observe, Deliberate, Act).	Common: Intervention teaches a strategy that must be independently applied to be an effective tool in improving social communication with peers. (Open ended) Different: Age: Intervention is targeted toward elementary age students; Restricted setting –school.	Common: Intervention teaches a strategy that must be independently applied to be an effective tool in improving social communication with peers. (Open ended) Different: Age: Intervention is targeted toward older students; Across setting–school, home and community; Strategy includes special interests / triad input.

TABLE 7 (Continued)

Article, Type, # of Participants	Intervention/Program Description	Intervention/Program	Social Skills Triad
Bock (2007b), research, 1	Use of mnemonic prompt strategy to improve social interaction skills (SODA: Stop, Observe, Deliberate, Act).	Common: Open-ended: Intervention teaches a strategy that must be independently applied to be an effective tool in improving social communication with peers. Age: Participant was a middle school student. Different: Restricted setting—school.	Common: Open-ended: Intervention teaches a strategy that must be independently applied to be an effective tool in improving social communication with peers. Age: Participant was a middle school student. Different: Across setting—school, home and community. Strategy includes special interests and input from complete triad (teen, parent, and teacher).
Elkis-Abuhoff (2008), research, 1	The creation of a variety of art projects is used as part of a therapy session to help a student with AS overcome some of the communication challenges associated with AS.	Common: Utilization of an activity (Art) to explore issues of self-concept and social interactions. The adult utilizes the creative process to engage the student in a social conversation inquiring as to how the art being created reflects the student's understanding of self and others. Different: Applied and evaluated in a clinical setting.	Common: Utilization of an activity (Art) to explore issues of self-concept and social interactions. The adult utilizes the creative process to engage the student in a social conversation inquiring as to how the art being created reflects the student's understanding of self and others. Different: The art activities are similar but applied both in the school and home environment.
Furniss (2008), expert opinion, N.A.	Students with AS who enjoy drawing or other types of visual arts are encouraged to use this skill as a bridge to expression and communication.	Common: Builds upon students' individual strengths (art) and special interests (subject matter/expression they focus on); uses special interest as a common point of reference for conversation with teen. Different: Targeted towards teens who have a special interest in art: Goal of expanding special interests, facilitating a conversation or reward.	Common: Builds upon students' individual strengths (art) and special interests (subject matter/ expression they focus on); uses special interest as a common point of reference for conversation with teen. Different: Art activities are built systematically within lessons that target self-exploration of identity and individual strengths and challenges. Focus on shared experiences.

TABLE 7 (Continued)

Article, Type, # of Participants	Intervention/Program Description	Intervention/Program	Social Skills Triad
Keeling, Myles, Gagnon, and Simpson (2003), research, 1	A power card or short script in which the student's special interest is described as behaving in a socially appropriate manner is utilized as a visual / written prompt to remind the student what the expected behavior is under certain conditions.	Common: Students are reminded /encouraged to behave in a socially appropriate manner during the intervention. Different: This visual reminder can be carried with the student and utilized as needed as a self-monitoring system/prompt that teachers or peers could help to reinforce desired behaviors.	Common: Students are reminded /encouraged to behave in a socially appropriate manner during the intervention. Different: The current SST curriculum does not use individual self-monitoring systems to reinforce desired behaviors. This modification has been suggested as one way in which the current intervention could be extended to serve either younger or more cognitively impaired students.
Rubin and Lennon (2004), expert opinion	Authors suggest the use of both verbal and visual supports/prompts to encourage appropriate prosocial behaviors with the caveat that the support must match the learning style of the individual.	Common: Recommendation for use of visual /verbal supports as best meets the needs of the learner to encourage prosocial behaviors. Different: While there were a few suggestions for how to ameliorate the challenges in social communication, the article mainly focused on identifying and differentiating the needs of individuals with AS and HFA.	Common: Recommendation for use of visual/verbal supports as best meets the needs of the learner to encourage prosocial behaviors. Different: The intervention begins where the article ends. Once the challenges have been identified, members of the triad (teen, parent and teachers) are encouraged to participate in activities designed to ameliorate these challenges.

Table 7 (Continued

Article, Type, # of Participants	Intervention/Program Description	Intervention/Program	Social Skills Triad
Rodger, Ireland, and Vun (2008), research, 2	The student is given verbal prompts—"goal, plan, do, check"—to achieve a particular goal.	Common: Intervention targets skills important to the student with the goal of having the student learn a process that can be successfully generalized across settings. Different: The intervention (Cognitive Orientation to Occupational Performance) recommends the use of one particular problem-solving strategy.	Common: Intervention targets skills important to the student with the goal of having the student learn a process that can be successfully generalized across settings. Different: The Social Skills Triad incorporates global features of many successful interventions guiding the participants (teen, parent and teacher) through possible options until the teen finds a problem-solving tool that works effectively for them in that participial setting. The SST focuses on teaching the teen how to select the appropriate problem-solving processes rather than a particular solution to be used in all cases.
Rubin and Laurent (2004), expert opinion, N.A.	Examples of curriculum-based goals that could be utilized to develop the social communication, emotional regulation and transactional supports (SCERTS) that could be used with partner to facilitate growth.	Common: Both programs incorporate the interaction of peers and other significant individuals within the students' social world within the intervention. Different: SCERTS focuses on the selection of appropriate partners and provided direction for the facilitator and peer roles.	Common: Both programs incorporate the interaction of peers and other significant individuals within the students' social world within the intervention. Different: The Social Skills Triad curriculum provided directions and supports for inclusion of all individuals within the students' life settings regardless of skills of the partner.

TABLE 7 (Continued)

Article, Type, # of Participants	Intervention/Program Description	Intervention/Program	Social Skills Triad
Stewart, Carr, and LeBlanc (2008), research, 1	Parent and sibling were taught in a clinical setting to use behavioral skills training (instruction, modeling, rehearsal and feedback) to teach a composite skill—conversation (note interest in conversation by others via periodic eye gaze, and avoid perseverating on specific topics.)	Common: Both interventions utilize the family within the delivery of instruction in the home settings. Different: BST is taught to the other trainers (parent / sibling) within a clinical setting following specific criterion to address selected targeted areas of communication.	Common: Both interventions utilize the family within the delivery of instruction in the home settings. Different: The social skills triad is by design open-ended. The intervention incorporates the interests of teen and family within social activities designed to practice targeted social skills.
Stewart, Carr, and LeBlanc (2008), research, 1	Parent and sibling were taught in a clinical setting to use behavioral skills training (instruction, modeling, rehearsal and feedback) to teach a composite skill—conversation (Note interest in conversation by others via periodic eye gaze, and avoid perseverating on specific topics.)	Common: Both interventions utilize the family within the delivery of instruction in the home settings. Different: BST is taught to the other trainers (parent / sibling) within a clinical setting following specific criterion to address selected targeted areas of communication.	Common: Both interventions utilize the family within the delivery of instruction in the home settings. Different: The social skills triad is by design open-ended. The intervention incorporates the interests of teen and family within social activities designed to practice targeted social skills.
Winter-Messiers et al. (2007), research, 41	Information regarding individuals with AS and their special interest areas (SIAs) were gathered. When students were engaged with their SIA a significant improvement in communication, executive functioning, academic skills and other common deficit areas was noted.	Common: Both studies strongly incorporated the students' SIAs. Different: The study by Winter-Messiers et al. (2007), was conducted as a single point in time glimpse of the relationship between the student with AS and their SIA—the outcome of which strengthens the general recommendation to utilize SIAs to engage, encourage and support teens with AS/HFA.	Common: Both studies strongly incorporated the students' SIAs. Different: The Social Skills Triad begins where the Winter-Messiers et al. (2007) study ended. The SST heavily utilizes SIAs and other interests to drive the development of the social skills curriculum utilized by the participants and their families.

Literature Search Results

Table 7 provides a brief overview of currently available social skills curriculum for individuals with AS/HFA currently utilized or recommended by expert opinion or researchers within the field of autism. Four of the 12 peer-reviewed journal articles utilized expert opinion: one recommended using the students' special interests to guide instruction in all areas, including social; one recommended the use of art as a common shared point of interest on which to build social communication; one focused on the differences that can be found between preferences for visual or written supports in social communication; while the remaining article discussed the need for not only a curriculum in social skills but appropriate peer/partner modeling. Eight of the 12 peer-reviewed journal articles discussed the findings of a research study conducted by the authors. Four research articles utilized a mnemonic prompt or written reminder to support students independently utilizing this tool to guide social interactions: One research article utilized art therapy to guide the student through the process of understanding social interactions, two research articles utilized a survey or screening tool to relate to social skills at a single point in time, and the last article choice to focus on utilizing a behavior-training tool to explicitly teach a particular aspect of social communication (noticing if the person one is speaking to appears disinterested in conversation, or avoidance of specific topics).

As indicated by the studies, the average social skills intervention is carried out as an individualized intervention targeting the needs of a particular student within the school setting. This fact can be stigmatizing to the participant. The interventions tend to be implemented for elementary students with long-term outcomes of increased prosocial

behaviors rather than the attainment of actual friendships. Following is a brief description of social skill curricula discussed in the aforementioned articles.

Curriculum: Use of Students' Special Interests. As noted by Winter-Messiers et al. (2007) students with AS/HFA tend to exhibit fewer negative ASD characteristics when engaged in or discussing their special interests. For examples, students were more likely to engage in appropriate eye contact when discussing their special interest. Practitioners and clinicians alike are beginning to recommend capitalizing on this behavior to promote acquisition of new skills. However, the method different education professions for utilizing the students' special interest can vary widely.

Some recommend partnering students with others who share the same interest. The hope is that common interest will overcome other social / communication challenges between the student and his/her peers. For example, a student who is interested in cameras might be encouraged to join the school newspaper or photography club (Bianco, Carothers, & Smiley, 2009). Other education professionals recommend the inclusion of art or art therapy (Elkis-Adubhoff, 2008; Furniss, 2008). In these types of situations the student may use art (if art is their special interest) as an end in and of itself, or the student might create art about their special interest. In both situations the creation of a physical object that is separate from the student and visual to others is utilized as a bridge between the person with AS/HFA and others with whom they might communicate. For example the student might draw about their feelings of frustration, anger or lack of communication / understanding regarding different social situation. I.e. a student with a special interest in sports cars might draw a picture of a Bugatti Veyron (current world's fastest sports car)

45

or a picture of the Bugatti Veyron crashing onto the P.E. field and destroying the soccer field. The picture offers a 3rd "space" for attention to be focused upon, allowing the student with AS/HFA a less invasive communication option. The teacher / peer and the student can discuss the artistic creation without the need for constant or sustained eye gaze. It also provides an opportunity for the teacher to guide the student (visually or orally) through communication challenges from the perspective of others.

Carol Gray's Social Stories are a more formal example of this process (Gray & Garand, 1993). While the exact number of sentences, pictures and printed words vary the stories follow a set sequence of descriptive, perspective and directive sentence telling the student how to behave under certain conditions. Social Stories are also designed to be proactive rather than reactive. The stories focus on what prosocial behaviors the student should exhibit in the future rather than on engaging in assigning intent or blame upon behaviors that have happened in the past. Social stories themselves are generally utilized as interventions in response to problem behaviors and tend to be used with younger elementary age students. For example, a kindergartener who grabs a preferred toy away from others rather than asking or waiting his/her turn to play during recess, may have a social story created for them and read to them just prior to recess. In this manner, the child is precorrected for prosocial behaviors. Older children may be given a social script (social story without pictures) or use power cards. Power cards (Keeling, Myles, Gagnon & Simpson, 2003), are about the size of a business card with a picture of the students' special interest on one side and three to five sentences on the back. The first sentence is always how the special interest follows the behavior rules the student is expected to display, the second states the demand that the student display that behavior and the third

or final sentence states how the special interest approves or supports the student in displaying the desired behaviors. Using a similar example of sharing challenges and an older student whose special interest is football, the student could have a power card with a picture of Matt Hassellbeck (Seattle Seahawks' football player). The other side would state how Matt shares the workout equipment with his team to help everyone become the best they can be, how the student must share a desk / locker or other item for the good of the class and how Matt would approve of the student sharing. Power cards are somewhat similar to use of a mnemonic to prompt prosocial behaviors.

Curriculum: Mnemonic / Visual / Verbal Prompts. Bock (2007a & b) describe a problem solving procedural process taught to students with AS/HFA to help them independently determine how to interact socially with others. The students were taught to: Stop (Think to decide where to go/and what are the available options are), Observe (what others are doing and saying), Deliberate (think for themselves what they would like to do or say and how others might respond) and Act (make a plan and carry it out to join in an activity with others). The mnemonic SODA could be implemented visually or with verbal prompts. In both conditions the study was supported through the self-talk procedure of determining what was an appropriate activity to engage in, what others were doing and to plan for specific behaviors the student could engage in to join in the activity. Similar to the power card intervention, students are encouraged to develop a list of specific behaviors they will display under certain conditions. The students are also assured of being supported or being approved of even if the social situation does not unfold as anticipated. For example, when the student asks to play too he/she may be

47

rejected and need to find something else to do. Knowing that this is a possible outcome and having an alternative plan before engaging in a social bid can reduce the anxiety levels for some students. The specific mnemonic or procedural steps that accompany the visual or verbal support given to the student vary depending on the intervention selected and the needs of the child.

For example, Rodger, Ireland and Vun (2008) developed a social skills intervention around cognitive orientation to daily occupational performance (CO_OP) for social skills, which require some degree of motor performance. The student is encouraged to follow the goal, plan, do and check global problem solving procedure. This strategy asked the child to set a social goal, plan what specific behaviors are needed to accomplish this task, attempt the behaviors and through guided discovery master the skill and checking with the therapist to generalize the newly acquired skill to other contexts. CO-OP lends itself to other behavior modification interventions that have been implemented through some form of Applied Behavior Analysis (ABA).

Curriculum: Behavior Modification / Skill Training. Stewart, Carr and LeBlanc (2007) offer an example of the use of behavior modification or social skills training across settings by recruiting parent and sibling as co-trainers. Stewart et al.'s Behavior Skills Training (BST) utilizes the following process: instruction, modeling, rehearsal and feedback to teach specific composite social skills such as eye gaze and avoiding perseverating on specific topics. Training the parent and the sibling was successful in that it provided the student support in his natural home setting with familiar people to help him generalize the clinical training. The study proved quite successful in

48

reducing the incidences of problem behaviors i.e. the student was conditioned to monitor others facial expression for hints of boredom. However successful in reducing problem behaviors, the next step still remains, how do we teach more than prosocial bids? How do we teach social skills to an every changing population who seeks to engage in social communication with others who are also constantly changing? We begin to set the stage for our study into the next step by reviewing the integration of current evidence based practices with our survey findings.

Integration of Literature Search with Survey Findings from Participants in Study

A recent article by Ryan, Hughes, Katsiyannis, McDaniel, and Sprinkle (2011) titled *Research-Based Educational Practices for Students With Autism Spectrum Disorders* serves as a bridge between longstanding research practices, new ideas circulating in current peer-reviewed journals and the current study. Ryan et al., (2011) notes four longstanding interventions that have been able to demonstrate an increase in social functioning or prosocial behaviors. These interventions are: (a) Developmental, Individual-Difference (DIR)/Floortime (target recipient is between 2-5 years of age and will require 14-35 hours of intervention per week); (b) Lovaas Method (target recipient is between 2-12 years of age and will require 20-40 hours of intervention per week); (c) Picture Exchange Communication (PEC; target recipient is between 2 years old to adult age and intervention is generally provided to recipient in 20- to 30-minute sessions or as long as engagement is maintained); and (d) Social Stories (target recipient is between 2-12 years of age and typically is provided intervention in response to a challenging social situation where the recipient is then precorrected via a story regarding how to handle the

situation correctly before he or she enters a similar environment).

These interventions highlight the absence of an evidence-based social skills intervention for teens with AS/HFA. DIR/Floortime and the Lovaas Method are appropriate for younger individuals, while the PEC system is clearly not appropriate for this population, who by definition do not have any delays in verbal communication. This leaves the use of Social Stories (Ryan et al., 2011) as the one evidence-based social skills intervention that can be used with younger teens with AS/HFA.

Social stories similar to those used in the majority of the peer-reviewed research articles provide the student with a script or prompt of what to say and do under certain conditions. The challenge for the students in our study and for many others with AS/HFA was that they were particularly rule bound (Attwood, 2007). Thus, the students tended to view the intervention as a failure if they followed the script but the peer did not behave exactly as the script had been discussed or if the students with AS/HFA did not perceive the situations as alike. In our study, one parent described how a teen ridiculed his brother for admonishing him not to run in the grocery store. His dad had told them not to run, but that was in the vegetable section, so the father's instruction was no longer seen as valid because they were in a different part of the store (parent, personal communication, December 1, 2010). This parent's personal experience reinforces the study hypothesis that there is a place for mutually agreed upon core social skills instruction that takes into consideration the educational needs of the student based upon their unique home and community culture. To reach these goals, this study investigated the feasibility, social validity and intent to use a mutually designed social skills intervention via a technology adoption model (TAM).

CHAPTER V

METHODS AND RESEARCH PLAN

Research Design Summary

Study Aims. This study sought to develop and test the feasibility, social validity and intent to use of a social skills curriculum. I utilized a technology adoption evaluation model (TAM), within a translational research methodology (Spoth et al., 2008) that emphasized qualitative findings (Morgan, 1998), to utilize focus group input in the development of the multi-component social skills curriculum/training program. The program is designed to promote social competency in teens with AS/HFA across multiple settings: school, home and community. The first aim (Aim 1) was to develop the Social Skills Triad (SST) curriculum for each separate target population: (a) teachers/educational professionals who work with teens with AS/HFA, (b) parents/caregivers of teens with AS/HFA, and (c) teens with AS/HFA. The three separate components of the curriculum were developed with focus group input. Descriptive, repeated-measure questionnaires were utilized to evaluate the perceived effectiveness / intent to use and social validity of the curriculum within groups over time. The second aim (Aim 2) was a 7-week, quasi-experimental pilot study conducted by using complete triads, each of which included a teen with AS/HFA, a parent of given teen and an educator of given teen. Descriptive, pre-post questionnaires were utilized to evaluate the effectiveness, usability and social validity of the multi-component curriculum across triads.

51

This research study placed greater emphasis on the qualitative findings of the participants rather than the quantitative findings from either Phase 1 (focus groups) or Phase 2 (pilot study). The two sections listed below outline the methods section: (a) reasoning behind the decision to select Type 2, translational research, as defined by Spoth et al., (2008), with greater emphasis placed upon the qualitative findings; and (b) Study Aims, which document the quantitative methods (Morgan, 1998).

Research Framing

The development of an intervention that includes parent and teen input with repeated measurement of social validity and efficacy over time in the development of a social skills intervention for teens with AS/HFA is innovative and unique. This approach naturally lends itself to analysis both within participants and between population groups. Together the inclusion of a unique population parameter (parent groups) within a repeated measure reinforced the appropriateness of the decision to use a Type 2 translational research model as opposed to traditional quantitative or single-subject methodology.

Translational research has been defined by Spoth et al. (2008) as follows:

> Type 2 translational research examines a broad range of factors necessary for successful adoption, implementation, and sustainability of EBIs across diverse populations, through the application of naturalistic methods and experimental trials. Organized around the primary translational functions in the TIES framework, there are four broad categories of Type 2 translational research: Translation stage-setting research, Institutional or individual adoption research, Effective implementation investigation and Sustainability research. . . . *Institutional or individual adoption* research is the systematic study of factors influencing the decisions to implement an EBI. Adoption factors are wide ranging, including financing for prevention services and organizational

factors such as institutional readiness for change. Adoption research also includes the study of *dissemination*-related factors, such as how the targeted distribution of information about EBIs is interpreted by various public health audiences, organizations, and practitioner groups, and how the packaging and transmission of information about EBIs can be successfully executed to achieve greater use of the interventions. For example, studies might examine how and why information on EBIs may or may not reach many different stakeholders, evaluate which factors enhance or impede stakeholders' decisions to adopt the intervention, and identify effective approaches to packaging and transmitting the evidence-based information. (p. 4)

Aim 1 (Phase 1): Curriculum Development and Focus Group Testing Questions

The overall purpose of Phase 1 was to fully develop the Social Skills Triad (SST) curriculum/training intervention, including all assets and deliverables, and to assess the feasibility and social validity of the program in a middle/secondary school setting. In addition to the qualitative findings of the participants, the study sought to answer two *a priori* hypotheses. My hypotheses were that there would be a significant difference between groups regarding their willingness to adopt the SST curriculum (TAM score), and that this difference would change over time.

Participants were asked to rate their agreement with eight statements. Each statement was rated on a scale of zero (no response) to 6 (highest agreement). The cumulate score for each participant (the TAM score) at each time was the dependent variable. The eight statements surveyed the participants regarding knowledge of ASD, social skills, intent to use the SST curriculum, value of social skills in general, and importance and priority of curriculum across multiple settings. See Appendix A for a copy of the surveys / questionnaires used. Analysis of the dependent score was utilized to answer the following questions: Is there a difference between groups? Is there a

difference in participant responses over time? Answers to these questions were
investigated through a mixed-effect analysis of variance.

Participants. Participants were recruited from each target population—
teachers/education professionals (N = 9), parents/caregivers (N = 8) and teens with
AS/HFA (N = 7)—for development and assessment of the individual modules.
Participants were selected to participate and assigned to the appropriate group if they
were any of the following: (a) a student with AS/HFA receiving educational instruction
in a middle/secondary setting, (b) a parent/caregiver/guardian of a middle/secondary
student with AS/HFA, or (c) an education professional working with middle/secondary
students with AS/HFA in a teaching capacity (see Table 8 for descriptive statistics).

TABLE 8. Descriptive Statistics of Participants

Focus group type	N	Gender	Age	SPED
Teen with AS or HFA	8	M(6)/F(2)	3 Middle School (M)/ 6 High School (4M/2F)	All met requirement of IQ = 70+, with diagnosis of AS/HFA
Parent or Caregiver of Teen with AS or HFA	7	M(2)/F(5)	35 - 65	3 parents (F) work in the education field
Educator of Teen with AS or HFA	9	M(3)/F(6)	22 - 65	1 (F)ParaPro 3 (F) Former ParaPro's now Special Education Students 3(1M/2F) Autism Consultants 2(M) Sped Teachers
Total	24			

AS/HFA Characteristic Qualifications for Participants. While the decision

was made to retain the classification of Asperger's Disorder, 299.80, within its parent

group of Autism Spectrum Disorders by the American Psychiatric Association (Casteel &

Valora, 2010), it is prudent to clarify the requirements for participating in this study. The

requirement to be considered to have Asperger's Syndrome/High Functioning Autism

was in line with the current diagnostic criteria according to the *DSM-IV-TR* (American

Psychiatric Association, 2000) with the exception that individuals with clinically

significant general delay in language were excluded. Given the challenge of documenting

an early childhood language delay in teens or adults (Mandell, Novak, & Zubritsky,

2005) and the findings of Witwer and Lecavalier (2008) suggesting that current IQ is the

main differentiating factor between individuals with AS/HFA and others on the spectrum,

if potential participants met the general criteria for AS, had no current language delays,

and an IQ of 70 or above, as testified by a parent, they were eligible to participate if they

otherwise qualified.

For the purpose of this study, a teen with AS/HFA is defined as an individual 12

to 21 years of age who has received a medical or educational diagnosis of AS or HFA

with an IQ of 70 or above. In essence, the teen must be a middle/secondary/transition

student who is eligible to receive special education services under the qualifying

condition of autism as defined by *DSM-IV-TR* criteria.

The *DSM-IV-TR* lists the following diagnostic criteria for Asperger's Disorder,

299.80:

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 object of interest to other people)

(4) lack of social or emotional reciprocity

B. Restricted repetitive and stereotyped patterns of behavior, interest, 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, nonfunctional routines or rituals

(3) stereotyped an 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. (American Psychiatric Association, 2000, p. 84)

Measures. Each focus group population—teachers, parents and teens—had their own questionnaire. The first eight questions of all three questionnaires were the same, which allowed us to measure feasibility and social validity both within and across groups (see Table 8). Additional questions were asked of each population to offer guidance for future studies and provide qualitative information. The questions were designed to measure participant knowledge regarding AS/HFA, values towards social skills intervention in general, intent to utilize SST (feasibility) and perceived social validity or TAM score that could be measured by group over time.

Participants were asked to rate their agreement with the following eight questions on a 5 point, Likert-like scale with a higher score indicating a stronger agreement with question and a higher TAM score. Questions 1, 3, and 4 were asked to help identify personal biases towards or against established evidenced based practices for individuals with AS/HFA. Question 2 evaluating the participants' satisfaction with the currently available social skills intervention allowed me to fine tune my understanding of the perceived need for the SST or degree to which the participants needs were satiated. Questions, 5, 6, and 7 asked the participant to evaluate the social validity of certain aspects of the SST such as including unique family cultural characteristics. Question 8 asked the participant to verify his/her willingness to adopt the curriculum in its entirety.

TABLE 9. Likert Measure in Aim 1

Question	Time 1	Time 2	Time 3
Need for social skills training for student with AS/HFA	X	X	X
Satisfaction with currently available materials	X	X	X
Consideration of unique characteristics of student increases effectiveness of training	X	X	X
It is a good idea to consistently teach and reinforce same social skills across home, school and community	X	X	X
Importance of including unique family and community culture in social skills	X	X	X
The time and effort to build consensus and cooperation between school and family is a good use of participants' time	X	X	X
Personal commitment to work with other members of the training triad	X	X	X
Willingness to adopt the Social Skills Triad	X	X	X

Further analysis of the design allowed me to evaluate the perceived efficiency and

social validity of the SST as indicated by changes in the TAM scores by group over time, as the participants worked together to modify a curriculum to more closely meet the needs of the participants.

Aim 1 (Phase 1): Design of Quantitative Analysis

Serving as the quantitative, dependent variable were participants' scores on interest/agreement on social validity/efficacy/intent to adopt the proposed Social Skills Triad curriculum measure. Focus group type was a qualitative independent variable with a between-subjects effect at three levels: teen, parent, and educator. The second qualitative independent variable was time. Time was a within-subject effect, also with three levels: $Time_1$ (pretest given at the start of initial focus group meeting), $Time_2$ (test taken after participant independently reviewed the curriculum as modified by initial focus group input), and $Time_3$ (posttest taken at the end of the final focus group when the results of other participant feedback were also discussed). A mixed-effect, two-factor ANOVA was utilized, with one between-group factor (child, parent, or teacher) and one repeated-measures factor (time of assessment).

Aim 1 (Phase 1): Design of Qualitative Analysis

A quasi-experimental, participant observational method (Trochim, 2006) was used in which the researcher actively engages with the participants to begin, lead, probe and facilitate the group conversation. Participants were encouraged to share, compare and discuss their experiences with social skills interventions for students with AS/HFA. The initial pretest survey, along with facilitator-directed discussion, laid the groundwork for the group communication ($Time_1$). At $Time_2$, each participant initially responded to the

proposed curriculum on his or her own; the response was written and did not include any group feedback. When the group reconvened for the second focus group (Time3), the facilitator/researcher was able to provide feedback on findings from other groups. This allowed for a repeated measure of the written open-ended qualitative response, as well as an opportunity to discuss why other groups may or may not have similar findings (see Figure 3).
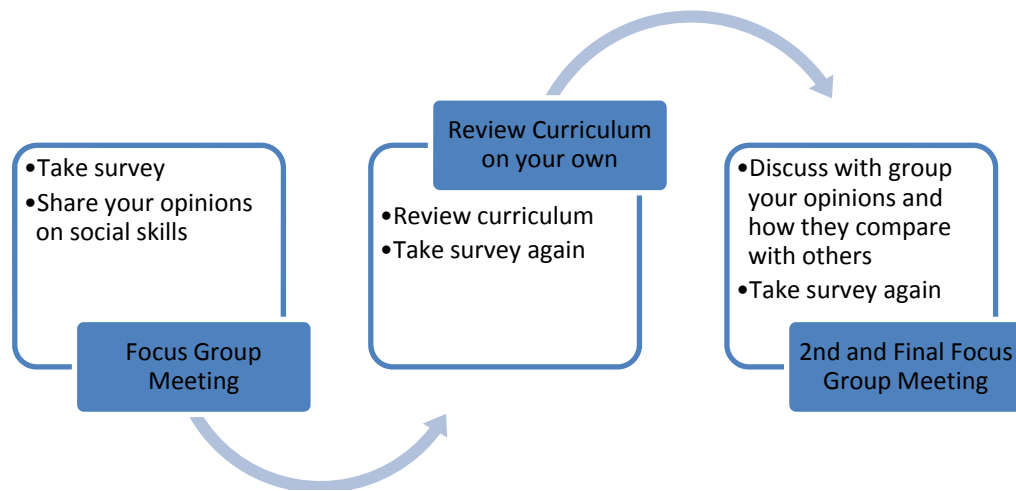
Design Figure: Focus Groups

Figure 3. Focus Group Sequence and Activities

Qualitative findings were collected via two primary methods during Phase 1: (a) written answers to open-ended questions and (b) transcribed from video recordings of focus group meetings and personal communications with investigator. By utilizing a repeated written survey, participants had the opportunity to augment or amend their earlier answer as they chose. The written qualitative questions were unique to the participant taking the survey.

During the first focus group, the participants completed the survey to provide a baseline regarding the participants' experience with social skills curriculum, as well as the diagnostic and educational process as it pertained to them. See Appendix B for a list of sample questions. I was specifically interested in assessing the participant's knowledge of the characteristics of AS/HFA, how these characteristics may affect an individual's ability to engage socially, and willingness of the participant to adopt or try the new proposed intervention. Preconceived opinions regarding the social validity and feasibility of social skills programs in general were also surveyed via open-ended questions. Each group was presented with an organizational outline and nested curriculum development chart, and was reminded of the key issues surrounding generalization challenges and previously documented research into the success of utilizing a student's SIA to promote engagement. A brainstorming discussion session then followed. Each brainstorming session lasted less than 2 hours ($Time_1$).

A draft curriculum was developed using the information generated at the meeting. All participants were provided a copy of the draft curriculum (which was mailed, emailed, or provided as a printed handout) and given up to 10 days within which to respond (via email, mail, calling or speaking) to the researcher to provide feedback. A second application of the survey questionnaire was also given at $Time_2$ to document changes in the participant's knowledge and satisfaction with the development process.

The final draft of the curriculum was created and presented to the group again, at the second and final in-person meeting ($Time_3$). During this second meeting, the first portion of time was reserved for discussing any suggested last minute changes in the curriculum. The latter portion was set aside to complete the post survey/questionnaire.

Additional exploratory data were gathered by including additional sample items on the survey that were unique to each group, involving both additional Likert-scale items and open-ended questions. This allowed for *post hoc* exploratory analysis of the data to be used to guide future iterations of this study. The final qualitative results were assessed during Aim 2 of this study—i.e., Phase 2, the pilot study.

Aim 2 (Phase 2): Pilot Study of Complete Triads Utilizing the SST Questions

Research Questions. Is the SST a feasible and socially valid method of instruction for social skills for teens with AS/HFA across multiple settings (school, home and community)? Does the SST show promise of efficacy?

Aim 2 (Phase 2): Design of Quantitative Analysis. The pilot study employed a single-condition, pretest-posttest design to examine the impact of the entire program on three complete triads: three teens with AS/HFA, three parents of teens also in Phase 2, and the teacher of said teens. For this phase of the study, it was necessary for all three participant groups to be related. All members of the 7-week SST pilot study completed a pre-post questionnaire to evaluate participant knowledge of AS and its potential impact on social and academic areas, efficacy, feasibility and social validity of the intervention.

The study's single-condition design did not control for potential threats to internal validity (i.e., extraneous factors; Shadish, Cook, & Campbell, 2002). However, it is appropriate for development work. The single-condition design allowed for the evaluation of feasibility without the added overhead required in conducting randomized trials. The pre-post single-group study allowed for evaluation of each component and

offered the most cost-effective method for evaluating program feasibility.

Participants. Participants in the pilot study were complete teams of a teen with AS/HFA, parent of said teen and teacher of said teen. Three complete triads (teacher, parent and teen) were recruited such that all team included one member who were one of the following: (a) a middle/secondary student with AS/HFA ($n = 3$), (b) a parent/caregiver/guardian of a middle/secondary student with AS/HFA ($n = 3$), or (c) an education professional who worked with middle/secondary students in a teaching capacity ($n = 1$).

Procedures. In the pilot study, complete triads (which included the teen with AS/HFA, a parent of said teen and teacher of said teen) completed a 7-week trial of the entire intervention using all three parts of the Social Skills Triad curriculum/training intervention. The print/DVD training materials were implemented in a train-the-trainer model; therefore, the special education/social skills teacher received training in the materials from the author. In turn, the teacher trained both the parent and the teen participants.

Measures. The same three questionnaires that were used in the development phase were utilized in a pre-post assessment of the participants to evaluate changes in the participants' TAM scores. As noted earlier, the TAM score (dependent variable) is the composite score each participant receives based upon his or her answers to the eight common questions presented via a Likert-like questionnaire. These questions surveyed the participants' knowledge of AS and its potential impact on social and academic areas,

as well as efficacy, feasibility and social validity of the intervention. Additional descriptive information was recorded and analyzed to determine if one or more descriptive factors significantly impacted the efficacy of the intervention.

The success of the intervention depends equally on teacher, parent and student outcomes. If the teacher finds the curriculum cumbersome or exceedingly time intensive, he or she is unlikely to implement the intervention with fidelity or provide the parents and students with the training to implement the program successfully. Parents must also find the intervention procedures straightforward and easily adapted to their individual family lifestyle to be willing and able to provide the student with AS/HFA the needed structure and supports to utilize newly acquired social skills within their home and community settings. Above all, teens with AS/HFA must find the intervention of value. Teens with AS/HFA often have a strong desire for improved social skills, without the knowledge of how to acquire these skills. Explicit, systematic instruction that will generalize across settings is embedded within the design of this study to address all three of these fundamental human components that comprise this intervention. Below, I present each instrument and its time of collection, pretest (T_1), posttest (T_2), or both.

Attitudes, T_1 and T_2. Teacher, parent and teen attitudes towards social skills, social skills training and importance of friendships were measured using Likert-type items, modeled after previous research (Rusby, Taylor, & Marquez, 2004).

Knowledge of AS/Advocacy Skills, T_1 and T_2. Open-ended questions were asked at both times to gain further insight into the effectiveness of the intervention, as well as the impact preexisting knowledge and attitudes may have had upon efficacy.

User Satisfaction, T₁ and T₂. Open-ended questions were asked at Time 1 and
Time 2 to gain further insight into the social validity and efficacy of the intervention for
all three participant groups (teacher, parent and teen) over time.

Technology Acceptance, T₁ and T₂. The overall combined Technology
Acceptance Model (TAM; Davis, Bagozzi, & Warshaw, 1989) was calculated using a
5-point Likert-like scale to assess the likelihood of using the program based upon the
eight-question survey of participants' agreement with the importance, usability, social
validity and efficacy of the SST curriculum (see Table 10 for details).

Table 10. Measures

Measure	Target	T_1 Pre	Intervention	T_2 Post
Attitudes	T, P, S	X		X
Knowledge and advocacy	T, P, S	X		X
User satisfaction	T, P, S	X		X
Technology acceptance (TAM; Gardner & Amoroso, 2004)	T, P, S	X		X

Note. T = teacher; P = parent; S = student.

Data Analysis. Paired *t* tests were used to evaluate pre-post gains in attitudes,
knowledge, advocacy, user satisfaction and technology acceptance. However, the main
goal of Phase 2 was to investigate any procedural challenges that might occur during the
proposed larger replication study.

CHAPTER VI

RESULTS

Aim 1 (Phase 1): Quantitative Analysis Results

In Table 11, I present the statistical parameters of the participants TAM scores

over time. See Table 11 for statistical detail on TAM scores by group over time.

The teen group participants displayed the largest amount of group variance.

TABLE 11. Statistics Parameter of Participants TAM Score by Time
and Focus Group Type During Phase One

Time	Focus group type	M	SD	N
$Time_1$	Teen with AS/HFA	26.00	2.39	8
	Parent or Caregiver of Teen with AS/ HFA	31.23	1.84	7
	Educator of Teen with AS/HFA	30.16	2.26	9
	Total	29.13	3.26	24
$Time_2$	Teen with AS/HFA	27.00	3.38	8
	Parent or Caregiver of Teen with AS/ HFA	36.28	3.78	7
	Educator of Teen with AS/HFA	34.46	2.37	9
	Total	32.5	5.05	24
$Time_3$	Teen with AS/HFA	28.13	4.97	8
	Parent or Caregiver of Teen with AS/ HFA	36.74	3.62	7
	Educator of Teen with AS/HFA	35.21	4.06	9
	Total	33.30	3.26	24

Note. Distributions were roughly unimodal and symmetrical, with no severe
outliers and no severe skew.

The above data represent participants who completed the Social Skills Triad

rating scale for all three time periods. Not shown are the five participants (three educators

and two teens) who were unable to complete the study due to illness or conflicting

schedules over the winter break.

A mixed-effect, two-factor ANOVA was utilized, with one between-group factor

(child, parent, or teacher) and one repeated-measures factor (time of assessment). While

exploratory analysis of descriptive statistics allowed us to verify the mixed effects AOV

assumptions of normality, severe skew/outliers, homogeneity of within-treatment

variances, and independence of subjects, we also needed to examine sphericity (R. Good,

personal communication, May 28, 2009). If assumption of sphericity were tenable or if

the within-subject variance on the TAM score between Time 1 and Time 2 were equal to

the variance between Time 2 and Time 3, by Analysis of Convention we would need to

utilize unadjusted p-values to test our hypothesis. However, in our case, the assumption

of sphericity was untenable, so a more conservative alpha was utilized to avoid the risk of

a Type 1 error. Therefore, Greenhouse-Geisser corrected p-values were used to evaluate

within-subjects effects because the assumption of sphericity was evaluated with the

Mauchly Sphericity Test and not found to be tenable, $\chi^2(2, N = 24) = 9.98, p < .05$. As chi

square does not equal zero (Keppel & Zedeck, 1989), group type was confounded with

time, making the design unbalanced. As a result, unique sums of squares and unweighted

means were used in the analysis and interpretation.

This type of analysis was selected as efficient measurement of between-group

difference in a repeated measurement, given the previously documented tendencies of

parents to observe significant improvement in the development of social skills or

behavior management skills for students with ASD when teachers do not (Laugeson,

Frankel, Mogil, & Dillon, 2008; Lopata, Thomeer, Volker, & Nida, 2006).

Data were analyzed using a two-way, mixed-effects analysis of variance with one

between-subjects effect (group type) and one within-subjects effect (time). The analysis

of variance results are reported in Table 12.

TABLE 12.Two-Way, Mixed-Effects Analysis of Variance Summary Table
for the Effects of Group Type and Time on TAM Scores

Source	df	SS	MS	F
Between subjects				
Group type	2	2347.72	1173.86	15.86*
Error between	21	1554.14	74.01	
Within subjects				
Time	1.44	240.51	167.50	24.99*
Group * time	2.87	42.33	14.74	2.20
Error within	30.15	202.13	6.7	
Total	57.46	4389.22		

Note: Unique sums of squares used for each effect, so sums of squares do not sum to total. Greenhouse-Geisser corrected *p*-values were used to evaluate within-subjects effects.

*$p < .05$.

As noted in Table 12, the interaction effect between group * time was not

significant, $F(2.87, 30.15) = 2.20$, $p > .05$. Thus, by conventional analysis of variance

logic, the main effect of group and time was examined. A significant main effect was

found for Group type (15.86, 2, $p < .05$) and Time (24.99, 1.44, Greenhouse-Geisser

corrected $p < .05$). The Bonferroini adjustment was used to control for family-wise Type

1 error ($\alpha = .05/3 = .017$), post hoc pairwise comparisons between each possible pair of means for Group levels (Group 1 vs. 2, 1 vs. 3, and 2 vs. 3) and Time (Time 1 vs. 2, 1 vs. 3, 2 vs. 3). There was a significant difference between teens vs. parents/caregivers (-7.71, 1.48) and teens vs. educators (-6.23, 1.39). There was not a significant difference between parents/caregivers and educators. There was a significant difference between Time 1 vs. Time 2 (-3.45, .60) and Time 1 vs. Time 3 (-4.23, .80). There was not a significant difference between Times 2 and 3. See Figure 4 for combined data and Figure 5 for data by group.
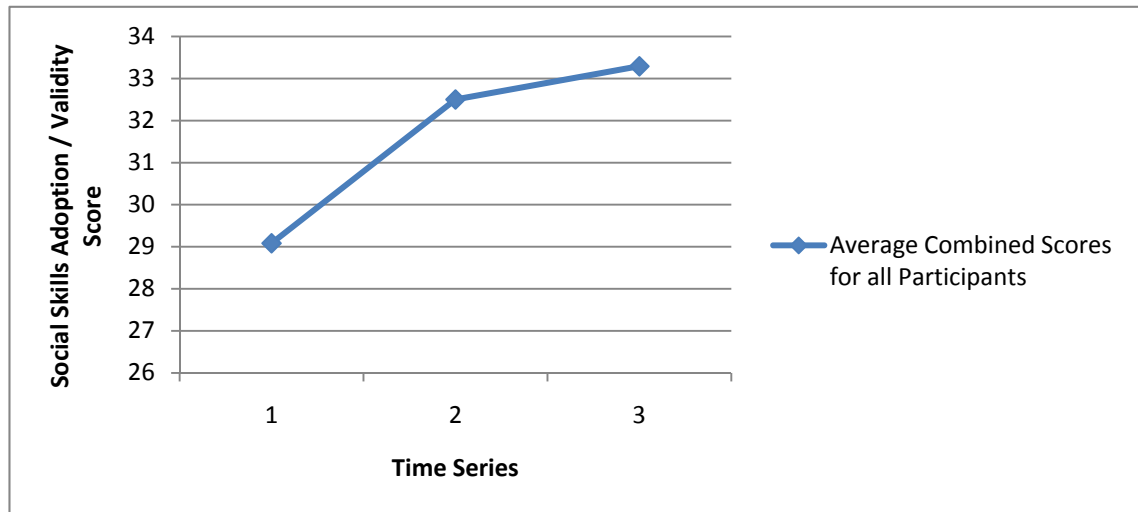

Figure 4. Average combined adoption / validity scores for all participants.
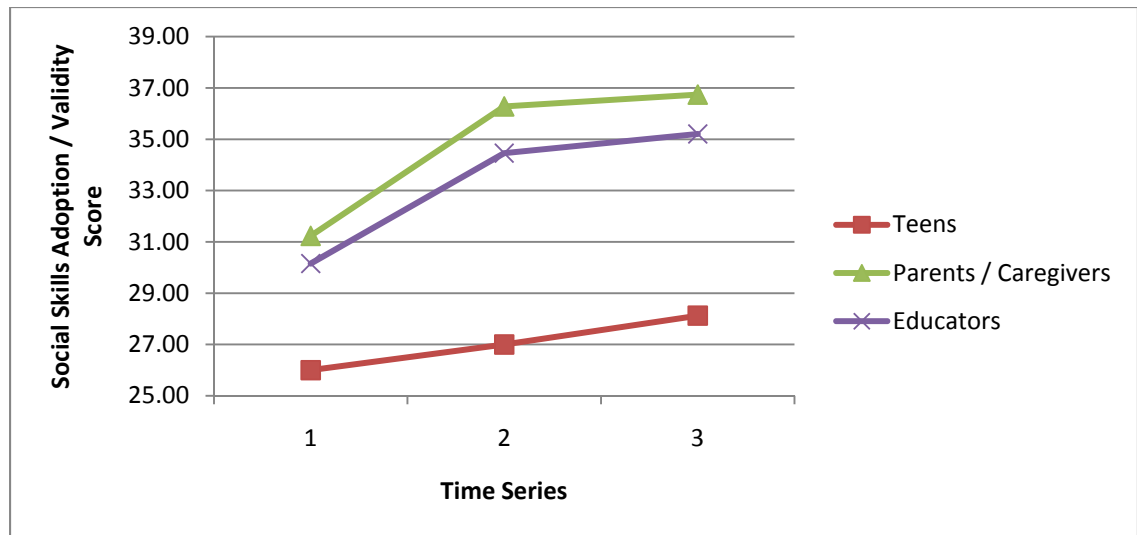
Figure 5. Technology adoption commitment by group over time.

Aim 1 (Phase 1): Qualitative Analysis Results

Teacher/Education Professionals. Interestingly, the data received from the teacher/education professionals closely matched that of parents/caregivers. From a strictly theoretical viewpoint, teachers should be less interested in and less willing to participate in the development of a social skills intervention than parents (Laugeson et al., 2008; Lopata et al., 2006). However, in this study there was no statistical difference between parents and educators between groups over time, as noted in the ANOVA for the quantitative findings. This finding was mirrored in the qualitative findings.

Educators universally confirmed the belief in the need for social skills for teens with AS/HFA and agreed that the SST showed promise as an effective intervention for this population. There was some concern that not all parents had the time or interest in reinforcing or practicing the social skills taught in school within the home or community

setting. Educators and parents alike appreciated the home/school communication data sheet and suggestions for recruiting assistance and buy-in from other parties. Educators felt that while teachers where likely to be interested in adopting the curriculum, some parents might not. Parents felt that while parents were likely to be interested in adopting the curriculum, some educators might not be as likely. Both parties felt that while teens with AS/HFA strongly needed social skills curriculum, there were bound to be some who were resistant. This was perceived as being primarily due to either Theory of Mind (Frith, 2003) challenges or strong resistance to being singled out from their nondisabled peers.

Parents/Caregivers. The parents mirrored the educators' enthusiasm for the SST as a curriculum with potential for helping teens with AS/HFA acquire, practice and master social skills across settings over time. Virtually all of the parents indicated that at some point in their children's educational history, they had had a very negative experience with educators/schools in receiving services to support their children's social skills needs. The negative experiences tended to have long-term impact. Parents strongly believed that it was important for teachers to take into consideration their unique family and cultural values. Use of the home/school communication and data-monitoring tool was clearly perceived as one way for the school to recognize and reward students in a manner that supported their special interests and recognized the efforts both parents and children put into "homework." All of the mothers indicated that homework and organizational skills took as much if not more effort on their behalf than it did on the part of the child. "I am the one being given the homework!" (parent, personal communication, December 1, 2010). The role of encouraging home/school communication tended to fall within the

realm of the mother. However, the parents did agree that the effort to practice social skills introduced in school, within the home and community setting would be worthwhile. The added caveat was the need for the teen to be willing to participate. Tying the instructional lesson to the child's individual special interest area was recognized as an excellent opportunity for the teen to be recognized and rewarded for doing "homework" within an activity he or she would be highly motivated to participate in—e.g., an activity tied to a special interest.

Parents also expressed concerns regarding their children's day-to-day lives. Bullying/ostracization, or some degree of exclusion, was still a part of their children's lives. For example, one parent noted that when she spoke to her son's teacher about his challenges with social skills, the teacher had commented that it wasn't a problem in the class the teacher taught. From the teacher's viewpoint the teen with AS/HFA was very interested in the subject, got his work done early and often helped his peers with their work. From the teacher's perspective the teen was socializing because the teen was speaking with peers. From the parent's perspective this was not socializing. The teen was indeed "lecturing" or telling his peers the correct answer but it was not a two-way conversation. As far as the parent had observed from visiting the classroom and speaking with both the teen and the teacher, this was not socialization. It was an opportunity for the child to lecture others on his special interest area. Another parent noted that her child had been attending the same social skills group for over a year with no real improvements. After many attempts to supplement the typical social skills program at school, this parent learned that her son and another teen in the same social skills class enjoyed working together during social skills class and wanted friends but had never spoken to each other

outside of class. Ultimately the parents of the teens were able to help their children

through the process of inviting each other to visit, visiting for short periods of time for a

specific activity, and most important, repeat visits. Both sets of parents expressed their

sorrow over the fact that both teens had suffered for over a year without a friend when

they saw and worked with each other every day! The need to generalize social skills from

a set of routines or skills learned in one environment to another was of paramount

concern to the parents surveyed.

Teens With AS/HFA. At first glance, the need for social skills is not as readily

apparent from either the questionnaire responses or the recorded conversations of the

teens. At one point or another, all of the teens implied they had friends. However, there

was also a universal dissatisfaction with social opportunities in the "real world." For

example, the friendship activity lessons, which included day-to-day examples of teens

solving social issues that occurred in their school environment, were universally

recognized as a good idea. However, teens also expressed concern that the activities

should be carried out within the general student population, as they did not want to be

singled out or "talked down to." Activities that could be integrated within the regular

classroom, with careful monitoring to ensure that peers were not intentionally cruel,

received high marks as being "helpful" or a good idea. While all of the participants were

more inclined to want to use the SST or a similar curriculum after they had engaged in

the focus groups, two of the eight participants expressed concerns that any social skills

curriculum would work for them. One teen felt more comfortable continuing on as

before—i.e., without any social skills curriculum—and one teen felt that while it was a

good idea, real life was far too complicated and could not be addressed with any one set curriculum. Two key issues kept resurfacing from conversations with the teens. An effective social skills curriculum should be applicable to their daily lives, and the tone of the curriculum should be age appropriate. Activities such as turn-taking, asking directions, and asking strangers random questions were all activities in which the teens had participated during past social skills instructions. However, they were not helpful. Teens found them boring, if not derogatory. The teens were quite self-conscious about being talked "down to." Being talked down to or in some way diminished was of grave concern for the teens. While teens were cognitive of the tendency or perceived tendency of teachers to talk down to them, they were significantly more concerned with the manner in which they were perceived by peers. The teens were strongly resistant to appearing different from their neurotypical peers in any way. Having to leave the classroom for a "special class," revealing that their challenges were due to having a disability, or being assigned to a team in which the other teens victimized rather than included the teen were all issues of concern. While all of the teens were dissatisfied with their ability to find/maintain friends in the "real world," two of the eight teens did not believe that the SST or any intervention could "really" help them. One teen expressed frustration at having tried many different interventions over the years, yet not one had seemed to work for the teen. The other teen was less communicative, stating that it was "easier" to just do what that teen was doing now. The teen in question was not enrolled in any intervention at the time. Mixed answers were also given as to whether or not the teen had any friends. In short, it appeared to the investigator that the teen was counting classmates as friends, even though they did not socialize in or out of class.

The pattern of oral discussion responses reflected the written responses to qualitative questions by all groups. The parents generated a richer discussion, followed closely by the educations, with teens producing less discussion or conversational response. See Table 13 below for a sample of the qualitative questions asked during phase 1.

TABLE 13. Survey Questions Asked

Group type	Question(s)
Teacher/educational professionals	Names as many characteristics of AS/HFA that you think may affect the student's ability to learn appropriate social skills.
	If you currently use a social skills training program for your students with AS/HFA, please state the name of the program and what you find helpful about the program.
Parent / caregiver	Name as many Characteristics of AS that you think may affect your child's ability to learn appropriate social skills
Teens with AS/HFA	Name as many characteristics of Asperger's Syndrome that you think may affect your ability to learn to practice appropriate social skills.

Aim 2 (Phase 2): Quantitative Analysis Results

Phase 2 consisted of a pilot study conducted to investigate any procedural challenges that might occur during a larger replication study. A teacher of teens with AS/HFA was recruited, and the aforementioned *train-the-trainer* model was used. The teacher was subsequently trained in the training methods themselves and the distribution of the materials to the teens and their parents. The training process included providing the teacher with all of the needed materials, including a recruitment letter to be sent to the parents and teens asking if they would be willing to participate in the study. The investigator also provided initial modeling of instruction using the curriculum.

Paired *t* tests were used to evaluate pre-post gains in attitudes, knowledge, advocacy, user satisfaction and technology acceptance. Utilizing Nebraska Wesleyan University's (n.d.) *t* test for comparing two sample means, we found no significant differences between the pre- and post-TAM scores for the Phase 2 pilot study ($t = 0.54$, $p > 0.05$, $df = 11$).

Aim 2 (Phase 2): Qualitative Analysis Results

The qualitative analysis of Aim 2 consisted of analyzing whether or not the implementation of the complete intervention was feasible, potentially effective and socially valid for all of the participants. While none of the parents objected to the study, one of the three parents did not provide complete responses to the post-survey. Blank responses were counted as zeros or indication of no interest. The teacher found the study to be valuable and is planning on continuing to use the materials beyond the scope of this study. The teens found some of the materials engaging and others not as interesting. Providing written responses was a challenge for the participants. Both teacher and investigator have discussed several options for reducing the amount of writing involved in the intervention. Some suggestions have included the use of a scribe or a recording device to collect the information from the teens without requiring any writing. This would allow the teacher and the teen to collect data on their interests and social activities without requiring the writing skills that can be a challenge to some students with AS/HFA, who also are impacted by dysgraphia or other challenges with writing.

The combined qualitative and supporting quantitative analyses allow the study to conclude that the SST curriculum/training modules show promising results in developing

a social skills intervention for teens with AS/HFA that is culturally and socially valid for

all participants in a practical manner that is explicitly taught, reinforced and generalized

across the home, school and community settings.

CHAPTER VII

DISCUSSION OF FINDINGS

Influences of Research, and Past Practices on Current Practices

      Research: Brief summary of research articles reviewed for this study.

Evidence based practices for social skills instruction tend to focus primarily on young

children, elementary age or younger. These interventions have been demonstrated

successful in: (a) using ABA principles and methods to increase prosocial behaviors, (b)

incorporating modeling to increase opportunities for supported instructional responses

(video, appropriate peer or interventionist modeling), and (c) including scaffolded

supports through multiple presentation modes (pictures schedules, social stories, visual or

auditory prompts, etc.).

      Researchers and practitioners continue to struggle to find social skills

interventions that teach complex social skills to individuals with AS/HFA (Denning,

2007). For example, a wide variety of interventions have successfully taught individuals

with AS/HFA to take turns in a game, ask to join a game, or limit the amount of time they

spend discussing their special interest. These interventions have been less successful in

helping students with AS/HFA move beyond a reduction of inappropriate behaviors and

successful use of preprogrammed social rules. A younger child with less aversive social

behaviors is often "adopted" by other students with nurturing attitudes (Attwood, 2007)

and more likely to be tolerated by peers in turn taking activities. This same level of

inclusion greatly reduces as the child ages and academic and social engagements begin to

include a greater level of social reciprocity.

Implications. The creation of an evidence based social skills curriculum for teens with AS/HFA that is *socially meaningful* to this population still evades our grasp. Is it possible? Research has shown us how to train students with AS/HFA to reduce unwanted behaviors and to follow predictable routines. This is an excellent foundation for future studies. As noted by Arthur Ashe (1943-1993) "Success is a journey not a destination!" This study has documented that by including all three major players in the instructional life of a teen with AS/HFA in the collaborative process of developing the intervention, there is increased "buy-in" or interest in adopting the program for themselves.

Social skills require a complex understanding of human interactions and social structures. Most people learn that if you add one unit to one unit the results are two units. However, very few people will learn and use exactly the same social skills. In fact, two socially successful people from the same family often behave differently. In the corporate world, two equally successful individuals within the same unit often behave differently. Only the participants themselves can provide input on what is or is not socially appropriate within their social structures. Teaching teens social skills based upon Emily Post's book on Etiquette (Post, 2004) may indeed help them impress their grandmother but it is not likely to help them make friends with the other teens in their class. Teens with AS/HFA often become frustrated with incomprehensible rules that change without rhyme or reason for the uninitiated. The social world is not always fair and people do not always do the "right thing".

A more effective social skills curriculum should provide explicit, systematic instruction and offer the participants instruction in a process rather than a specific routine. The participants would have a manualized program that incorporates individual values,

progress monitoring and the conceptual understanding that the process will and should evolve as the needs of the participants evolve.

Teens are much more likely to buy-into the process of learning social skills if we begin by truthfully acknowledging that socially appropriate behaviors are contextually constructed. In general, social skills are mutually agreed upon behaviors that will allow the participants to interact with each other in a manner that meets their individual and group needs. However, the degree to which the participants place greater value on their own individual needs verses the needs of the group or others is highly transitory. It is the transitory nature of human behavior that causes social skills to be so difficult to understand for individuals with AS/HFA (Bakouie, Zendehrough, & Gharibzadeh, 2009)

When we provide explicit, systematic instruction in a procedure for negotiating and utilizing appropriate social skills, rather than a set rules to be adhered to we can help the student become a sophisticated consumer of the intervention. By learning about social ambiguities that do not always make sense to individuals outside the culture, the student is less likely to falsely assume that others will behave in accordance to any one given predetermined set of rules. That is not to say that the student will no longer require extensive instruction in recognizing that other do not "see" the world they way they do. They will still need instruction in recognizing social and cultural cues which can indicate a difference of opinion. Teens with AS/HFA, by definition experience challenges in social / emotional reciprocity (APA, 2000), are even more likely than their non-disabled peers to require individualized instruction to acquire these skills.

Brief summary of practitioner information reviewed and qualitative

information gathered from participants for this study. Many educators continue to

rely upon their own past experience as individuals, students and educators in general.

Many teachers base their individual classroom management and instructional practices

less upon research and more upon past experiences and teacher held cultural beliefs. The

old adage of "never smile until Christmas" or "look for the teachable moment" are alive

and well in the classroom today. This is not to imply that some deeply held educational

beliefs are not true –for some students under certain conditions.

For example, the expectation for increased home – school communication to have

a positive outcome on student behavior is not new. Mary Lou Kelley's *School-home*

notes: Promoting children's classroom success (1990) provides many examples of

improved academic and social outcomes in ABA studies. Successful interventions

tendedto include a simple form that was both easy to fill out and to understand and

positive reinforcement from home for appropriate school behaviors. Kelley also noted

that teachers tended to be somewhat resistant to interventions which required teacher

training or required detailed instruction.

The heavy reliance on past practices and resistance to teacher training are still

with us today. As noted by John Easton (2010), Director of the Institute of Education

Sciences, in his keynote Research Conference speech "We often use the phrase "from

research to practice." We also need to think more about "from practice to research." (p.

4). Researchers tend to fall back on the fact that the interventions they develop are not

always implemented with fidelity as reasons for lack of sustained long term outcomes.

Educators in turn have grown somewhat more jaded. A few common complaints among

educators are: (a) we have tried it in the past and it didn't work, (b) this is just a fad, wait awhile and they will want us to do something else, (c) there isn't enough time in the day to do what I need to do now, I can't do what you are asking and (d) the intervention being introduced does not impact something of value for my students or myself.

Implications. Changing well-established human behaviors is challenging. Human beings are by nature resistant to change (Butler-Bowdon, 2008). However, human behaviors can be changed if we offer a less costly behavior that will individuals achieve a goal that is meaningful to them. In terms of social skills, the cost of not teaching effective social skills to teens with AS/HFA must be much higher than the costs of implementing one. The higher rate of suicide amongst individuals with autism than their nondisabled peers (Broach, n.d.), is much too high of a cost to individuals with AS/HFA, their families and society at large.

The challenge then becomes one of moving beyond the ivory towers of research into a space of action research in collaboration with our cooperating education professionals and the families they serve. This is particularly true for teachers of students with AS/HFA and other forms of autism in public schools, which experience social / emotional challenges (Emam & Farrell, 2009). To borrow from Easton (2009) we need less of packaged, one-size fits all miracle cure or continued reliance on old, outdated and ineffective practices and more collaboratively, action orientate research to build systems that make a difference in areas that are important and worth the response cost to the participants. Results from this study suggest that the SST meets this criterion.

SST Study: Data Driven Conclusions

Teachers, parents and students today face many of the same challenges they have in the past. There is never enough time, money or other resources to meet all of the demands placed upon them. In the area of special education a balancing act takes place. How do we all work together to meet the needs of the student? In terms of legal requirements, time, effort, return on investment and value of the return all play a part in determining the worth of any given intervention. This study produced both quantitative and qualitative finding that suggests the SST holds promise as an effective social skills intervention for teens with AS/HFA.

Quantitative: Data Driven Conclusions.

Aim 1 (phase 1). The study found a positive, statistically significant difference between group differences over time in the perceived value and intent to adopt the SST created with participant input. Interestingly there was not a statistically significant difference between the parent and educator group, reinforcing the aforementioned suggestion that collaboration with cooperating education professions may strongly influence intervention efficacy. All three groups indicated positive TAM score trend over time suggesting collaboration from all participants in designing the intervention may hold further insights into social skills intervention success.

Aim 2 (phase 2). They study did not find a statistically significant difference in the overall technology adoption model (TAM) scores of complete triads. The individual

combined scores of all participants remained reasonably stable over time. In some sense

this is a success, as teens with AS/HFA tend to be painfully honest (Attwood, 2007). The

participants ended the study as they had begun, still interested in the SST curriculum but

unsure of the long term benefits. However, this study was carried out on a very limited

basis with a short time period relative to the goal I was attempting to achieve. For teens

with AS/HFA it may take longer than seven weeks to bring about a statistically

significant change in social behaviors that are perceivable and valuable to the

participants.

Qualitative: Data Driven Conclusions.

Aim 1 (phase 1.) The study found universal agreement for the need an effective

social skills intervention. Parents and educators alike expressed their agreement for the

need of an effective social skills intervention for this population. The teens themselves

expressed a universal dissatisfaction for their ability to find and maintain friends in the

"real world". However, two out of the eight did not believe that any intervention would

help them. This discrepancy could be due to prior negative experience in using social

skills interventions. The teens felt that an effective intervention should: (a) not talk down

to them, (b) use real world examples and (c) be implemented within the general

population so as to not cause additional attention to their differences.

Additional qualitative feedback from parents and educators closely mirrored each

other. Both worried whether the other group population would be as interested in carrying

out a social skills intervention with fidelity. The willingness of the other party to

participate was a concern for all. One of the nine educators also expressed strong

concerns regarding the time it would take to track the data, recruit parent participation or to restrict social skills interventions utilized to any one intervention. The qualitative impact of the hesitancy on the part of the cooperating professional is somewhat offset by the participants continued use of the intervention after the study was completed.

Aim 2 (phase 2). Qualitative feedback provided excellent information in regards to how to hone the intervention for greater success in future replications. The concern expressed by educators and parents alike in phase 1, the home-school communication checklist did prove to be a challenge for some. As noted by Kelley (1990) home-school communications are more likely to be utilized with fidelity if they are graphically and linguistically easy to interpret at a glance. The amount of writing in some of the activities was a positive for some and a challenge for others. These and other extensions to the activity driven lessons offer some insights into future program improvement plans.

Limitations of the Study

The limitations of this study include: sample size, utilization of a control group, replication and participant demographics such as: geographic location, volunteerism, ethnicity, socioeconomic status, and gender (Gall, Gall & Borg, 2007). As such, the implications of such findings should be interpreted with caution.

It should be noted that this study consisted of a relatively small, volunteer, sample of individuals from the Pacific Northwest. Researchers have long posited that individuals who volunteer to participate in a study may be quite different than those who do not (Gall, Gall & Borg, 2007). In some instances this particular challenge is mitigated

by studying publicly available data gathered from the entire population. The number of traffic fatalities on New Year's Eve is an excellent example of this. However, this study faced two challenges in this area: (a) the participants actively engaged in creating intervention and, (b) the limited availability of qualified participants due to the requirement of being associated with a subset of a low incidence disability (CDC, 2008). It may indeed be that individuals more significantly impacted by social skills challenges found the study more compelling than those who did not. As such, it is difficult to infer any generality to the current findings.

Regional and family cultural complexities may have also contributed to the findings. The need for teens with AS/HFA to gain effective social skills was expressed universally across all participants. However, a few of the teens and their parents also expressed a desire for society at large to change rather than their child. As noted by Robinson (2009) there tends to be a subset of individuals impacted by AS/HFA do not believe in the need to "cure" autism. These individuals advocate for understanding and acceptance by society for a broader definition of "Normal". While the desire for a more accepting society was universal, only two of the teens expressed the belief that their families did not believe they could benefit from social skills instruction.

Gender issues are also of concern (Attwood, 2007). For individuals with AS/HFA, it has been suggested that females may be more successful in masking their autistic characteristics (Silberman, 2010). From the ability to mimic others, or societies general expectation for females to more submissive / shy or socially naive, the display of autistic behaviors are generally more "acceptable" in females than in males. This gender bias was reflected in the teen participants. During aim 1(phase 1) the study included two female

85

and six male teens with AS/HFA, maintaining the 4:1 male/female ratio often quoted as the common prevalence ratio (CDC, 2008). The impact of the male to female teen participant ratio has yet to be determined.

The adult participants tended to be female. There were eleven female and five male adult participants. In the parent / caregiver focus group there were five females and two males. In the education professionals focus group there were six females and three males. This almost 2 to 1 female to male ratio may have contributed to the general consensus that it tended to be the mother who shouldered primary care for the teen with AS/HFA

Response mode may have also played a role in the type / amount of feedback from the teen participants. The teens expressed difficulties in providing written feedback without direct support in both Phase 1 and Phase 2. This was somewhat mitigated by using auditory discussion driven focus groups during phase 1 and by conducting an in person interview with the teacher before and after the intervention in phase 2. The investigator was also able to glean some insights by modeling the initial lesson for the teacher. Further research into a variety of response modes should be included in future replications. In both phases the teens were fairly open and forthcoming with their opinions regarding what they liked and didn't like. However, when given an opportunity to provide additional written answers, most teens wrote only a few additional sentences per question. The option for electronic recording of responses appears to be a solution that may encourage more loquacious responses from the teens. Replication of the study across a wider population venue would allow for increased confidence regarding the implications of the findings.

Based upon findings from the study, evidence suggests that the Social Skills Triad may be an effective social skills curriculum for teens with AS/HFA and their families. A strong component of this intervention has been the intent to build an intervention from a collaborative perspective. We currently do not include the complete triad in the design, development and implementation of social skills interventions for teens with AS/HFA. My study suggests that by including the complete triad, we can improve the social validity and efficiency of the intervention for all participants. Something of value for all!

Recommendations for future Research

This Translational Research (Spoth et al., 2008) shows promise in finding a practical method (Morgan, 1998) to combine qualitative and quantitative methods in order to develop a social skills curriculum for teens with AS/HFA. Integration of the two methodologies' will allow us to develop a curriculum that is both effective in terms of quantifiable outcomes that demonstrate improvement in social communications for the teens while remaining feasible to the educators and social and culturally valid for the teen and his/her family. During both Phase 1 and Phase 2, the study resulted in positive qualitative outcomes for the participants who completed the study. The quantitative outcomes from Phase 1 showed a positive shift in the perceived value of the Social Skills Triad and all participants' increased commitment to utilizing an intervention that included their input (TAM model). However, given the discrepancy between teen and the other groups TAM scores further exploration into participant satisfaction with individual lesson is recommended. Two specific areas of inquiry are: (a) the acceptability of utilizing the student's interest area in instruction and (b) a recommendation to include

quantitative and qualitative assessment at the individual lesson level. The acceptability

and effectiveness of both issues may impact the effectiveness of each individual lesson.

Implications for Practice

This study underscores the essential consideration of the goals and objectives

which are socially and culturally important to the student and her//his family when

implementing a social skills intervention for teens with AS/HFA. Further consideration of

individual motivators such as the inclusion of the teen's special interest, and streamlined

parental supports must also be included; if students are to receive effective, scaffolded,

instructional supports to generalize newly acquired social skills to home and community

settings. In order to achieve these objectives, we as a field must provide our highly

qualified educators with evidence based instructional practices. Instructional practices,

such as the SST which have some evidence based support regarding the feasibility and

social validity of the intervention for teens with AS/HFA

Concluding Comments

The possibilities for human development within the twenty-first century seem to

be unlimited. Advances in medicine, technology, and psychology are exponentially

occurring. Advances in the Human Genome Project, the ability to further explore brain

functions in individuals with neurobiological disorders such as autism, and the growing

awareness that human behavior is malleable offer both great optimism and concern. If we

have the political will we can move beyond the educational practices of yesterday. We

can choose to view education less as something done or given *to* students and more as a

collaborative process as something done *with* students and the families that support them.

Interventions such as the Social Skills Triad build upon technological advances to

provide engaging instructional content and behavioral supports to encourage successful

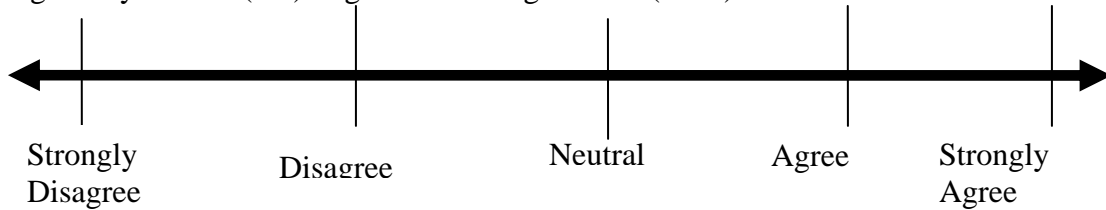acquisition of desired social skills or other instructional practices.
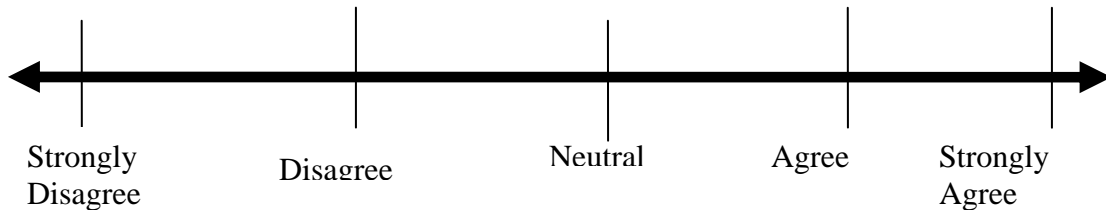
APPENDIX A

SURVEY / QUESTIONNAIRES

Education Professional

Please answer the following survey questionnaire. Each question asks you to rate your agreement with the statement on a scale of one (Highly Disagree with the statement) to five (highly agree with the statement).
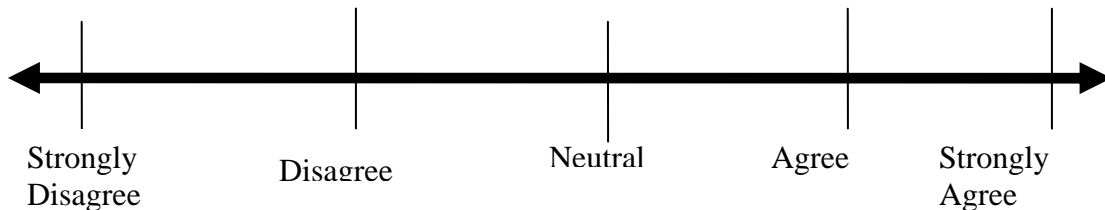

1.   Social skills training is an essential educational need for most students with Asperger's Syndrome (AS)/High Functioning Autism (HFA).
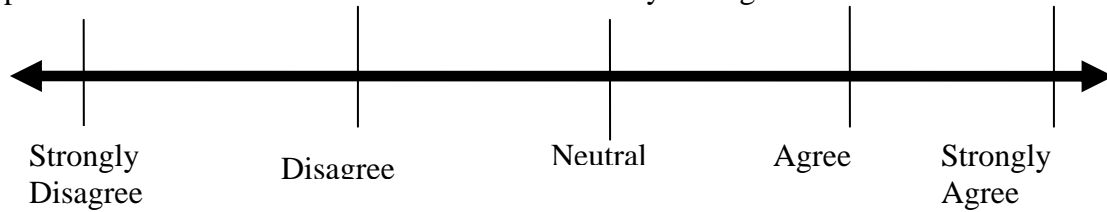

Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree

2.   I am satisfied with the currently available social skills training materials.

Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree
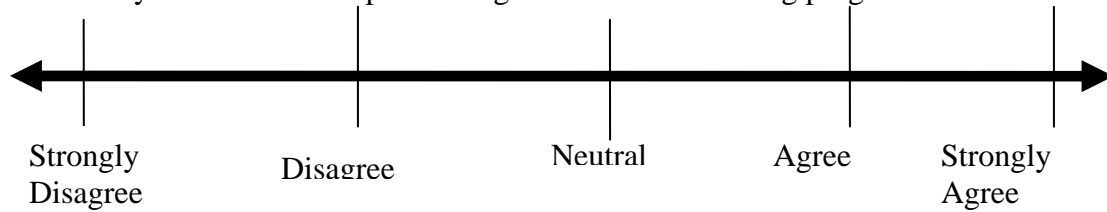

3.   Social Skills training that takes into consideration the unique characteristics of the student with Asperger's Syndrome (AS)/High Functioning Autism (HFA) is more effective than training that does not.

Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree

4.   It is a good idea to consistently teach and reinforce the social skills training provided at school across the home and community setting of the student.
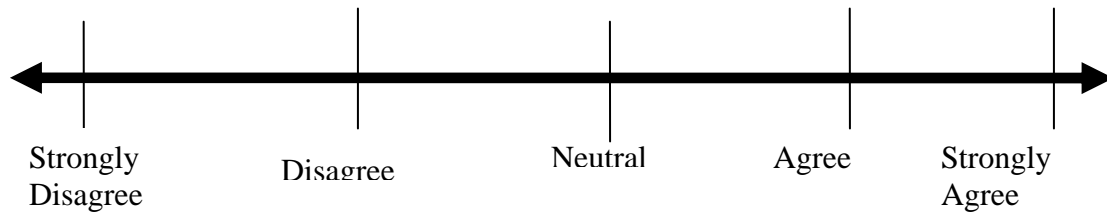
Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

5.   It is important to take into consideration each student's unique family and community culture when implementing a social skills training program.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

6.   The time and effort it takes to build consensus and cooperation between the school and each student's family is a good use of educational resourecs.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree
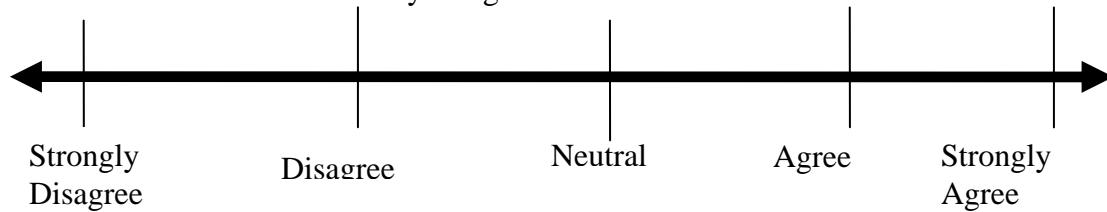
7.   I would welcome the opportunity to work with my student(s) and his/her family to develop an individualized social skills training program that can be used at school, at home and in the community.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

8.   Given the opportunity I would use the Social Skills Training Triad program.

```
Strongly        Disagree        Neutral        Agree        Strongly
Disagree                                                    Agree
```
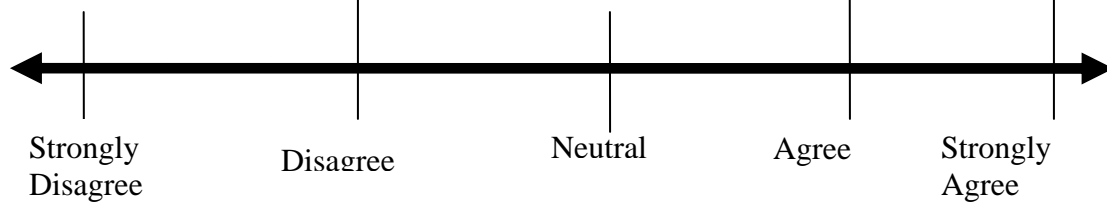
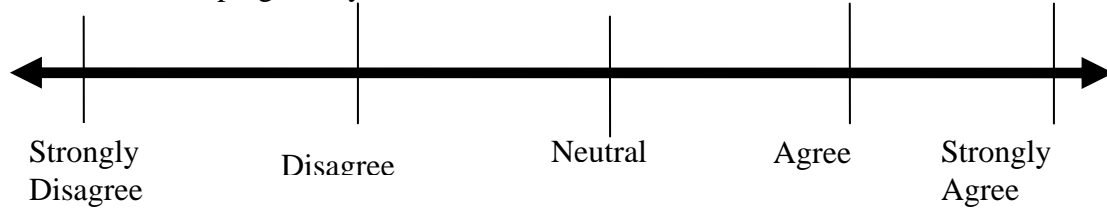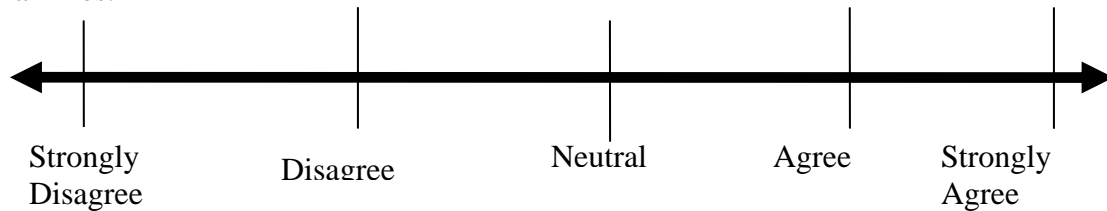9.   The Social Skills Training Triad is an effective social skills program for most students with Asperger's Syndrome.

```
Strongly        Disagree        Neutral        Agree        Strongly
Disagree                                                    Agree
```

10.   Education professionals can effectively and efficently act as social skills coaches for students' with Asperger's Syndrome (AS)/High Functioning Autism (HFA) and their families.

```
Strongly        Disagree        Neutral        Agree        Strongly
Disagree                                                    Agree
```

The next section includes a few open ended questions. Please provide as much information as possible.

11.   Name as many characteristics of Asperger's Syndrome (AS)/High Functioning Autism (HFA) that you think may affect the student's ability to learn appropriate social skills.
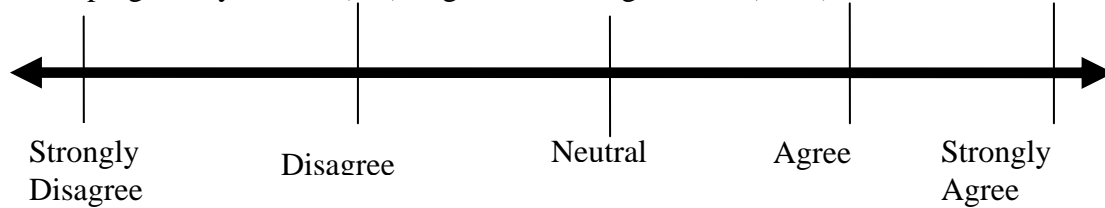
12.   If you currently use a social skills training program for your students with Asperger's Syndrome (AS)/High Functioning Autism (HFA). Please state the name of the program and what you find helpful about the program.

```



```

13. Given the choice between what you are currently doing now and using the Social Skills Training Triad which would you choose? Why
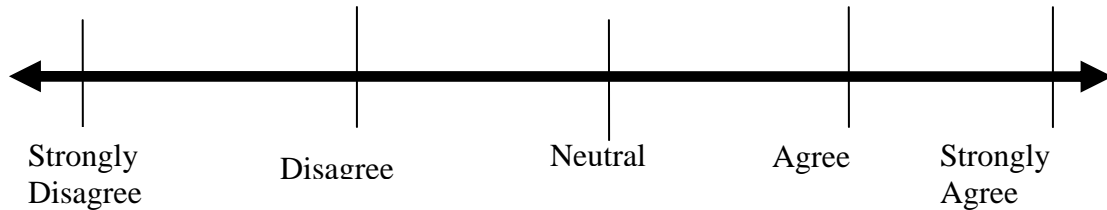
```



```

Parent Questionnaire

Please answer the following survey questionnaire. Each question asks you to rate your agreement with the statement on a scale of one (Highly Disagree with the statement) to five (highly agree with the statement).

1. Social skills training is an essential educational need for most students with Asperger's Syndrome (AS)/High Functioning Autism (HFA).

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

2. I am satisfied with the currently available social skills training materials.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

3.   Social Skills training that takes into consideration the unique characteristics of the student with Asperger's Syndrome (AS)/High Functioning Autism (HFA) is more effective than training that does not.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

4. It is a good idea to consistently teach and reinforce the social skills training provided at school across the home and community setting of the student.

Strongly Disagree   Disagree   Neutral   Agree   Strongly Agree

94

5. It is important to take into consideration each student's unique family and community culture when implementing a social skills training program.

```
<———————|——————————|——————————|——————————|——————————|———————>
Strongly        Disagree         Neutral        Agree        Strongly
Disagree                                                      Agree
```

6. The time and effort it takes to build consensus and cooperation between the school and each student's family is a good use of everyones time.

```
<———————|——————————|——————————|——————————|——————————|———————>
Strongly        Disagree         Neutral        Agree        Strongly
Disagree                                                      Agree
```
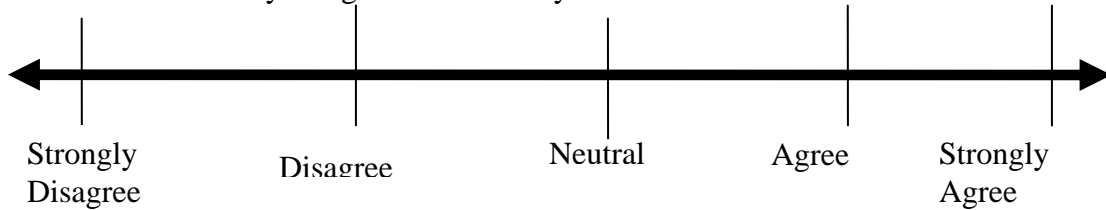
7. I would welcome the opportunity to work with my child's teacher(s) to develop an individualized social skills training program that can be used at school, at home and in the community.

```
<———————|——————————|——————————|——————————|——————————|———————>
Strongly        Disagree         Neutral        Agree        Strongly
Disagree                                                      Agree
```

8. Given the opportunity I would use the Social Skills Training Triad program.

```
<———————|——————————|——————————|——————————|——————————|———————>
Strongly        Disagree         Neutral        Agree        Strongly
Disagree                                                      Agree
```
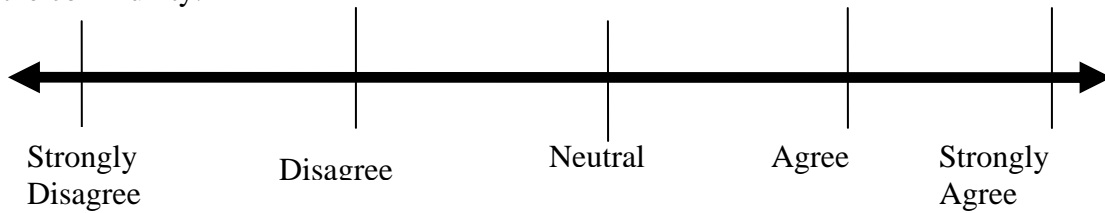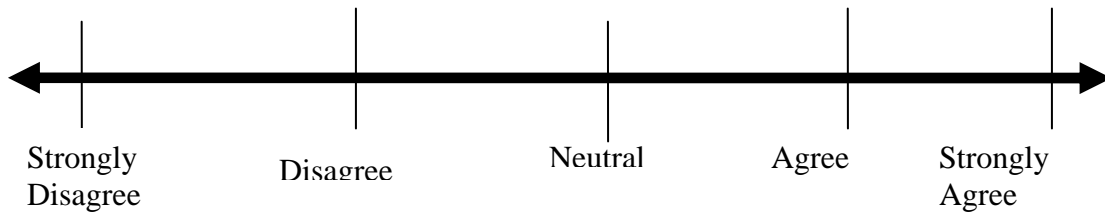
9. I am willing and able to help my child find ways to practice her/his social skills in our community.
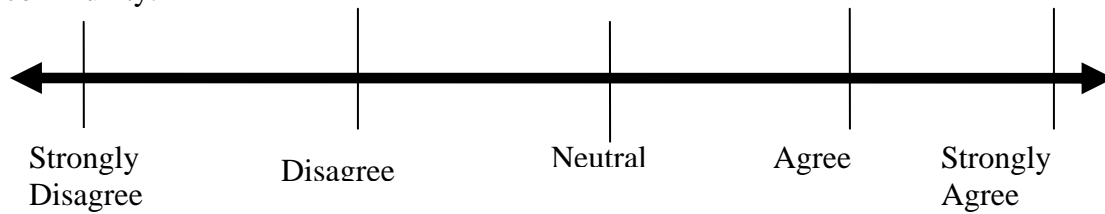
Strongly
Disagree   Disagree   Neutral   Agree   Strongly
                                                                              Agree

The next section includes a few open ended questions. Please provide as much information as possible.

10.   Name as many characteristics of Asperger's Syndrome (AS)/High Functioning Autism (HFA) that you think may affect your child's ability to learn appropriate social skills.

```
┌─────────────────────────────────────────────┐
│                                             │
│                                             │
│                                             │
│                                             │
└─────────────────────────────────────────────┘
```
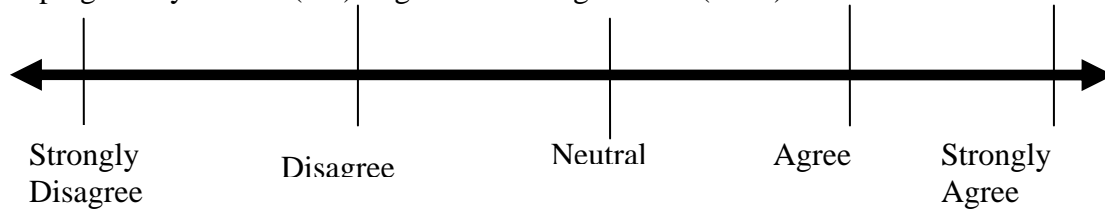
11. If you currently use a social skills training program for your child with Asperger's Syndrome (AS)/High Functioning Autism (HFA), please state the name of the program and what you find helpful about the program.

```
┌─────────────────────────────────────────────┐
│                                             │
│                                             │
│                                             │
│                                             │
└─────────────────────────────────────────────┘
```

12. Given the choice between what you are currently doing now and using the Social Skills Training Triad which would you choose? Why?

```
┌─────────────────────────────────────────────┐
│                                             │
│                                             │
│                                             │
└─────────────────────────────────────────────┘
```
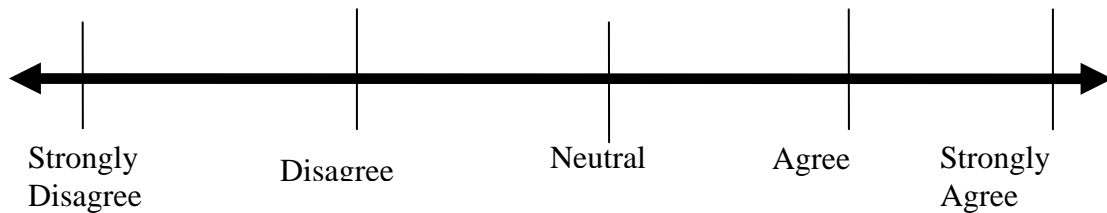
Teen Questionnaire

Please answer the following survey questionnaire. Each question asks you to rate your agreement with the statement on a scale of one (Highly Disagree with the statement) to five (highly agree with the statement).
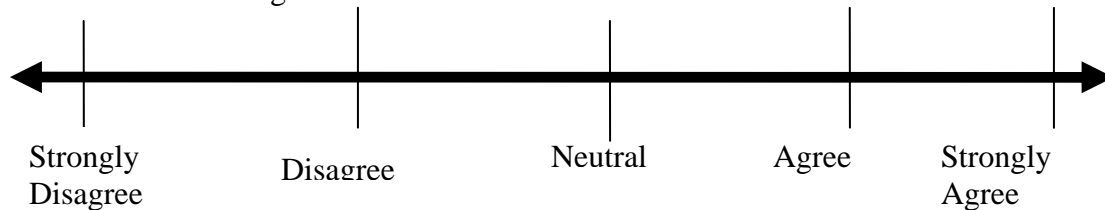
1.   Social skills training is an essential educational need for most students with Asperger's Syndrome (AS)/High Functioning Autism (HFA).

<-->
Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree

2.   I am satisfied with the currently available social skills training materials.

<-->
Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree

3.   Social Skills training that takes into consideration the unique characteristics of the student with Asperger's Syndrome (AS)/High Functioning Autism (HFA) is more effective than training that does not.

<-->
Strongly   Disagree   Neutral   Agree   Strongly
Disagree   Agree


4.   It is a good idea to consistently teach and reinforce the social skills training provided at school within the home and community setting of the student.

<-->
Strongly   Disagree   Neutral   Agree   Strongly
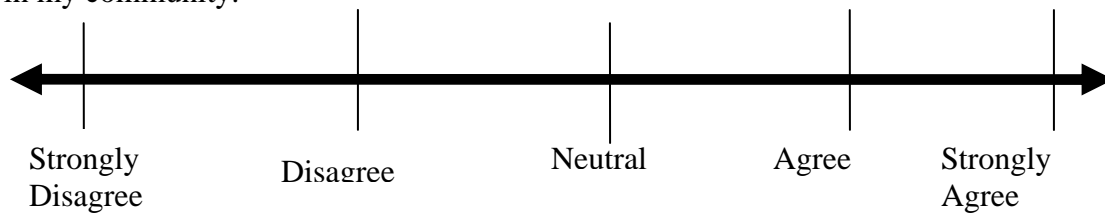Disagree   Agree
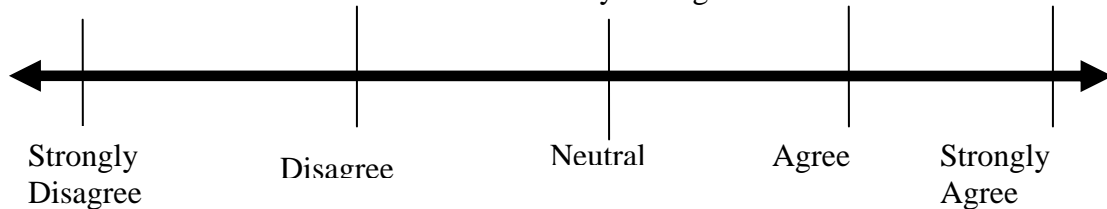
5.   It is important for my teacher to know the types of activities my family and I participate in, and our unique family and community culture to help us plan and practice my social skills at home and in my community.
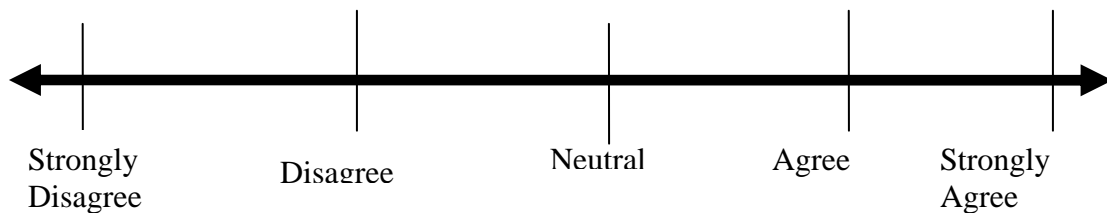
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
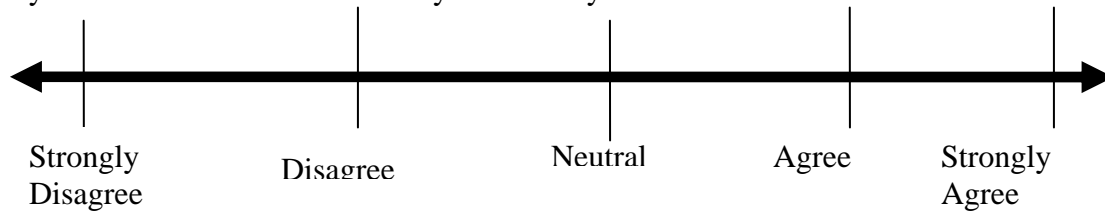
6.   The time and effort it takes to build agreement between myself, my parents and my teacher is a good use of everyones time.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
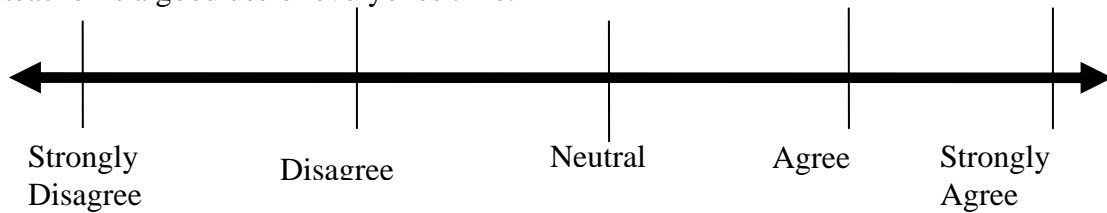
7.   I would like to have a social skills program that I could use at school, at home and in my community.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8.   Given the opportunity I would use the Social Skills Training Triad program.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9.	It can be hard to make friends that I can talk to at school, at home or in my neighborhood.

Strongly
Disagree   Disagree   Neutral   Agree   Strongly
                                                                          Agree
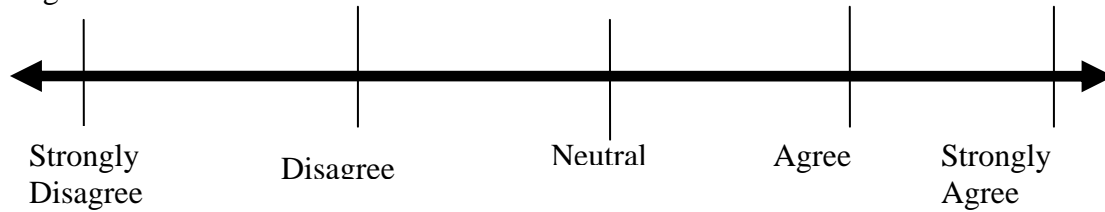
10.	I do not need a class that helps me find ways to make friends outside of school.
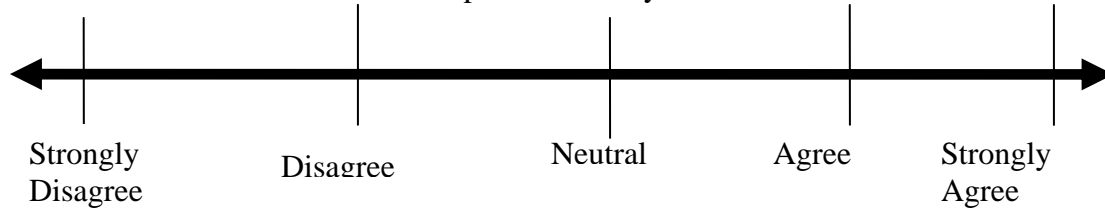
Strongly
Disagree   Disagree   Neutral   Agree   Strongly
                                                                          Agree

The next section includes a few open ended questions. Please provide as much information as possible.

1.	Name as many characteristics of Asperger's Syndrome (AS)/High Functioning Autism (HFA) that you think may affect your ability to learn or practice appropriate social skills.

2.	Given the choice between what you are currently doing now and using the Social Skills Training Triad which would you choose? Why?

SAMPLE QUESTIONS

Curriculum:

Part One: Part one is a universal section and will appear in all three versions of the curriculum for educators, parents and teens. The topics covered are: (a) global features of AS and the impact of special interest areas, (b) problem solving, (c) self-advocacy and recruitment of assistance and (d) resiliency and friendship.

Part Two: Part two will include basis application lessons for teens. Teachers/ educational professionals will be taught process facilitation and recruitment of assistance skills vital to successful program implementation in addition to receiving additional training on the parent and student modules. Parents will be taught process facilitation and recruitment of assistance skills vital to successful program implementation in addition to receiving additional training on the student module.

Each focus group will be asked open ended questions to identify:

1. Their current knowledge of the core areas.
   For example in (a) global features of AS/HFA and the impact of special interest areas the following types of questions would be appropriate:

   Teen: What does it mean to have AS/HFA? How would you describe it if a new student asked you about it? How would you describe it to your little brother/sister?

   Adult: (Many parents are quite education in terms of AS/HFA –consideration will be taken to respect both strengths and lack of knowledge for all groups.)
   Are there any common characteristics that you have found in the students with AS/HFA that you have worked with?
   Do you find the DSM diagnostic version of AS or Tony Attwood's version to be more user friendly or appropriate for the students you work with?

2. Groups will be asked to suggest other additional supplemental topic areas
   What are three things you wish everyone…
           Who worked with teens with AS/HFA would know
           Parents with teens with AS/HFA would know

People who wrote social skills programs would include

3. Participants will be asked for their learning preference in terms of auditor, written or visual materials.

If you have an opportunity to learns something for fun how do you typically like to learn about it? Just do it? Read about it? Have someone demonstrate it?

If you have to learn something for school/work/ important how do you typically like to learn about it? Just do it? Read about it? Have someone demonstrate it?

4. Participants will be monitored regarding completion of the prior knowledge survey questions for both content (i.e. what they know and opinions) and to see if participants show any preferences for scale, open-ended or Likert style data collection procedures.

In general, we intend to follow the basic instructional design pattern listed below.

Planning

❑ Identify what students will learn

❑ Determine students' current skills and knowledge

❑ Determine methods & materials for instruction.

❑ Design effective and efficient assessment systems

KEY DIRECT QUALITATIVE QUOTES

Key Qualitative Statement

Teens	Parents	Teacher
Distractions, certain scenarios, changing trends in how to make friends, outdated information (i.e. inviting someone to your house just after you met him/her doesn't work that way you think it does, its just awkward)	Triad.. I like the idea of having input and being able to help round out and reinforce that social skills is (not) boring worked on in the school setting I believe it is important to have good communications with the teachers. Our children do not always understand thing completely or have difficulties explaining them. It is good to work as a team.	I would choose the social skills training triad because I like its communal approach in that it continues even after the student leaves the school building with the parent interaction and support. The more training the better. I also like how it incorporates the individuals interest making it more interesting for the student.

Qualitative Quotes from Aim 1

Teens
Written Response to Challenges in Learning Social Skills
I am very passionate about my work, but only if I enjoy the subject or I choose the subject, not if someone else told me I had no choice. I remember things I like easily, but not things I don't like or do not see any relevance.
Clumsiness, saying the wrong words frustration and shyness
Nervous shy, forgetting and paranoid
Having trouble making eye contact, having trouble with social skills, talkative, smart can be talented.
It seems like my life, is pretty much not affected by my autism and most people can't tell that I have it. It only seems to show up as an occasional stubborn streak.
Distractions, certain scenarios, changing trends in how to make friends, outdated information (i.e. inviting someone to your house just after you met him/her doesn't work that way you think it does, its just awkward)

Qualitative Quotes from Aim 1

Parents
Written Response Choosing SST or other program
Triad, I like the emphasis on socialization and ability to be adapted to the student
(checked SST and gave this answer) While in elementary & high school all social skills training was done in the school setting with no sharing with parents of what was being covered or traits, the only information we received was at years end when goals were evaluated.
Triad.. I like the idea of having input and being able to help round out and reinforce that social skills is (not) boring worked on in the school setting I believe it is important to have good communications with the teachers. Our children do not always understand thing completely or have difficulties explaining them. It is good to work as a team.
I would like to use both with an integrated format. (For teens, I especially like the resiliency, advocacy & post school plan lessons as these are especially relevant to their needs!)

Qualitative Quotes from Aim 1

Teachers
Written Response Choosing SST or other program
I would choose the social skills training triad because I like its communal approach in that it continues even after the student leaves the school building with the parent interaction and support. The more training the better. I also like how it incorporates the individuals interest making it more interesting for the student.
Social skills triad -focused on the student. Uses student as active learner, has them generate ideas and activities versus feeding them the info
Triad creates a ready to use program that has all the lessons/activities across the three domains. I like the settings (not artificial) promotes mastery and generalization
Actually I would probably use both social stories give them language for social experiences. SSTT will help apply it more specially to their personal daily interactions.

APPENDIX D

SAMPLE LESSON AND LESSON PLAN

Name: _____

Friendship Activity One

"What is a friend? I will tell you...it is someone with whom you dare to be yourself."
~ Frank Crane

One who looks for a friend without faults will have none.
~ Hasidic Saying

Directions:
Use the whiteboard, poster board or other area to write down your definitions for the following

1. What are some characteristics of a friend? Interested in similar things, nice, funny....

2. Who is most likely to become a good friend for you to do things with on a regular basis? Why?

    a. A famous person

    b. An adult

    c. A peer or someone your own age

    d. An elderly neighbor

3. What are some things you might want to have in common with a friend? Do you have to have everything in common?

4. Can you tell your friend "No!"? When might it be a good idea to tell your friend "No!"?

5. Can you still be friends with someone who hurt your feelings?

6. When might you not want to be friends anymore?

Friendship Activity One

Part Two: Where might you find a friend?

Direction: In a group, use the first two examples to create a spreadsheet of where to find a friend.

- Step 1: Location & activity
- Step 2: Interests in common and not in common
- Step 3: A solution (if possible – Sometimes it is not possible to find a solution)

Locations	Activities	Things in Common	Things not in Common	Solutions
Afterschool club	Chess	We both like to play this game	She is better at this then I	I practice more often and we help each other become better players
Neighbor	Video games	Our parents agree that we can both play Spiro	His family smokes I am allergic to smoke	We play at my house
Neighbor	Video games	We both like adventure person games	This person calls my sister and I bad names and says she/he will only be my friend if I don't tell	Not a good choice

Wrap-up: Make a plan! Identify one person who might be a good friend; be prepared to share who and why next time we meet.

Copeland, 2010

Lesson Plan for: Friendship Activity One

Objective:	Materials:
Given lesson worksheet, student will: • Identify 1+ ways they have advocated for themselves	Student copies of blackline master for activity Writing utensils for each student, whiteboard
Behavior Expectations & Management System:	Suggested Timeline: ***Timing should be adjusted to meet the individual needs of your students. Target -20 minutes
• 3-5 positively stated expectations • Rewards & consequences	0-3 Min. Review behavior (Bx) expectations 2 Min. Introduction 1-2 Min. Model /demonstrate skill –part 1 4-6 Min. Partner / group work 2-3 Min. Model /demonstrate partner / group skill –part 2 4-6 Min. Partner / group work 0 to 2 Min. Review & & reward for on task behavior

Detailed Timeline:

Review behavior (Bx) expectations and reward structure (i.e. state expectations, praise around, etc.)
Introduction
- State daily objective
- Provide example of when objective might be useful to students
- Ask student(s) for examples of when skill might be useful

Demonstration using black line example –part 1
Partner / group work (if 85-90% are successful move to part two. Else repeat.)
Demonstration using black line example –part 2
Partner / group work (part two) (Goal: 85-90% are successful. Else repeat.)
Whole group review of daily objective –Ask 1 or 2 student if they would like to share an example, elicit whole group choral response as to when this skill might be needed

Data Collection: + = Meet daily objective with 2 or fewer prompts √ = 3 or more prompts - = No independent responses

Student Initials: (Rule of thumb: 85% at 85 % or greater accuracy before moving to next lesson –can repeat lessons with peer pairs)

Unique Student Needs: (Accommodations or Modifications)

106

REFERENCES CITED

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders DSM-IV-TR (text revision).* Washington, DC: Author.

Attwood, T. (2007). *The complete guide to Asperger's Syndrome.* London, England: Jessica Kingsley.

Attwood, T., & Grandin, T. (2006). *Asperger's and girls.* Arlington, TX: Future Horizons.

Autism community report. (n.d.). Retrieved from http://www.cdc.gov/ncbddd/ autism/ documents/AutismCommunityReport.pdf

Autism Society of America. (n.d.). Retrieved from http://www.autism-society.org/ site/PageServer?pagename=asa_home

Baker, J. E. (2003). *Social skills training*. Shawnee Mission, KS: Autism Asperger Publishing.

Bakouie, F., Zendehrough, S., & Gharibzadeh, S. (2009). Does a kind of over-fitting occur in the brain of autistic patients? *Journal of Neuropsychiatry and Clinical Neurosciences, 21*(3), 343.

Barnhill, G. P. (2004). Asperger Syndrome: A guide for secondary school principals. *Principal Leadership Magazine, 5*(3). Retrieved from http://www.nasponline .org / resources/principals/ nassp_asperger.aspx

Barnhill, G. P., Cook, K. T., Tebbenkamp, K., & Myles, B. S. (2002). The effectiveness of social skills intervention targeting nonverbal communication for adolescents with Asperger Syndrome and related pervasive developmental delays. *Focus on Autism and Other Developmental Disabilities, 17*(2), 112–118.

Baron-Cohen, S. (2001). *Mindblindness: An essay on autism and theory of mind.* Cambridge, MA: MIT.

Bellini, S., & Akullian, J. (2007). A meta-analysis of video modeling and video self- modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Children*, 73, 261–284.

Bellini, S., Peters, J. K., Benner, L., & Hopf, A. (2007). A meta-analysis of school-based social skills interventions for children with autism spectrum disorders. *Remedial and Special Education 28*(3), 153–162.

Bianco, M., Carothers, D. E., & Smiley, L. R. (2009). Gifted students with Asperger Syndrome: Strategies for strength-based programming. *Intervention in School and Clinic, 44*, 206–215.

Bishop, D. V. M., & Baird, G. (2001). Parent and teacher report of pragmatic aspects of communication: Use of the Children's Communication Checklist in a clinical setting. *Developmental Medicine and Child Neurology, 43*, 809–818.

Bock, M. A. (2007a). The impact of social-behavioral learning strategy training on the social interaction skills of four students with Asperger Syndrome. *Focus on Autism and Other Developmental Disabilities, 22*, 88–95.

Bock, M. A. (2007b). A social-behavioral learning strategy intervention for a child with Asperger Syndrome: Brief report. *Remedial and Special Education, 28*, 258–265.

Broach, S. (n.d.). *National suicide prevention strategy for England*. Retrieved from http://www.nas.org.uk/nas/jsp/polopoly.jsp?d=239&a=2371

Buron, K. D., & Curtis, M. (2003). *The incredible 5-point scale*. Shawnee Mission, KS: Autism Asperger Publishing.

Butler-Bowdon, T. (2008). Understanding human nature: A commentary on the psychology classic by Alfred Adler. Retrieved from http://knol.google.com/k/tom-butler-bowdon/understanding-human-nature/2l1paxxoh5qsf/8.

Casteel, B., & Valora, J. (2010). DSM-5 proposed revisions include new category of autism spectrum disorders. Arlington, VA: American Psychiatric Association. Retrieved from http://www.dsm5.org/Newsroom/Documents/Diag%20%20 Criteria%20 General%20FINAL%202.05.pdf

Center for Disease Control and Prevention. (2008). *Prevalence of ASDs.* Retrieved from http://www.cdc.gov/ncbddd/autism/faq_prevalence.htm

Craig, J., & Baron-Cohen, S. (2000). Story-telling ability in children with autism or Asperger syndrome: A window into the imagination. *Israel Journal of Psychiatry and Related Sciences, 37*, 64-70.

Davis, F. D. (1986). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* (Unpublished doctoral dissertation). Massachusetts Institute of Technology, Sloan School of Management, Boston.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*, 982–1003.

Davis, T. T., Fuller, M. M., Jackson, S. S., Pittman, J. J., & Sweet, J. J. (2007). *A national consideration of digital equity*. Eugene, OR: International Society for Technology in Education. Retrieved from http://www.k12hsn.org/files/research/ Technology/ national-consideration-DE.pdf

Denning, C. B. (2007). Social skills interventions for students with Asperger Syndrome and high-functioning autism: Research findings and implications for teachers. *Beyond Behavior, 16*(3), 16-23.

Donner, A., & Klar, N. (2000). *Design and analysis of cluster randomization trials in health research*. London: Arnold.

Easton, J. (2009, June). IES Research Conference Keynote. Conference conducted at the research conference of the Institute for Education Science, Washington, DC. Retrieved from http://ies.ed.gov/director/speeches2010/2010_06_29.asp

Easton, J. (2010, September**).** IES/National Center for Postsecondary Research Conference: IES/National Center for Postsecondary Research/Foundation Keynote speech, New York, NY. Retrieved from http://ies.ed.gov/director/pdf/easton092410b.pdf

Elkis-Abuhoff, D. L. (2008). Art therapy applied to an adolescent with Asperger's Syndrome. *The Arts in Psychotherapy, 35*, 262–270.

Feng, H., Lo, Y., Tsai, S., & Cartledge, G. (2008). The effects of theory-of-mind and social skill training on the social competence of a sixth-grade student with autism. *Journal of Positive Behavior Interventions, 10*(4), 228–242. doi:10.1177/ 1098300708319906

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley. Retrieved from http://www.people.umass.edu/aizen/f&a1975.html2

Frith, U. (2003). *Autism explaining the enigma* (2nd ed.). Malden, MA: Blackwell.

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

Furniss, G. (2008). Designing art lessons for children with Asperger Syndrome. *Journal of School Arts: The Art Education Magazine for Teachers, 107*, 20.

Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). Boston, MA: Pearson.

Gardner, C., & Amoroso, D. (2004). Development of an instrument to measure the acceptance of Internet technology by consumers. *Proceedings of the 37th Annual Hawaii International Conference on System Sciences, 2004.* San Diego, CA: Institute of Electrical and Electronics Engineers.

Gray, C. & Garand, J. (1993). Social stories: Improving responses of students with autism with accurate social information. Focus on Autistic Behavior, 8, 1-10.

Gresham, F. M., & Elliott, S. N. (1990). *The Social Skills Rating System.* Circle Pines, MN: American Guidance Service.

Halpern, A. S. (1993). Quality of life as a conceptual framework for evaluating transition outcomes. *Exceptional Children, 59*(5), 486–498.

Heath, B. P., Herman, R. L., Lugo, G. G., Reeves, J. H., Vetter, R. J., & Ward, C. R. (2005). Project numina: Enhancing student learning with handheld computers. *Computer, 38*(6), 46–53. doi:10.1109/MC.2005.199

Heinrichs, R. (2003). *Perfect targets: Asperger Syndrome and bullying*. Shawnee Mission, KS: Autism Asperger Publishing.

Herbrecht, E., Poutstka, F., Birnkammer, S., Duketis, E., Schlit, S., Schmotzer, G., & Bolte, S. (2007). Pilot evaluation of the Frankfurt social skills training for children and adolescents with autism spectrum disorder. *European Child Adolescent Psychiatry, 18*, 327–335. doi:10.1007/s00787-008-0734-4

Herrmann, E., Call, J., Hernández-Lloreda, M., Hare, B., & Tomasello, M. (2007). Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science*, *317*, 1360–1366.

Hertz-Picciotto, I., & Delwiche, L. (2009). The rise in autism and the role of age at diagnosis. *Epidemiology, 20*(1), 84–90.

Horner, R. H., Bellamy, G. T., & Colvin, G. T. (1984). Responding in the presence of nontrained stimuli: Implications of generalization error patterns. *The Association for Persons With Severe Handicaps, 9*(4), 287–295.

Horner, R. H., McDonnell, J., & Bellamy, G.T. (1986). Teaching generalized skills: General case instruction in simulation and community settings. In R. Horner, L. Meyer, & H. D. Fredericks (Eds.), *Education of learners with severe handicaps* (pp. 289–314). Baltimore, MD: Paul H. Brookes.

Humphrey, N., & Lewis, S. (2008). "Make me normal": The views and experiences of pupils on the autistic spectrum in mainstream secondary schools. *Autism: The International Journal of research and Practice, 12*, 23-46.

Individuals With Disabilities Education Improvement Act of 2004 (IDIEA), Pub. L. No.108-446, 118 Stat. 2647 (2004).

Janzen, J. E. (2003). *Understanding the nature of autism: A guide to the autism spectrum disorders* (2nd ed.)*.* San Antonio, TX: Harcourt.

Kaufman, B. N. (1994). *Son-rise: The Miracle Continues*. Novato, CA: New World Library.

Keeling, K., Myles, B. S., Gagnon, E., & Simpson, R. L. (2003). Using the power card strategy to teach sportsmanship skills to a child with autism. *Focus on Autism and Other Developmental Disabilities, 18*, 105–111.

Kelley, M. L. (1990). *School-home notes: Promoting children's classroom success.* New York, NY: Gilford Press.

Keppel, G., & Zedeck, S. I. (1989). *Data analysis for research designs*. New York, NY: W. H. Freeman.

Koegel, R. L., & Lovaas, O. I. (1978). Comments on autism and stimulus overselectivity. *Journal of Abnormal Psychology, 87*(5), 563–565.

Kulongoski, T. J. (2005). *Governor's report: Effects of 2005-07 recommended budget on education in Oregon*. Retrieved from http://governor.oregon.gov/Gov/pdf/ballot_m1_2005.pdf

Laugeson, E. A., Frankel, F., Mogil, C., & Dillon, A. R. (2008). Parent-assisted social skills training to improve friendships in teens with autism spectrum disorders. *Journal of Autism Development Disorders, 39*, 596–606. doi:10.1007/s10803-008-0664-5

Laurent, A. C., & Rubin, E. (2004). Challenges in emotional regulation in Asperger syndrome and high-functioning autism. *Topics in Language Disorders, 24*, 286-297.

Lipkin, P. H., & Schertz, M. (2008). Early intervention and its efficacy. In A. J. Capute & P. J. Accardo (Eds.), *Capute and Accardo's neurodevelopmental disabilities in infancy and childhood: Neurodevelopmental diagnosis and treatment* (3rd ed., pp. 519–552). Baltimore, MD: Paul H. Brookes.

Lopata, C., Thomeer, M. L., Volker, M. A., & Nida, R. E. (2006). Effectiveness of cognitive-behavioral treatment on the social behaviors of children with Asperger disorder. *Focus on Autism and Other Developmental Disabilities, 21*(4), 237–244.

Loukusa, S., Leinonen, E., & Jussila, K. (2007). Answering contextually demanding questions: Pragmatic errors produced by children with Asperger syndrome of high-functioning autism. *Journal of Communication Disorders, 40*, 357-381.

Mandell, D. S., Novak, M. M.. & Zubritsky, C. D. (2005). Factors associated with age of diagnosis among children with Autism Spectrum Disorders. *Pediatrics, 116*, 1480–1486.

Menzinger, B., & Jackson, R. (2009). The effect of light intensity and noise on the classroom behavior of pupils with Asperger syndrome. *Support for Learning, 24*, 170-175.

Miller, P. (2001). *Learning styles: The multimedia of the mind. Research report*. Retrieved from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/16/e5/a0.pdf

Morgan, D. L. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research, 8*(3), 362–376.

Morrison, L., Kamps, D., Garcia, J., & Parker, D. (2001). Peer mediation and monitoring strategies to improve initiations and social skills for students with autism. *Journal of Positive Behavior Interventions, 3*(4), 237–250.

Murray, D. M. (1998). *Design and analysis of group-randomized trials*. New York, NY: Oxford University Press.

Myles, B. S., & Adreon, D. (2001). *Asperger Syndrome and adolescence: Practical solutions for school success.* Shawnee Mission, KS: Autism Asperger Publishing.

National Institute of Mental Health. (2009). *Suicide in the U.S.: Statistics and prevention.* Retrieved from http://www.nimh.nih.gov/health /publications/suicide-in-the-us-statistics-and-prevention/index.shtml

Nebraska Wesleyan University. (n.d.). *Critical Values of the Chi, G, and t distributions*. Retrieved from http://biology.nebrwesleyan.edu/courses/Labs/Biology_of_Animals/Statistics_T&GtestTable.htm

Newman, L., Wagner, M., Cameto, R., & Knokey, A.-M. (2009). *The post-high school outcomes of youth with disabilities up to 4 years after high school. A report from the National Longitudinal Transition Study-2 (NLTS2)* (NCSER 2009-3017). Menlo Park, CA: SRI International.

Office of Student Learning and Partnerships of the Oregon Department of Education. (2010). SECC multi-year database for child counts on Dec. 1 of each year published by the Office of Student Learning and Partnerships of the Oregon Department of Education. Salem, OR: Oregon Department of Education.

Oregon Commission on Autism Spectrum Disorders. (2010, December). *Report to the governor*. Retrieved from http://www.orcommissionasd.org/images/uploads/ OCASD_2010_Report_FINAL.pdf

Post, P. (2004). *Emily Post's Etiquette (17th ed.).* New York, NY: Harper Resource

Rao, P. A., Beidel, D. C., & Murray, M. J. (2008). Social skills interventions for children with Asperger's Syndrome or High-Functioning Autism: A review and recommendations. *Journal of Autism and Developmental Disorders, 38*(2), 353–361.

Robinson, J. E. (2009). The "cure" for autism, and the fight over it. Retrieved from http://www.psychologytoday.com/print/33694

Rodger, S., Ireland, S., & Vun, M. (2008). Can cognitive orientation to daily occupational performance (CO-OP) help children with Asperger's syndrome to master social and organizational goals? *British Journal of Occupational Therapy, 71*, 23–32.

Rubin, E., & Laurent, A. C. (2004). Implementing a curriculum-based assessment to prioritize learning objectives in Asperger Syndrome and high-functioning autism. *Topics in Language Disorders, 24*, 298–315.

Rubin, E., & Lennon, L. (2004). Challenges in social communication in Asperger Syndrome and high-functioning autism. *Topics in Language Disorders, 24*, 271–285.

Ruble, L., Willis, H., & Crabtree, V. M. (2007). Social skills group therapy for autism spectrum disorders. *Clinical Case Studies, 7*(4), 287-300. doi:10.1177/ 1534650107309450

Rusby, J. C., Taylor, T. K., & Marquez, B. (2004). Promoting positive social development in family childcare settings. *Early Education and Development, 15*, 449–470.

Ryan, J. B., Hughes, E. M., Katsiyannis, A., McDaniel, M., & Sprinkle, C. (2011). Research-based educational practices for students with autism spectrum disorders. *Council for Exceptional Children, 43*(3), 56–64.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. New York, NY: Houghton Mifflin.

Silberman, S. (2010). I'm right here: Rudy Simone on life as an "Aspergirl". Retrieved from http://blogs.plos.org/neurotribes/2010/10/27/im-right-here-rudy-simone-on-life-as-an-aspergirl/

Skinner, B. F. (1968). *The technology of teaching.* Englewood Cliffs, NJ: Prentice-Hall.

Snell, M., E., & Janney, R. E. (2000). Teachers' problem-solving about children with moderate and severe disabilities in elementary classrooms. *Exceptional Children, 66*(4), 472–490.

Spoth, R., Rohrbach, L., Hawkins, M., Pentz, M., Robertson, E., & Sloboda, Z. (2008). Type 2 translational research: Overview and definitions. Retrieved from the Society for Prevention Research website: http://www.preventionscience.org/ SPR_Type Translation Research _Overview and Definition.pdf

Steedly, K., Dragoo, K., Arafeh, S., and Luke, S. K. (2008). Effective mathematics instruction. *Evidence for Education, 3*(1), 1-12.

Stewart, K. K., Carr, J. E., & LeBlac, L. A. (2007). Evaluation of family-implemented behavioral skills training for teaching social skills to a child with Asperger's disorder. *Clinical Case Studies, 6*, 252–262.

Trochim, W. M. (2006). *The research methods knowledge base* (2nd ed.). Retrieved from http://www.socialresearchmethods.net/kb/qualmeth.php

Viola, S., & Noddings, A. (2006). Making sense of every child. *Montessori Life: A publication of the American Montessori Society, 18*, 40-47.

Wagner, M., Newman, L., Cameto, R., Levine, P., & Garza, N. (2006). *An overview of findings from wave 2 of the National Longitudinal Transition Study-2 (NLTS2).* Retrieved from http://ies.ed.gov/ncser/pdf/20063004.pdf

Walker, H. M., & McConnell, S. R. (1991). *The Walker-McConnell Adolescent Scale of Social Competency and School Adjustment.* Austin, TX: PRO-ED.

Wang, S., & Parrila, R. (2008). Quality indicators for single-case research on social skill interventions for children with autistic spectrum disorder. *Developmental Disabilities Bulletin, 36*, 81–105.

Winner, M., & Crooke, P. J. (2011). Social communication strategies for adolescents with autism. *ASHA Leader, 16*(1), 8–11.

Winter-Messiers, M. A., Herr, C. M., Wood, C. E., Brooks, A. P., Gates, M. A. M., Houston, T. L., & Tingstad, K. I. (2007). How far can Brian ride the daylight 4449 Express? A strength-based model of Asperger Syndrome based on special interest areas. *Focus on Autism and Other Developmental Disabilities, 22*, 67–79.

Witwer, A. N., & Lecavalier, L. (2008). Validity of autism spectrum disorder subtypes. *Journal of Autism and Developmental Disorders. 38*, 1611–1624.

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*(2), 203–214.

World Health Organization. (2004). *The ICD-10 classification of mental and behavioral disorders.* Retrieved from http://www.who.int/ classifications/icd/en/ bluebook.pdf