DECREASING TANTRUM/MELTDOWN BEHAVIORS OF SCHOOL CHILDREN
WITH HIGH FUNCTIONING AUTISM THROUGH PARENT TRAINING

A Thesis
Presented
to the Faculty of
California State University, Chico

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Social Science

by
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Fall 2013
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Fall 2013

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DEDICATION

This thesis is dedicated to my son, Zachary, who completely changed my life forever then completely changed his own through the ACCEPTS intervention and who inspires me every day to be a good parent and to leave a viable footprint.
ACKNOWLEDGEMENTS

I would like to thank my parents for their on-going support and encouragement and instilling in me the value of education, my wife for her faith in me and her patience, and my son for his inspiration. To Dr. Steven P. Koch for showing me the ACCEPTS intervention that changed my son’s life forever; he has been a mentor to me. Special thanks to Drs. Gwen Willadson and Michelle Cepello for being on my committee. Finally, I would like to express heartfelt thanks to four women (aside from my mom and wife,) whom I deeply respect and admire: Dr. Leesa Huang, my Committee Chair, mentor, and friend, and a driving force in her push for attaining excellence in my thesis; to Patty Mason and Sharon Day Hostettler both longtime dear friends, and also to Sharon Lin Navarro, four woman whom I am glad are in my life. All these individuals helped throughout the journey.
Great thanks to all.

“Life is not about waiting for the storm to pass, it’s about learning to dance in the rain.”
Author Unknown
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ABSTRACT

DECREASING TANTRUM/MELTDOWN BEHAVIORS OF SCHOOL CHILDREN WITH HIGH FUNCTIONING AUTISM THROUGH PARENT TRAINING

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Master of Arts in Social Science
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Fall 2013

Children diagnosed with Autism Spectrum Disorder (ASD) display an array of behavioral difficulties. Two of the common maladaptive behaviors exhibited are tantrums (unrelenting vocal protestations) and meltdowns (physical displays of aggression and emotion). These behaviors create difficulties in establishing and maintain positive relationships and are the most targeted behaviors for children with ASD. Self-regulation techniques have been specifically identified as effective for reducing unwanted behaviors in students with autism; however they are underutilized. This study taught parents of children with autism a particular self-management technique called ACCEPTS (Activities, Contributing, Comparison, Experiencing opposite emotions, Pushing away thoughts, other Thoughts, distracting Sensations). The aspect of parent training is unique because the majority of the intervention research focuses on professionals in the educational setting. Six families with male children diagnosed with a form of ASD were included in the study. Formal instruction and support were provided over the course of nine weeks to parents who in turn taught their children the ACCEPTS technique. Half of the cases demonstrated statistical decreases in maladaptive behavior, while nearly all
parents reported noticeable differences in their child’s behavior. Little or no changes in adaptive behavior were observed.

*Keywords:* autism, Asperger’s, High Functioning Autism, ACCEPTS, parent training, self-regulation, meltdowns, tantrums
CHAPTER I

INTRODUCTION

Background

Autism Spectrum Disorder (ASD) is a neurological disorder that is accompanied by repetitive, stereotypical or restricted behaviors or interests (Matson & Sipes, 2010). The three core area deficits of autism are behavioral, communication, and socialization (Matson, Hattier, & Belva, 2012). It is considered a spectrum disorder because it encompasses a broad area—in its severest forms, the child can be completely non-verbal and non-communicative, and in its mildest form the child can possess above average or far-above average intelligence (Wing, 2005). These mild forms of autism are often referred to as High Functioning Autism (HFA), on which the study will exclusively focus.

The unofficial diagnosis of High Functioning Autism (HFA) has an interesting profile. Students identified with HFA often exhibit language delays and they also lack the pragmatic language skills to communicate effectively (Volden & Phillips, 2010). Furthermore, a common social deficiency in HFA is a perceived lack of empathy which is often misinterpreted by the receiving person in the conversation (Williams White, Koenig, & Scahill, 2007). Other social deficits include lack of eye contact and an inability to read facial cues (Rao, Beidle, & Murray, 2008). Finally, there are also
behavioral deficits that exist such as restricted, repetitive and/or stereotypical interests, activities or behaviors (Paul, Orlovski, Marcinco, & Volkmar, 2009; Rao et al., 2008).

An important trait common among children with HFA is tantrum or meltdown behaviors. Tantrums or meltdowns are broadly understood as behaviors that can include a wide range of externalizing and maladaptive behaviors (Thompson, 2009). It is important to note the distinction between tantrums and meltdowns. Tantrums are often extreme vocal defiance or protest, while meltdowns are physical in nature (Benaron, 2009). Children with HFA may display a combination of verbal and physical responses during these episodes (Thompson, 2009). Both are often described as behaviors of “deregulations” and extreme reactions to acute internal distress (Matson & Nebel-Schwalm, 2007).

Oftentimes, the natural consequences of maladaptive behaviors result in the child being a target for bullying and actually place them at a higher risk and more frequently over a longer period of time than their typically developed peers (Cappadocia, Weiss, & Peper, 2012). In addition to having a significantly higher probability of being victimized by bullies (von Roekel, Sholte, & Didden, 2009), there is also an indication that adolescents with HFA have a disproportionate frequency for mental health issues (Shtayermman, 2007). Being bullied can create anxiety, poor social and emotional adjustment, lack of commitment to school, and clinically significant social and delinquent behaviors (Delfabbro et al., 2006; Grills & Ollendick, 2002). Finally, with certain individuals, the level of severity reaches a clinically significant level of suicidal ideation (Shtayermman, 2007). Obviously, these maladaptive behaviors can be destructive and
can create further dysfunction in the home, school, or community (Matson, Mahan, Hess, Fodstad, & Neal, 2010).

**Statement of the Problem**

It is clear that children with HFA have high needs and that the combination of their strengths and weaknesses place them at risk for many social, emotional, behavioral, and mental health difficulties as they grow (Williams White et al., 2007). School-aged children are of great interest because maladaptive behaviors create volatile environments in the home, school, and/or community settings (Foxx & Garito, 2007). Without effective interventions, the negative behaviors will continue causing disruption and possibly escalate into dangerous situations (Volkmar, 2011). While it would be best to act prior to the onset of maladaptive behaviors, it is crucial to intervene once tantrums or meltdowns are exhibited. An intervention strategy must be developed that are designed according to the child’s personality and personal needs, or “child specific interventions” (Koenig, 2012, p. 70). In determining what intervention would work best, parents must ask themselves, what are the best steps to help the child be more successful and improve their quality of life?

The National Standards Project (NSP) was launched in 2005 by the National Autism Center (NAC, 2009) to provide information on the interventions that have demonstrated the most success on children with autism. The eleven established interventions are based on some form of Skinner’s Applied Behavior Analysis (ABA) or Cognitive Behavior Therapy (CBT) and range from the simple (e.g., modeling, schedules, social stories), to the more complex, such as Pivotal Response Treatment (NAC, 2009). Each of the eleven categories is an umbrella term which may encompass multiple
strategies. Self-management, for example, may have numerous strategies (i.e., self-assessment or self-monitoring), but they will eventually accomplish the same goal—teaching the child to use self-control when over-stimulated.

The optimal goal for all children diagnosed with ASD is teaching them how to gain success in their social interactions and enhance effective communication while decreasing maladaptive behaviors (O'Reilly et al., 2011). In recent years, school professionals alongside other child specialists and experts have advocated tirelessly to promote the use of interventions that enhance the communication, social, and behavioral skills of all children who struggle with ASD. Koenig (2012) posits that the best integrations are ones geared to the child’s specific strengths and weakness, that it is evidence-based and that there is a smooth transition initiating it in to the current schedule without disruption to the normal schedule. While the debate continues regarding best therapies, research indicates that many in these fields appear to agree that a combination of therapies have the best success rate (Matson et al., 2012). Despite their efforts, there are two main areas that are often overlooked: parent training and the inclusion of self-management strategies as a foundation for improvement.

The interventions from NSP are school-focused, but most can be used at home as well. Regardless of what intervention is chosen, it is imperative that the parents are included, informed, and instructed on implementation. According to Trelease (2008), a child will spend nearly five times the amount of time outside of the classroom as they do in school, therefore, when parents are often left out of the process, the child lacks intervention continuity outside the school setting which can be stressful for both the child and his/her family (Strauss et al., 2012). The study by Strauss and colleagues showed
significantly positive differences when the parents were included and offered parental training on effectively implementing the intervention compared to the control group. Koenig (2012) is also a strong proponent of parental involvement and emphasizes the increased chances for positive outcomes.

The second overlooked aspect is teaching children to manage their own behaviors, or self-management. Luiselli (2011) found that a successful intervention results in a child being able to control the maladaptive or undesired behavior(s) with the goal of sharp reduction and eventual elimination of those behaviors. That is, the child will experience internal reinforcement, which can be just as powerful as external motivators. Whatever other intervention it is combined with, self-management must be the key component, as it empowers the child to change their own behaviors (Lee, Simpson, & Shogren, 2007). Best of all, in comparison to some other interventions listed by NSP, self-management strategies are fairly easy to learn and have a proven track record of more positive results as it takes the responsibility from the teachers and gives the power to the students to set their own goals, assign work, and monitor their own progress (Shapiro & Cole, 1994).

Therefore, for the current study, there are two hypotheses. The first is that a decrease in maladaptive behaviors will occur after the parents have been trained on a self-management intervention to employ with their child with HFA. The second hypothesis is that these children will evidence an increase in adaptive behaviors after being taught self-management skills by their parents.

**Purpose of the Study**

The social, emotional, and behavioral needs of children with HFA is being targeted through a variety of interventions as noted above; however, as stated previously,
incorporating a strong parent training element and emphasis on self-management are two essential components missing that may help further the progress in the field. The purpose of this study is to fill that gap with a focus on decreasing maladaptive or undesired behaviors while increasing adaptive or desired behaviors. Previous studies on interventions for children with ASD have mostly been directed at the school teachers maintaining a less disruptive classroom, but there are significantly fewer studies focusing on the home. Given the importance of the parental role of intervention success, this study will focus on the *parents* teaching their child how to employ an intervention.

There is a strong supportive literature base for self-management interventions in other populations such as students with ADHD (Barry & Kelly, 2006; Harris, Friedlander, Saddler, Frizzelle, & Graham, 2005) and emotional disturbance and other impairments (Argyropoulos, Botsas, Padeliadu, & Sideridis, 2012; Cho, Weymeyer, & Kingston, 2012; Nader-Grosbois & Lefèvre, 2011). The National Standards Project does list self-management as an effective technique, for individuals identified with ASD, but not specifically HFA (NAC, 2009). The utility of a self-management technique coupled with string parental training would be a natural next step contributing to and extending the research foundation.

**Theoretical Basis and Organization**

In a recent article, Koch (2010) suggested using the ACCEPTS (Activities, Contributing, Comparison, Experiencing opposite emotions, Pushing away thoughts, other Thoughts, distracting Sensations) intervention strategy as a way to provide the coping strategies needed in order to control the maladaptive and disruptive behaviors, thereby providing a more controllable classroom. The ACCEPTS is described as a
toolkit, and offers different skills, activities, or strategies to help distract the student away from the undesired or maladaptive behaviors and toward an activity or behavior that replaces it. This technique utilizes a combination of both cognitive behavior therapy (CBT) and dialectical behavior therapy (DBT) both of which emphasize the child acknowledging a problem exists.

Even though both philosophies are based on the premise that a negative or undesired behavior exists and needs to be acknowledged, CBT and DBT diverge in how they recognize the behavior. Cognitive behavior therapy emphasizes misperception or distortion of the undesired behaviors by perceiving it as faulty with the goal of the parent or teacher is to get the child to acknowledge and adjust those misperceptions (Robinson, Smith, Miller, & Brownwell, 1999). A central conception of CBT is there are six characteristics; psycho-education, somatic management, cognitive restructuring, problem solving, exposure, and relapse prevention (Velting, Setzer, & Albano, 2004; Rotherham-Fuller & MacMullen, 2011). The implementation of these steps is done gradually, and is meant to reinforce positive response to negative antecedents or triggers. Because CBT relies on linguistic conveyance in terms of working with the child to change the behavior, children with HFA are ideal candidates (Rotherham-Fuller & MacMullen, 2011).

The DBT approach engages a “mindfulness” approach that not only acknowledges the undesired behavior but encourages the child to change it without feeling negative for having it (Blocher-McCabe, La Via, & Marcus, 2004). Dialectical behavior therapy does not blame the behavior on a perception distortion (Glisente & Strodle, 2012) but instead recognizes the behavior as something that can be controlled. There needs to be an acknowledgment but also a substitute behavior to refocus one’s
sights on and away from the antecedent that is causing the stress, thus counter-balancing the negative perception of having the maladaptive behavior (Wiser, Telch, Argus, & Linehan, 2001). When using DBT, the therapist stresses change and acceptance of one’s behaviors, thus, its goal in theory is to reduce or change those perceptions, which help decrease the frequency of inappropriate behaviors (Chapman, 2006). Additionally, DBT attempts to find an alternate or replacement behavior, which the student can use until the negative behavior has subsided (Koch, 2010). That attempt is known as Functionally Equivalent Replacement Behavior (FERB) and is widely accepted in the education field (Browning-Wright & Cafferata, 2007).

Critics of CBT feel too much emphasis is placed on negative feelings and the ACCEPTS intervention blends DBT to focus instead on a mindfulness approach, thereby eliminating what many perceive as a flaw in CBT (Chapman, 2006; Koch, 2010). As behavior therapies began to shift focus away from perception distortions, and toward mindfulness and acceptance and change, they begin incorporating elements of self-managing or regulating one’s behavior (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006) which is one of the eleven best approaches to behavior interventions for students with ASD released by NAC (NAC, 2009).

**Limitations to the Study**

There is a saying in the autism community, “if you have met a child with autism, you have met one child with autism.” Every child with ASD has their own unique traits and skillsets, and even though the prevalence has increased significantly, individuals identified with ASD is a heterogeneous population. Therefore, a significant limitation is
the small population in the study group which limits the applicability or ability to
generalize results to a larger population of students with HFA.

Another limitation is the amount of time to incorporate and evaluate the
intervention’s success. Arguably, the longer an intervention, the higher the probability for
success (Foxx & Garito, 2007), and the study offered a small window in which the
behavior changes were evaluated. Intervention fidelity concerns how faithful parents are
in adhering to the elements and protocols of the ACCEPTS intervention (Linehan, 1993).
Parents of children with autism invariably find the daily challenges of raising a special
needs child stressful (Dabrowska & Pisula, 2010; Mori, Ujiie, Smith, & Howlin, 2009).
Despite the potential success of an intervention, parents may feel overwhelmed while
balancing all the other family needs. The researcher provided a personal, successful
example of how the intervention could be implemented, presentation and follow-up by an
intervention expert, easy and convenient access to meetings times for
information/education, and in-person and online support for families in order to
strengthen the fidelity of the ACCEPTS intervention in anticipation for poor follow-
through.

The study will be measuring changes in behavior with children who already have
behavior deficits and it could be argued that measuring changes in behavior based on the
parent evaluations may be difficult. This study employed the Behavior Assessment
Schedule for Children-2 Parent Rating Scale (BASC-2, PRS; Reynolds & Kamphaus,
2004) since it is a tool with strong psychometric properties that provides an objective
measure of children’s behavior changes over a period of time.
Definitions of Terms

1. **ACCEPTS:** An acronym for Activities, Contributing, Comparison, Experience opposite emotions, Push away thoughts, other Thoughts, other distracting Sensations (Linehan, 1993). This intervention can teach children with behavioral difficulties how to control and manage the inappropriate behaviors, and responses during communication (Koch, 2010).

2. **Asperger’s Syndrome (AS):** One of the five diagnoses previously designated under Autism Spectrum Disorder in the DSM-IV-TR. Often used interchangeably with High Function Autism (HFA) (Filipek et al., 1999), it distinguishes itself from HFA as individuals with AS exhibit a later onset in deficits, and often eventually have more positive results (Klin, et al., 1997). Often, these individuals show no significant language or cognitive delay, but have conspicuous social and communication deficits, and restricted, repetitive, stereotypical patterns of behaviors, interests, and activities (Paul et al., 2009).

3. **Autism Spectrum Disorder (ASD):** Autism spectrum disorders (ASDs) is a neuro-developmental disability that can cause significant social, communication and behavioral challenges (Matson & Sipes, 2010).

4. **Cognitive behavioral therapy (CBT):** Is based on the idea that our thoughts cause our feelings and behaviors, not external things, like people, situations, and events. The benefit of this fact is that we can change the way we think to feel/act better even if the situation does not change (Robinson et al., 1999).

5. **Dialectical behavior therapy (DBT):** A self-management intervention which acknowledges a maladaptive behavior exists, but includes elements of acceptance
and mindfulness; designed specifically for people who harm themselves or others emotionally or physically (Chapman, 2006).

6. High Functioning Autism (HFA): An unofficial diagnosis, it is used to describe an individual within the autism spectrum who has average or above average IQ, but has delays or deficits in pragmatic communication, socialization, or behaviors, and can be accompanied by repetitive restricted or stereotypical behaviors (Rao et al., 2008). Complicating matters is the constant reference using HFA interchangeably with AS (Paul et al., 2009).

7. Maladaptive behaviors: An umbrella term to describe an over-reaction to an event or action causing the child withdrawal or resist instructions in defiance to a full blown physical and emotional fit of lashing out and hurting or destroying everything in their path (Shattuck et al., 2007). Both actions rise to the point of requiring an adult intervention, and often the child’s response is disproportionate to the event that triggered the undesired behaviors or antecedent (Benaron, 2009).

8. Meltdowns: Extreme emotional/behavioral response to stress or overstimulation (Lipsky & Richards, 2009). Often physical in nature, it is marked by aggression, property destruction, and possibly self-injurious behavior (Matson & Nebel-Schwalm, 2007).

9. Tantrums: Loud, vocal protestations often occurring after a schedule transition, or when the child feels his/her needs are being ignored “and can last for over an hour” (Schreibman, 2005) which often begin and end without warning (Benaron, 2009).
CHAPTER II

REVIEW OF THE LITERATURE

In the 1950’s, autism was thought to be something of a rare occurrence, but since that time the prevalence rate has skyrocketed. Autism is the only disorder that has quintupled in the last 15 years (Loiacono & Valenti, 2010). The incidence rate in 1980 was 1 in 2500 (Waldman, Nicholson, Adilov, & Williams, 2008) and the current prevalence rate for children born with autism is now 1 in 88 (Stamou, Streifel, Goines, & Lein, 2012). The fact that we have seen the numbers escalate over the last four decades presents an urgent need for useful studies to better assist these individuals and their families. This literature review will cover the evolution of the autism diagnosis, the three main deficit areas relating to autism, parent training, and finally, an examination of the literature relating to the ACCEPTS technique including cognitive behavioral therapy (CBT) and dialectical behavior therapy (DBT).

Historical Evolution of the Autism Diagnosis

Clinical or Diagnostic Criteria for Autism

From its discovery in 1943 by Leo Kanner, autism has evolved on many levels to a current height of awareness never thought possible. The original study was based on findings conducted with 11 children and the description of the syndrome was limited to deficits in communication and social interaction that was accompanied by repetitive behaviors such as rocking or hand flapping (Kanner, 1971). Nearly four decades later,
Autism became a recognized disorder in the Diagnostic Statistical Manual on Mental Disorders, Third Edition ([DSM-III]; American Psychiatric Association, 1980; McPartland, Reichow, & Volkmar, 2012). At this time, autism was defined as having clinically significant impairments in behavioral, social, and communication areas. Socialization impairments could be characterized as lack of empathy, avoidance of comfort, little or no imitation, preference for solitary play, and inability to establish or maintain peer friendships (APA, 1980). Those identified also manifested at least one of the following communication impairments such as lack of communication in general, abnormal nonverbal communication (i.e., eye contact, facial expression, posture or gestures), no imaginary activity, abnormal in the form, content, or tendencies of speech and marked impairment in the ability to initiate or sustain a conversation (APA, 1980). Finally, individuals exhibited stereotyped body movements, persistent preoccupation with parts or objects, nonfunctional routines, or a markedly limited range of interests, usually manifesting in or a preoccupation on one or two narrow interests (APA, 1980; Reiss & Freund, 2005).

The fourth revision of the DSM (Text Revision, DSM-IV-TR) was revised in 2000 and while still maintaining the same categories of social, communication, and (repetitive and/or restricted) behaviors of the DSM-III, it followed Lorna Wing’s lead when she introduced her theory of autism being on a spectrum (Wing, 1981). The DSM-IV-TR encompassed five total disorders: Autism, Asperger’s Disorder, Pervasive Developmental Disorder-Not Otherwise Specified, Rett’s Disorder, and Child Disintegrative Disorder (APA, 2000). The following is a description for a valid diagnosis of Autism Spectrum Disorder based on the DSM-IV-TR:
A. A total of six or more items from (1), (2), and (3), with at least two from (1), and one each from (2) and (3):

(1) qualitative impairment in social interaction, as manifested by at least two of the following:

(a) marked impairment in the of multiple non-verbal behaviors such as eye to eye gaze, facial expressions, and body postures, and gestures to regulate social interaction.

(b) failure to develop peer appropriate to developmental level

(c) a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)

(d) lack of social or emotional reciprocity

(2) qualitative impairments in communication as manifested by at least one of the following:

(a) delay or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes such as gesture or mime)

(b) in individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others

(c) stereotypical or repetitive use of language or idiosyncratic language

(d) Lacks of varied, spontaneous make believe or social imitative play appropriate to developmental level

(3) restricted, repetitive and stereotyped patterns of behavior, interests and activities in at least one of the following:

(a) encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus

(b) apparently inflexible adherence to specific, non-functional routines or rituals

(c) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements)

(d) persistent preoccupation with parts of objects
B. Delays or abnormal functioning in at least one of the following areas, with onset prior to age three years: (1) social interaction, (2) language as used in social communication, or (3) symbolic or imaginative play.

C. The disturbance is not better accounted for by Rett’s Disorder or Childhood Disintegrated Disorder. (APA, 2000, p. 75)

**Asperger’s Disorder and High Functioning Autism**

Though the DSM-IV-TR recognized Asperger’s Disorder or Syndrome (AS) as its own syndrome by highlighting the difference between the two which hinged on the fact that AS did not manifest “clinically significant language delays” (Volkmar, 2011, p. 336). That is, students with AS acquire typical language milestones, and often have large vocabularies, but exhibit delays in pragmatic speaking skills (Jang, Dixon, Tarbox, & Granpeesheh, 2011; Matson & Wilkins, 2009; McPartland et al., 2012). Research conducted by Howlin (2003) showed that cognitive abilities of individuals with AS tended to be higher coupled with strong verbal skills and that these individuals had more difficultly overall with repetitive and stereotypical behaviors. According to the DSM-IV-TR, AS is defined as

A. Qualitative impairment in social interaction as manifested by at least two of the following:

1. marked impairment in the use of multiple nonverbal behaviors such as eye to eye gaze, facial expression, body postures, and gestures to regulate social interaction
2. failure to develop peer relationships appropriate to developmental level
3. a lack of spontaneous seeking to share enjoyment, interests or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest to other people)
4. lack of social or emotional reciprocity

B. Restricted, repetitive and stereotyped patterns of behavior, interests, 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 its intensity or focus
(2) apparently inflexible adherence to specific, nonfunctional routines or rituals
(3) stereotyped and repetitive motor mannerisms (e.g., hand or finger flapping or twisting, or complex whole body movements
(4) persistent preoccupation with parts or 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. (APA, 2000, p. 84)

Individuals with High Functioning Autism (HFA) can meet criteria for Autism from the DSM guidelines or be considered Pervasive Development Disorder Non-Otherwise Specified (PDD-NOS) (Ozonoff, South, & Miller, 2000). Those diagnosed with HFA is similar to those with AS in many ways, but the people with HFA often lack the repetitive, restricted and stereotypical behaviors that is one of the more common traits of an AS diagnosis (Ozonoff, Rogers, & Pennington 2006). Ozonoff and colleagues (2006) noted that subjects with HFA tended to be at or slightly below average IQ. Also, Howlin (2003) noted that children diagnosed with HFA exhibited more language delays and confirmed the 2006 study results of a very small number of parents reporting problems with repetitive or stereotypical behaviors.
In May 2013, the fifth edition of the DSM (DSM-5) went into effect and the diagnosis for ASD underwent significant revisions. A dimensional component has been added to the diagnosis which allows practitioners to quantify behaviors and the extent of impairment (Kraemer, 2007). Additionally, three core domains will converge into two, with social and communication deficits being combined and a second category being restricted, repetitive behaviors or interests (RRB). The RRB category would continue to include sensory abnormalities (APA, 2013). Further, the DSM-5 created a new related diagnosis of Social Communication Disorder which was initially intended to fill a gap for those children who displayed similar social and communicative difficulties as though with ASD, but fail to demonstrate a clear history RRBs. For the purposes of this study, only the definition from the DSM-IV-TR will be utilized.

**Autism Spectrum Disorder Behaviors**

The three most common deficits of autism are: communication, socialization, and behavioral. Though these three deficit areas seem to be mutually exclusive, they are indeed intricately related, creating complicated symptoms (Gilotty, Kenworthy, Sirian, Black, & Wagner, 2002). In this section, the author will present literature building the rationale that deficits in both communication and social skills create behavioral difficulties (a central theme for the study) in those individuals diagnosed with ASD, but in particular AS and HFA.

**Communication**

Most children with AS or HFA may not necessarily have problems with speech itself, but their deficits in pragmatic skills are what interfere with effective communication (Landa, 2000; Szatmari, Bryson, Boyle, Streiner, & Duku, 2003).
Pragmatics is the social implementation of language and these skills include (but are not limited to): appropriate interruptions, ability to track and respond to topic shifts, and turn taking (Camarata & Gibson, 1999).

In children with HFA, pragmatic barriers are exposed when these deficits impede the success of the conversation (Camarata & Gibson, 1999). For example, interrupting inappropriately during conversations creates pauses in the conversation flow which requires the other participant to re-adjust in an effort to maintain a productive exchange (Clark, Feehan, Tinline, & Vostanis, 1999). Often times, individuals with HFA or AS tend not to track the conversation at hand, but rather, attempt to further their own agenda by interjecting their own topic when the opportunity arises (Camarata & Gibson, 1999). Their eager attempts to participate often result in isolation instead of connectedness (Humphrey, 2008).

Children with AS and HFA often fail to understand metaphors and inferences (Wing, 1986), such as “blind as a bat”. Since conversations are often punctuated with humorous and interpersonal references and meanings (Carter et al., 2004), lacking this ability to comprehend these creative usages in language means that individuals with HFA or AS are unable to appreciate fully the intention of the speaker (Baron-Cohen, 1988; Camarata & Gibson, 1999). Individuals with HFA or AS are prone to concrete thinking and literal processing (Dykens, Volkmar, & Glick, 1991) therefore, the use of abstract concepts in conversation are also elusive (Farrell, 2004). These students may not “get” humor or other subtleties, and may even miss the underlying point (Siegel, Goldstein, & Menshew, 1996). As with the inappropriate interjections, these patterns of literal or
concrete thinking also bring criticism and even bullying, further isolating them from their peers (Humphrey, 2008).

Students diagnosed with HFA or AS often exhibit peculiar interests and preoccupations which may manifest in conversation (Ozonoff et al., 2006). Their inability to exchange ideas or to stay on topic falls under the definition of stereotypical communication (Paul et al., 2009). Their large vocabularies and intense knowledge of their favorite topic opens a pathway for conversations with adults (Paul, 2007; Toichi & Kamio, 2001). This trait is often described as “little professor’s syndrome”, as they are so obsessed with the topic that they tend to “lecture” about it (Volkmar & Klin, 2000). This may help to explain why and how children with HFA or AS struggle developing peer relationships while so apparently effortlessly maintaining conversations with adults.

Thus, it would appear that students with AS or HFA are knowledgeable in specific content areas but they have difficulties conveying information effectively and appropriately (Paul et al., 2009). Their efforts are usually thwarted by their one sidedness and lack of the reciprocal exchange of ideas or statements or turn taking skills, which without intervention, these skills may be arrested indefinitely and certainly in earlier ages are hardly present (Baron-Cohen, 1988; Colle, Baron-Cohen, Wheelwright, & van der Lely, 2008).

Social Skills

Baron-Cohen (1988) posited that pragmatic communication skills as described above are actually a part of social skills. Social skills have been defined as a set of behaviors that create a positive outcome in interpersonal relations (Elliot & Gresham, 1993; Gresham, 1986) and conversely, deficits in social skills can impede interpersonal
relationships and cause personal hardship in many ways (Klin et al., 2007). Kuenssberg, McKenzie, and Jones (2011) expanded the definition to include both verbal and nonverbal communication. Appropriate social behaviors include (but are not limited to): nonverbal behaviors such as eye contact, body gestures, facial expressions and proper appropriate social responses (Kuenssberg et al., 2011; Landa, 2000). Unfortunately, social skill deficits are a principle trait of children with AS and HFA (Rao et al., 2008).

Nonverbal behaviors are used to regulate communication and consist of multiple aspects including eye contact, gestures, body postures, and facial expressions, to name a few (Benaron, 2009). Lack of eye contact during conversations is a common social skill deficit for those diagnosed with ASD (APA, 2000) and can be distracting to others. Poor eye contact alone can shift the listener’s focus from the topic over to the behavior (Camarata & Gibson, 1999). This can often be misconstrued as rudeness or disrespect, disinterest, or even shyness which is off-putting to peers (Matson & Nebel-Schwalm, 2007; Rao et al., 2008). Impairments in the use of as well as interpretation of appropriate gestures and body postures were also found within this population, which also may contribute to their social difficulties (Carpenter, Pennington, & Rogers, 2002; Matson & Nebel-Schwalm, 2007). Gallagher and Frith (2003) discovered that individuals with ASD tended to use instrumental and expressive gestures less frequently when conveying verbal information. Additionally, Reed and colleagues (2007) found that people on the spectrum tend to misunderstand the social understandings behind body postures and facial cues displayed by others, which may affect their understanding of the social context or intent of another person (Baron-Cohen, 1988).
Listed as one of the traits in the DSM-IV-TR, social reciprocity is a deficit that often can be the cause of relationship difficulties (APA, 2000; Gilmour, Hill, Place, & Skuse, 2004). Social reciprocity is a basic understanding that there is a “give-and-take” quality to interactions between and among individuals (Benaron, 2009). This includes picking up cues, intentions, perceptions, and/or feelings of others (Rao et al., 2008; Wert & Neisworth, 2003). Students diagnosed with ASD are usually unaware that their behaviors violate social conventions (Cappadocia et al., 2012). For example, the inability to take turns in conversation or in play with school-aged children can be perceived as self-serving and result in conflict and social isolation (Barry & Kelly, 2006; Matson & Nebel-Schwalm, 2007). Often times, individuals with HFA or AS exhibit reduced interactions with or even a lack of response to others even when provided with social opportunities which correlates to their preference for solitary activities (Matson & Sipes, 2010).

The preoccupied interest in a limited range of subjects, coupled with their inability to socially reciprocate often is wrongly interpreted as lacking empathy (Volkmar, 2011). Instead, it may be more appropriate to conceptualize this as difficulties in processing emotions (Silani et al., 2008). Alexithymia is the inability to process emotions and is a fairly common phenomenon, affecting approximately 50% of the children with AS and HFA (Hill, Berthoz, & Frith, 2004), but only 10% of the overall population (Linden, Wen, & Paulhaus, 1994; Salmenin, Saarijarvi, Aarela, Toikka, & Kauhanen, 1999). While students with ASD may possess feelings of caring for others, it may be that communication and social mishaps interfere with the correct transmission of their sentiment causing separation and loneliness (Humphrey, 2008).
Tantrums and Meltdowns

Many children with HFA or AS have a profile of deficits that regrettably includes shortfalls in language and social skills. Though the previous sections have artificially defined communication and social skills as separate entities, O’Reilly and colleagues (2011) argue that these two skills are inextricably related. Thus, possessing good social skills are dependent upon one’s language skills, in particular pragmatics, and effective communication is reliant on a foundation of social competency. Having one deficit is challenging, but having impairments in both skill sets can be devastating.

This pair of insufficiencies can understandably result in becoming overwhelmed and a tendency to resort to exhibiting maladaptive behaviors. Maladaptive behaviors are defined as the occurrence of internalizing and/or externalizing behavior problems which adversely affect daily activities (Bradley, Summers, Wood, & Bryson, 2004; Brereton, Tonge, & Einfeld, 2006). Though maladaptive behaviors encompass a variety of behaviors, for the purposes of this thesis, tantrums and meltdowns will be the focus.

For the purposes of this discussion a tantrum is defined as a loud, vocally defiant protestation, while a meltdown is a physically aggressive, possibly self-injurious, outburst and can often lead to property destruction (Jang et al., 2011; Matson & Nebel-Schwalm, 2007). It is not uncommon for students on the spectrum to display a loud tantrum, become physically aggressive toward others, or even self-injurious behavior (Matson & Nebel-Schwalm, 2007). These maladaptive behaviors can be a frightening experience for everyone involved, is difficult to contain (Loefgren, 2011), and may even interfere with other intervention efforts (Hartley, Sikora, & McCoy, 2008).
When scrutinized, these meltdowns or tantrums are disproportionate to the minor event that caused it (Benaron, 2009). The antecedent or trigger to the tantrum or meltdown can be linked to the communication or social skills deficits described above (Jang et al., 2011; Matson & Wilkins, 2009; McPartland et al., 2012). These deficits may impede an individual’s ability to meet his/her needs effectively and efficiently which can result in high levels of frustration and overall internal distress (Bradley et al., 2004; Brereton et al., 2006). In their attempts to meet their needs, the maladaptive behavior, may not just be bad behavior, but the individual communicating that they are frustrated and needing outside assistance in one fashion or another (Bradley et al., 2004). Often the child is misdiagnosed with a behavioral disorder (e.g., Conduct Disorder, Intermittent Explosive Disorder, or Oppositional Defiant Disorder) that should be treated as a communication problem (Koegel, 2000; Gilmour et al., 2004). Several studies have shown that by addressing deficits in communication by increasing pragmatic language skills, many maladaptive behaviors can be resolved (Gilmour et al., 2004). However, the goal should be to give the child the language skills to ask for a break or to make a better choice.

**Parent Involvement and Training**

On top of exhibiting challenging core autistic symptoms, maladaptive behavioral events are equally distressing to the child, family, as well as the educational staff. It seems prudent to provide interventions to all parties involved in an effort to reduce unwanted behaviors. While the majority of the literature explores directed interventions with students and school-related staff, studies have indicated treatments have a much higher potential for success when the parents are included in the implementation of the
intervention in the home setting (Strauss et al., 2012). Since T release (2008) estimated that at least two-thirds of a child’s day is spent with the parents, it makes sense that strong parent involvement with the schools results in better behaviors and higher academic achievement.

There are many research papers on the positive efficacy results of training parents with children with disabilities. The benefits include stress reduction on the families (Koegel & Schreibman, 1996) and a more positive outlook for the parents (Koegel, Schreibman, Britten, Burke, & O’Neill, 1982). From Reciprocal Imitation Training (Ingersoll & Gergans, 2007) to Parent Management Training (Sofronoff & Farbotko, 2002) to Pivotal Response Training (Koegel & Schreibman, 1996), these studies showed an overwhelming support for parent training and championed it as a central part of positive parenting efficacy and decreasing maladaptive behaviors. Finally, parent training is widely accepted as a proven benefit to the child and the family in general and actually increasing leisure and recreation time as a family (Ingersoll & Gergans, 2007).

Though the literature uniformly found that parent training is beneficial, there are still multiple barriers that have yet to be overcome. In general, when implementing interventions, the major hurdles include necessary resources such as financial, time, personnel, and space, to name a few (Durlak & Wells, 1997). There is growing evidence that neither special nor general education teachers are well trained enough to work with parents and proficient at involving families in the education process (McBride, Bae, & Wright, 2002). The concept of “parent-school partnership” is predicated on team building and shared responsibility (McBride et al., 2002); but it has to be joint and relatively equal efforts from both parties.
The ACCEPTS Strategy

The previous sections have outlined the population to be targeted, which are parents with children diagnosed with HFA or AS, as well as identified the skill set to focus on, tantrums and meltdowns. This section introduces the ACCEPTS model (Koch, 2010; Linehan, 1993) that was utilized to effect change in these children’s behavior as well as address parenting efficacy skills. The ACCEPTS intervention is based upon the combination of Cognitive and Dialectical Behavioral Therapies (CBT and DBT, respectively) which have been determined to be evidenced-based according to the National Autism Center (NAC, 2009).

Theoretical Underpinnings

Cognitive behavior therapy (CBT). This strategy is used when a person responds to a situation or event in an undesired way, which impairs the person’s coping strategies, often creating a bigger problem or event then it actually was (Enright, 1997). The model would attempt to have the person acknowledge or identify the negative behavior and then modify it so it results in a more positive outcome. A child with undesired behaviors has a misperception about himself regarding those behaviors (Robinson et al., 1999). A therapist using CBT utilizes change strategies by having the person validate or acknowledge the undesired behavior, and then change the way they perceive it or as it has euphemistically been called, cognitive modification (Miller, Smith, & Hashim, 2012).

In regard to children on the spectrum, the use of CBT has its critics. Wood and colleagues (2009) acknowledged the effectiveness of CBT methods when working with children with anxiety concerns, but there were doubts about whether the same rate of
effectiveness would be observed when used on children with ASD. Of particular concern was the ability of the intervention techniques to adequately address the hallmark symptoms of ASD: poor social skills, inadequate adaptive skills, as well as restricted and stereotypical behaviors (Wood et al., 2009) Lang, Regester, Lauderdale, Ashbaugh, and Haring (2010) echoed this sentiment and recommended that the addition of Skinner’s Applied Behavior Analysis (ABA) with CBT might be able to provide individuals with ASD with more tools to target those particular symptoms.

**Dialectical behavior therapy (DBT).** Critics of CBT complained that it marginalized the patient by making them feel misunderstood and responsible for the circumstances the therapy was designed to treat, causing the dropout rate to increase (Chapman, 2006). Conversely, Chapman (2006) argued that the DBT model seeks to strike balance and create acceptance in its change-oriented interventions. While adopting some parts of CBT (i.e., acknowledging an undesired behavior), the DBT model emphasizes finding a positive replacement behavior, mindfulness, emotion regulation, acceptance, distress tolerance, and validation (Linehan, 1993). Distress tolerance is a unique concept that emphasizes “learning to bear pain skillfully” (Linehan, 1993, p.96). Koch (2010) actually referred to it as crisis management, essentially identifying a crisis, accepting that it will be short term, and realizing you can control the outcome by how you react to it. Often the agreed upon “action” is employing the replacement behavior previously agreed on (time out, listen to music, etc.), referred to as functionally equivalent replacement behavior (FERB; Gresham, Van, & Cook, 2006).

This technique was initially employed with suicidal women diagnosed with Borderline Personality Disorder (Linehan, 1993) and also has been extended to
successfully treat suicidal adolescents (Rathus & Miller, 2002). Research also has demonstrated that DBT is effective with those afflicted with obesity and binge eating (Telch, Agras, & Linehan, 2001) as well as people with eating disorders and depression (Chapman, 2006; Glisenti & Strodl, 2012). The literature regarding the use of DBT with students diagnosed with a spectrum disorder is sparse. However, DBT has the necessary components (ABA and CBT) as recommended by Wood and colleagues (2009) to effectively intervene with this particular population, at least theoretically.

The ACCEPTS Toolkit

The ACCEPTS Toolkit is an acronym for Activities, Contributions, Comparison, Experience opposite emotions, Pushing away other emotions, other Thoughts, and distracting Sensations (Linehan, 1993). It is essentially a system of tools used to distract the child away from an antecedent, or whatever is triggering the child to become overstimulated. The ACCEPTS strategy is based on both CBT and DBT tenets and has been found to be successful in creating a less disruptive classroom (Koch, 2010). Table 1 provides the acronym, definition, and examples of possible activities to promote a particular skill. The ACCEPTS is the theory discussed in the previous section being applied.
Table 1

*Understanding the ACCEPTS Toolkit*

<table>
<thead>
<tr>
<th>SKILL</th>
<th>DEFINITION</th>
<th>POSSIBLE ACTIONS</th>
</tr>
</thead>
</table>
| Activities | Constructive things to do that physically remove the child from the area of the antecedent | • Go to another room and cool off  
• Reading or working on a story  
• Learning on PC  
• Organize materials or catch up on homework |
| Contributing | An action or tasks that helps someone or lessens that person’s load/burden | • Cleaning the whiteboard  
• Stacking books or other library work  
• Picking up trash on school grounds  
• Help in main office |
| Comparison | Comparing how the child feels now and another previous situation that was worse | • Write a story about one of your meltdowns and how you would handle it differently today.  
• Write about where you will be in 5 years.  
• How are you different than 5 years ago? |
| Experience opposite emotions | Acknowledging a negative feeling or reaction, and empowering the child to feel something different than the current negative emotion | • Name three of the funniest things you have seen?  
• What is the funniest movie you have watched and what was your favorite scene?  
• Who is your favorite personality?  
• Who is your favorite Musician? |
| Pushing away thoughts | Realizing that negative emotions fade over time, and to encouraging the negative feelings to leave. | • You are angry/upset about_______. Imagine that anger as an ad on the radio. Now turn off the radio. |
| other Thoughts | The use of a cognitive activity to distract from the negative emotions | • Reading  
• Jigsaw or word puzzles  
• Listen to music on headphones |
| other distracting Sensations | Appeasing the child’s sensory perceptions to distract from the negative emotions | • Use manipulatives such as stress toys, exercise grips, play-doh  
• Guessing various mystery scents  
• Smelling a sachet of favorite scent |

(adapted from Koch, 2010 and Linehan, 1993)
Koch (2010) suggests sitting down with the child and making a list of three to five tasks for each of the seven sub-skills. This not only provides one-on-one time for the parents, it also allows the child to participate in creating the method to control his or her emotions. A worksheet can be created so that the child can then be taught each individual skill guided through the system to use the intervention appropriately.

**Summary**

Students with HFA or AS struggle on a daily basis to communicate and interact effectively in their various environments (e.g., home, school, community). The collective stress of these deficits often results in maladaptive behaviors, such as tantrums and meltdowns, which are distressing to the child, the families, and the school staff. The ACCEPTS Toolkit is a fairly new adaptation of a DBT program designed to prevent student meltdowns (Koch, 2010). However, limited research exists to support its use for children with ASD. The present study examines the efficacy of the ACCEPTS Toolkit by implementing this program with parents of children with High Functioning Autism or Asperger’s Disorder. The study itself placed the emphasis on training the parent to implement the ACCEPTS Toolkit in the home environment where children spend the vast majority of their day.
CHAPTER III

METHODOLOGY

Design of the Investigation

Common characteristics of those diagnosed with HFA are difficulties in communication, social skills and behavioral outbursts (Klin et al., 2007). These outbursts commonly referred to as meltdowns can range from mild to moderate tantrum behaviors to physical aggression, either self-inflicted or directed at others (Lipsky & Richards, 2009). Although never definitively established, it would be hard to deny that in some cases the meltdowns may be a direct or indirect result of ineffective communication or socialization skills. The purpose of the study was to determine if teaching parents of children with High Functioning Autism (HFA), a self-regulating intervention approach, could improve the maladaptive or disruptive behaviors of those children. The ACCEPTS (Activities, Contributing, Comparison, Experience opposite emotion, Pushing away thoughts or feelings, other Thoughts, distracting Sensations) is an intervention taught to parents with children diagnosed with HFA.

This was a pre-post experimental design using parents of children with HFA. Parents were asked for their voluntary participation and documentation of their child’s diagnosis. The study ran over a 15 week period and met 9 times to teach and guide the parents through the intervention. At the first meeting, parents were asked to complete two
surveys, one on general behavior (both adaptive and maladaptive) and another on autism spectrum traits. After 15 weeks of intervention, the parents were asked to complete the general behavior assessment a second time.

**Population**

The participants in this study were solicited from various entities that work with children with HFA in northern California. The study started out with twelve parents/families participating, but due to scheduling or other conflicts, the final population was six. All children were male, with a mean age of 10 years, 1 months. Table 2 is a listing of the participant demographics. Most of the children were in elementary school, with two of the children being in seventh grade.

Table 2

*Participant Demographics*

<table>
<thead>
<tr>
<th>Participant #</th>
<th>Child’s Gender</th>
<th>Child’s Age</th>
<th>Grade</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – mother</td>
<td>M</td>
<td>10 yrs, 7 mos</td>
<td>5</td>
<td>HFA</td>
</tr>
<tr>
<td>2 - mother</td>
<td>M</td>
<td>7 yrs, 10 mos</td>
<td>3</td>
<td>ASD</td>
</tr>
<tr>
<td>3 - both</td>
<td>M</td>
<td>8 yrs, 6 mos</td>
<td>3</td>
<td>ASD</td>
</tr>
<tr>
<td>4 – both</td>
<td>M</td>
<td>10 yrs, 5 mos</td>
<td>5</td>
<td>HFA</td>
</tr>
<tr>
<td>5 – both</td>
<td>M</td>
<td>12 yrs, 9 mos</td>
<td>7</td>
<td>ASD</td>
</tr>
<tr>
<td>6 – both</td>
<td>M</td>
<td>11 yrs, 4 mos</td>
<td>5</td>
<td>ASD</td>
</tr>
</tbody>
</table>

Legend: HFA= High Functioning Autism  ASD = Autism Spectrum Disorder

The participants included three mothers attending on behalf of their two-parent family and three attended as couples. All of the participating families were multi-sibling families and of the 6 two-parent families, 4 were dual income families. Two of the children were diagnosed with HFA and the remaining four were diagnosed with ASD.
The diagnosis was obtained through various outlets such as Individualized Education Plan, Far Northern Regional Center, University of California, Davis Medical Investigation of Neurodevelopmental Disorders Institute (MIND Institute) or treating psychologist/psychiatrist.

**Treatment**

**Procedure**

Prior to the study, approval was obtained from the CSU, Chico Human Subject Review Board (Appendix A). Upon the board’s approval, flyers were immediately distributed to local nonprofit organizations in Butte County in northern California that work directly with the families and their children with autism. The flyer was an invitation to participate in a study to decrease maladaptive or undesired behaviors using a self-regulatory technique (see Appendix B).

At the first meeting, parents were given a description of the intervention being used in the study, as well as the objectives and purpose of the study. A consent form (Appendix C) was signed by the parent(s) and child during the initial meetings. Prior to the commencement of the study, it was determined that the children of the parents would have to be advised of what the study was about, how they would be involved, and that their participation was voluntary. Therefore, an oral script (Appendix D) was created to be read directly to the children prior to them signing the assent. After completing the consent and providing documentation of an autism diagnosis, parents were required to complete two instruments: an autism traits tool and a behavioral assessment instrument. In an effort to maximize confidentiality, participants were randomly assigned a number to all the paperwork completed.
The study ran from November 2, 2011 through February 15, 2012 and a total of six weekly formal parent meetings. Three additional informal meetings continued at the parents’ request for additional support and feedback regarding the intervention. Each weekly meeting covered a section or topic that allowed the parents to implement individual interventions with their child. The researcher sent e-mails after each meeting which reviewed essential points covered and provided additional information on the day’s subject matter. In an effort to maintain treatment integrity, Dr. Steve Koch and his assistant, Mr. Aaron Koch, presented at one of the meetings on how to implement the ACCEPTS strategy. Mr. Koch came back for a second meeting to review the parents’ ACCEPTS plans and offered suggestions and feedback. Parents were encouraged to continue using ACCEPTS, and contact was maintained by one informal meeting and by e-mail. The meeting agenda is listed below in Table 3:
**Table 3**

*Meeting Agenda Topics*

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Agenda Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting 1</td>
<td>Introduction to the study, consent</td>
</tr>
<tr>
<td></td>
<td>Brief overview of ACCEPTS intervention</td>
</tr>
<tr>
<td>Meeting 2</td>
<td>Completion of surveys</td>
</tr>
<tr>
<td></td>
<td>Brief overview of ACCEPTS intervention</td>
</tr>
<tr>
<td>Meeting 3</td>
<td>Formal ACCEPTS training by Dr. Steve Koch and Mr. Aaron Koch</td>
</tr>
<tr>
<td>Meeting 4</td>
<td>Formal group meeting</td>
</tr>
<tr>
<td>Meeting 5</td>
<td>Formal group meeting</td>
</tr>
<tr>
<td>Meeting 6</td>
<td>Formal group meeting</td>
</tr>
<tr>
<td></td>
<td>Mr. Koch reviewed parents’ ACCEPTS plans</td>
</tr>
<tr>
<td>Meeting 7</td>
<td>Informal group discussion</td>
</tr>
<tr>
<td>Meeting 8</td>
<td>Informal group discussion</td>
</tr>
<tr>
<td>Meeting 9</td>
<td>Informal group discussion</td>
</tr>
<tr>
<td></td>
<td>Complete behavior questionnaire</td>
</tr>
</tbody>
</table>

During the final group meeting, the parents were asked to complete the behavioral questionnaire a second time to determine if any observable behavior changes occurred since the beginning of the study (e.g., prior to intervention).

**Instruments**

The study employed three instruments: 1) Continuum Of Autism Spectrum Traits and 2) Behavior Assessment Schedule for Children, Second Edition. Both were
completed prior to the intervention and only the BASC-2 was completed post intervention.

The Continuum of Autism Spectrum Traits (C.O.A.S.T.). The C.O.A.S.T. is a recently developed criterion-referenced assessment tool to determine the severity of an individual diagnosed with an Autism Spectrum Disorder (Ganzler & Sherman, 2011). The C.O.A.S.T. employs 12 domains focusing on three areas: Behavior, Communication, and Emotion. Within the Behavior category, the three items are included are: Social Relationships, Types of Interest, and Flexibility/Transitions. The Communication domain consisted of Expressive Language, Pragmatic Language, Receptive Language, and Non-verbal Communication for a total of four items. The Emotion domain included three questions on Personal Management, Creative Imagination, and Atypical Sensory. (Ganzler & Sherman, 2011)

Each domain is actually its own item and has numbered levels with descriptions of behaviors or traits within that level. Each domain has descriptions of behavior numbered 1.0 through 7.0 including half point or between-level options available (e.g., 3.5). The seven levels range from no impairment to most severe impairment. Additionally, a “Does Not Apply” option is available in every domain (Ganzler & Sherman, 2011). The parent then selects the one level or section that best represents their child’s traits or current behavioral performance.

The scoring of the of C.O.A.S.T. is broken down into the Core Domain which included Social Relationships, Expressive Language, Types of Interest, and Personal Management. These were considered “core” because they are critical deficit areas pursuant to the DSM-IV-TR (APA, 2000). The remaining domains are conjoined together
into a Supplemental Eight score. When the two sections are combined, a Full Scale composite can be derived. Table 4 provides the final composite numerical value and its corresponding level of severity of the child's perceived or reported behavior. The authors are currently in the early stages of obtaining reliability and validity data (S. Ganzler, personal communication, March 12, 2012).

Table 4

Range of Impairment Descriptions for Full COAST Score

<table>
<thead>
<tr>
<th>COAST</th>
<th>Levels of Impairment</th>
<th>Description</th>
<th>Raw Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1.0</td>
<td>Typical Development</td>
<td></td>
<td>12-22</td>
</tr>
<tr>
<td>Level 2.0</td>
<td>Trace Impairment</td>
<td>Minimal</td>
<td>24-34</td>
</tr>
<tr>
<td>Level 3.0</td>
<td>Borderline Impairment</td>
<td>Mild to moderate impairment</td>
<td>36-46</td>
</tr>
<tr>
<td>Level 4.0</td>
<td>Mild Autism</td>
<td>Definite, clear, evident impairment</td>
<td>48-58</td>
</tr>
<tr>
<td>Level 5.0</td>
<td>Moderate Autism</td>
<td>Significantly impaired</td>
<td>60-70</td>
</tr>
<tr>
<td>Level 6.0</td>
<td>Severe</td>
<td>Fully dependent on caregiver and educators</td>
<td>72-78</td>
</tr>
<tr>
<td>Level 7.0</td>
<td>Very Severe</td>
<td>Non-verbal and intellectually disabled</td>
<td>80-84</td>
</tr>
</tbody>
</table>

The Behavior Assessment System for Children - 2nd Edition (BASC-2). The BASC-2 (Reynolds & Kamphaus, 2004) is a norm-referenced instrument and is an easy to administer test which can be completed by a parent, teacher, or student. The BASC-2 consists of four domains:

1) Externalizing Problems (Hyperactivity, Aggression, Conduct Problems),

2) Internalizing problems (Anxiety, Depression, and Somatization),
3) Behavior Symptom Index (Atypicality, Withdrawal, and Attention Problems),


The Externalizing and Internalizing composites, combined with the Atypicality, Withdrawal, and Attention Problems subscales, form the Behavioral Symptoms Index (BSI), an indicator of risk. The Adaptive Skills Composite indicates positive behaviors or well-being.

The parent version of the BASC-2 provides surveys for students’ age 6-11 years (PRS-Child) and 12-21 years (PRS-Adolescent) consisting of 150 questions and 160 questions, respectfully. Each question requires a single response from one of four possible answers: Never, Sometimes, Often, or Always. The BASC-2 uses a T-score of 50, with a standard deviation of 10. Scores of 30-39 are considered adaptive, In general, scores ranging between 41 to 59 are considered Average. For the Externalizing and Internalizing Composites as well as the BSI, scores in the 60-69 range are considered At-Risk and scores above 70 are considered to be Clinically Significant (Reynolds & Kamphaus, 2004). For the Adaptive Skills Composite, scores in the 30-39 range are considered At-Risk and scores below 30 are described as Clinically Significant (Reynolds & Kamphaus, 2004).

According to Reynolds and Kamphaus (2004), the BASC-2 has been found to be a reliable and valid instrument for testing all individuals, including those children and adults with autism. Median test retest reliability for the BASC-2 PRS-C and BASC-2 PRS-A were .81 and .84 respectively, while median inter-rater reliability was .69 and .77,
respectively (Mahan & Matson, 2011). The item content validity was derived from parents, teachers, students and psychologists, and the scale content was relied on content and item level factor and content analysis. The inter-correlations scale ranged from .17 to .69, with a median of .43.

**Data Analysis Procedures**

Pre- and post-intervention behavioral data collected from the BASC-2 instrument study were compared to assess any potential changes that may have occurred. Paired \( t \)-tests and the Reliability Change Index (RCI; Gresham, 2005) were applied to measure these changes. The paired \( t \)-test analysis compared the values of means between two related samples; in this case, the pre- and post-intervention scores (Trochim, 2006). The wider the difference of the means, the higher the confidence level is for the results.

The RCI is a more specific statistical technique based on a formula designed by Jacobson and Truax (1991). The RCI technique is utilized to measure the discrepancy from baseline behaviors with the post-test behaviors and specifically determine if the change in behavior is related to chance or an applied intervention (Gresham, 2005). The results are gained by subtracting the post-test results from the pre-test score and dividing the difference by the standard error of difference between pre and post test results (Gresham, 2005).

\[
\text{RCI} = \frac{M_2 - M_1}{SE_{Mdiff}}
\]

where \( \sqrt{ ( ) } \) and \( \sqrt{ ( ) } \). Alternatively, \( \sqrt{ ( ) } \).

A critical component of the RCI is how it matches intensity levels of the intervention with the intensity level of the problem behavior and the reluctance to accept
the interventions intent. Gresham noted that RCI held a distinct advantage because it can quantify reliability of pre- and post- intervention “levels of performance and confidence intervals can be placed around change scores to avoid over interpretation of results” (Gresham, 2005, p. 331). The critical RCI cutoff for this study was determined to be +/- 1.5 as recommended by Ferguson, Robinson, and Splaine (2002).
CHAPTER IV

RESULTS AND DISCUSSION

Presentation of Findings

The purpose of this study was to decrease maladaptive or undesired behaviors in children with AS and HFA through a parent training program on teaching their children positive self-management skills. The ACCEPTS program is an intervention designed to give children coping strategies to control their maladaptive behaviors. The participants of this study were parents of six male children with ASD who completed a 9-week training for the ACCEPTS intervention which in turn would be taught to their children. Due to the small size of the study, the data for the C.O.A.S.T., nutritional habits, and BASC-2 will be presented individually for each of the six participants’ children. The vast majority of the description will be centered on the behavioral profile patterns obtained prior to and after the intervention. Significant differences in the BASC-2 composite and scale scores are discussed using the Reliable Change Index (RCI; Gresham, 2005; Jacobson & Truax, 1991) with a critical cutoff determined to be +/- 1.5 as recommended by Ferguson and colleagues (2002).

Child One

Child one was 10 years, 7 months and represented by his mother. She participated in all meetings, and was noticeably involved in implementing the intervention. His clinical diagnosis was HFA and the parent reported mild tantrum and meltdown
behaviors. Child one had a C.O.A.S.T. score of 47.0 which placed him in the Borderline-Mild range. This was commensurate with parent reports of low symptoms in regards to frequency and intensity of behaviors.

Table 5 provides the pre- and post-test scores of Child one on the BASC-2 in addition to the RCI value. Overall, Child one’s clinical scales indicated that his behaviors before and after intervention fell within the At-Risk range as indicated by the Behavioral Symptom Index or BSI. The Externalizing Composite prior to the intervention was rated to be in the Average range. All three areas (Hyperactivity, Aggression, and Conduct Problems) were commensurate in the Average range. The Externalizing Composite profile after intervention was similar to that prior to intervention with all scores falling into the Average range. The RCI values indicated no statistical changes between the pre- and post-test scores.

The Internalizing Composite of Child one before the mother received the ACCEPTS training was found to be in the At-Risk range. Both the Anxiety and Depression scores were in the At-Risk range, while Somatization was in the Average range. The Internalizing Composite and Anxiety subscales remained in the At-Risk range post intervention. Additionally, the Somatization scale continued to be in the Average range. There was a reduction in Depression symptoms rated after the parent training according to the RCI value of -1.63.

Three other maladaptive scales (Atypicality, Withdrawal, and Attention Problems) are added to the BSI. At the beginning of the study, Child one exhibited an Average level of behaviors in the Atypicality scale; however, post-intervention, there was
a notable increase (RCI = 1.70). The Withdrawal scale was consistently in the Clinically Significant range for both sets of scores. Attention Problems were rated in the Average range before and after intervention.

Table 5

BASC-2 Pre-/Post-intervention Scores with RCI for Child 1

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing Problems</td>
<td>49</td>
<td>48</td>
<td>-0.20</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>67*</td>
<td>62*</td>
<td>-0.84</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
<td>61*</td>
<td>61*</td>
<td>0</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>41</td>
<td>42</td>
<td>0.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>51</td>
<td>47</td>
<td>-0.96</td>
</tr>
<tr>
<td>Aggression</td>
<td>52</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>43</td>
<td>45</td>
<td>0.51</td>
</tr>
<tr>
<td>Anxiety</td>
<td>69*</td>
<td>66*</td>
<td>-0.50</td>
</tr>
<tr>
<td>Depression</td>
<td>67*</td>
<td>59</td>
<td>-1.63</td>
</tr>
<tr>
<td>Somatization</td>
<td>54</td>
<td>54</td>
<td>0</td>
</tr>
<tr>
<td>Atypicality</td>
<td>58</td>
<td>68*</td>
<td>1.70</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>77*</td>
<td>79*</td>
<td>0.23</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>46</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>Adaptability</td>
<td>37*</td>
<td>39*</td>
<td>0.34</td>
</tr>
<tr>
<td>Social Skills</td>
<td>50</td>
<td>46</td>
<td>-0.65</td>
</tr>
<tr>
<td>Leadership</td>
<td>42</td>
<td>44</td>
<td>0.30</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
<td>44</td>
<td>47</td>
<td>0.45</td>
</tr>
<tr>
<td>Functional Communication</td>
<td>37*</td>
<td>40*</td>
<td>0.48</td>
</tr>
</tbody>
</table>

(Note: * denotes At-Risk, ^ denotes Clinically Significant, # denotes critical RCI)

Overall, Adaptive Skills were rated to be in the Average range before and after the intervention. Pre- and post-test scores indicated that three of the five Adaptive scales: Social Skills, Leadership, and Activities of Daily Living, were remained consistently in the Average ranges for Child one. Similarly, the Adaptability and Functional Communication scales evidenced no change, but the scores fell into the At-Risk category.
Child Two

Child two was 7 years, 10 months and represented by his mother. His clinical diagnosis was ASD and his mother reported severe tantrum and meltdown behaviors. Child two’s C.O.A.S.T. score indicated Borderline Impairment, with a score of 41.5, which is lower than what his mother had indicated, in terms of tantrum and meltdown frequency.

Table 6 provides the pre- and post-test scores of Child two on the BASC-2 in addition to the RCI value. The BSI indicated that this child displayed At-Risk levels of maladaptive behaviors before and after the intervention. Child two was rated as having At-Risk levels of Externalizing Behaviors both before and after the training. For Hyperactivity, the parent indicated that Child two demonstrated behaviors consistently within the At-Risk range throughout the intervention. Though Aggression was initially rated At-Risk prior to the intervention, after the training, Child two’s behaviors increased to Clinically Significant. Conduct Disorder was rated similarly within the Average range both before and after the intervention.

Child two displayed an increase in Internalizing Behaviors from Average to At-Risk as evidenced by the RCI with a 2.35. Though the pre- and post-intervention Depression scores remained in the At-Risk range, there were statistical elevations in both Anxiety and Somatization. The RCI values for both scales indicated significant increases (2.65 and 3.04, respectively); however, Child’s two Anxiety post-score was still within the Average range. After the training, the parent for Child two rated Somatization score within the Clinically Significant range.
The post-intervention score profiles for the three additional maladaptive scales were found to be similar to those obtained at the beginning of the study. Child two exhibited an Average level of behaviors in the Atypicality scale throughout the intervention. The Withdrawal scale was consistently in the Clinically Significant range for both sets of scores. Though the T-scores before and after the training are fairly similar for Attention Problems, the category dropped from At-Risk to Average.

Table 6

**BASC-2 Pre-/Post-intervention Scores with RCI for Child 2**

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing Problems</td>
<td>60^</td>
<td>63^</td>
<td>0.59</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>50</td>
<td>64^</td>
<td>2.35</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
<td>66^</td>
<td>69^</td>
<td>0.52</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>30^</td>
<td>32^</td>
<td>0.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>61^</td>
<td>63^</td>
<td>0.48</td>
</tr>
<tr>
<td>Aggression</td>
<td>65^</td>
<td>72^</td>
<td>1.10</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>51</td>
<td>51</td>
<td>0</td>
</tr>
<tr>
<td>Anxiety</td>
<td>39</td>
<td>55</td>
<td>2.65*</td>
</tr>
<tr>
<td>Depression</td>
<td>64^</td>
<td>68^</td>
<td>0.81</td>
</tr>
<tr>
<td>Somatization</td>
<td>47</td>
<td>61^</td>
<td>3.05*</td>
</tr>
<tr>
<td>Atypicality</td>
<td>54</td>
<td>56</td>
<td>0.34</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>70^</td>
<td>71^</td>
<td>0.12</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>61^</td>
<td>59</td>
<td>-0.41</td>
</tr>
<tr>
<td>Adaptability</td>
<td>30^</td>
<td>32^</td>
<td>0.34</td>
</tr>
<tr>
<td>Social Skills</td>
<td>28^</td>
<td>30^</td>
<td>0.32</td>
</tr>
<tr>
<td>Leadership</td>
<td>38^</td>
<td>38^</td>
<td>0</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
<td>29^</td>
<td>31^</td>
<td>0.30</td>
</tr>
<tr>
<td>Functional Communication</td>
<td>40^</td>
<td>41</td>
<td>0.16</td>
</tr>
</tbody>
</table>

(Note: ^ denotes At-Risk, * denotes Clinically Significant, ^ denotes critical RCI)

Overall, Adaptive Skills were rated to be in the At-Risk range before and after the intervention. Pre- and post-test scores indicated that two of the five Adaptive scales:
Adaptability and Leadership were remained consistently in the At-Risk ranges for Child two. Similarly, the Adaptability and Functional Communication scales evidenced no change, but the scores for Adaptability fell into the At-Risk category pre- and post-intervention. Social Skills and Activities of Daily Living were both Clinically Significant before and after the training. Post-test results were all At-Risk with the exception of Functional Communication which went from At-Risk to Average pre- and post-test, respectively.

Child Three

The child was 8 years, 6 months and was represented by both parents. The clinical diagnosis was ASD and the parents reported frequent tantrums and occasional meltdowns. Case study three was exhibited Trace Impairment according to C.O.A.S.T. with a score of 32.5. This is inconsistent with the parents’ reports as they stated that his behaviors affected his daily living.

Table 7 provides the pre- and post-test scores of Child three on the BASC-2 in addition to the RCI value. The parent rated Child three overall maladaptive behaviors (BSI) to be in the Average range before and after the intervention, though there was a significant decrease in the post-test score (RCI = -2.25). The Externalizing Composite was similar to the BSI being in the Average range pre- and post-test, and also evidenced a significant decrease after the intervention with an RCI of -1.58. The scores for Aggression and Conduct Problems were both rated to be within the Average pre- and post-test. The Hyperactivity scale scores pre- and post-test was found to be within the Average ranges, but a significant decrease was noted in the post-test scores (RCI = -3.36).
The Internalizing Scale scores remained consistently in the Average from before and after the ACCEPTS training. Anxiety and Depression were both in the Average ranges pre- and post-test with unremarkable changes. For Child three, he exhibited a statistical increase in Somatization behaviors after the intervention (RCI = 2.17).

Two of the three additional maladaptive scales included in the BSI post-intervention scores evidenced significant decreases. Child three exhibited Average levels of behaviors on the Atypicality and Attention Problem scales both before and after the training, but post-test scores met critical significance (RCI of -2.38 and -2.64, respectively). Withdrawal was rated to be within the At-Risk range pre-intervention and dropped into the Average range post-intervention, but failed to meet the critical RCI value.

Overall, Adaptive Skills were rated to be in the Clinically Significant range before the intervention; afterwards, the post-test score show a marked increase into the Average range (RCI = 1.97). The scale scores of Adaptability and Social Skills were in the At-Risk range pre-intervention. These two scales had significant increases after the intervention with RCI values of 2.03 and 1.94, respectively. Activities of Daily Living exhibited a similar pre post-test score profile as Adaptability and Social Skills; however, the change failed to meet the critical RCI value. Prior to the intervention, Leadership was rated by Child three’s mother as Clinically Significant, but post-test scores indicated a significant increase in this scale (RCI = 1.67) to At-Risk. Functional Communication was initially rated by Child three’s mother as being Clinically Significant and a statistical increase was also noted post-intervention (RCI = 2.07).
Table 7

BASC-2 Pre-/Post-intervention Scores with RCI for Child 3

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite</td>
<td>Pre</td>
<td>Post</td>
<td>RCI</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>52</td>
<td>44</td>
<td>-1.58</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>38</td>
<td>41</td>
<td>0.50</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
<td>56</td>
<td>43</td>
<td>-2.25</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>28</td>
<td>41</td>
<td>1.97</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>Pre</td>
<td>Post</td>
<td>RCI</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>59</td>
<td>45</td>
<td>-3.37</td>
</tr>
<tr>
<td>Aggression</td>
<td>48</td>
<td>43</td>
<td>-0.79</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>49</td>
<td>45</td>
<td>-1.01</td>
</tr>
<tr>
<td>Anxiety</td>
<td>37</td>
<td>38</td>
<td>0.17</td>
</tr>
<tr>
<td>Depression</td>
<td>44</td>
<td>41</td>
<td>-0.61</td>
</tr>
<tr>
<td>Somatization</td>
<td>39</td>
<td>49</td>
<td>2.18</td>
</tr>
<tr>
<td>Atypicality</td>
<td>56</td>
<td>42</td>
<td>-2.38</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>60*</td>
<td>51</td>
<td>-1.05</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>59</td>
<td>46</td>
<td>-2.64</td>
</tr>
<tr>
<td>Adaptability</td>
<td>35*</td>
<td>47</td>
<td>2.03</td>
</tr>
<tr>
<td>Social Skills</td>
<td>32*</td>
<td>44</td>
<td>1.94</td>
</tr>
<tr>
<td>Leadership</td>
<td>27*</td>
<td>38*</td>
<td>1.67</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
<td>35*</td>
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</tr>
<tr>
<td>Functional Communication</td>
<td>28*</td>
<td>41</td>
<td>2.07</td>
</tr>
</tbody>
</table>

(Note: * denotes At-Risk, † denotes Clinically Significant, ‡ denotes critical RCI)

Child Four

Child four was 10 years, 5 months at the time of the intervention was represented by both parents. Child four’s formal diagnosis was HFA and parent reported significant tantrum and meltdown behaviors in both frequency and intensity. According to the C.O.A.S.T. score of 32.5 and was found to be in the Trace Impairment range, which is significantly lower than what the parents reported and inconsistent with his residential treatment placement.

Table 8 provides the pre- and post-test scores of Child four on the BASC-2 in addition to the RCI value. The overall maladaptive behaviors as measured by the BSI
reflected At-Risk pre-test and Average post-test with an RCI of -0.35, indicating that his behaviors did not change. A significant decrease (RCI = -1.78) in Externalizing Behaviors was found as the scores dropped from At-Risk for the pre-test score to Average for the post-test score. Behaviors listed under Hyperactivity significantly decreased (RCI = -2.16) from At-Risk to the Average range pre- and post-test. Though the designation of Average for Aggression and At-Risk for Conduct Problems revealed as Average post-test, the RCI value of -1.73 indicated that there was a significant decrease in Aggression, and an Average post-test score of 48 in Conduct Problems and an RCI of -1.01 showing moderate decrease, though it was not in the statistically significant range.

The Internalizing scale scores remained consistent in the Average range from before and after the ACCEPTS training. Anxiety and Depression were both in the Average ranges pre- and post-test with significant decreases in Anxiety and an RCI of -2.49. No change was found in behaviors related to Depression. For Child four, he exhibited an increase in Somatization from At-Risk to Clinically Significant pre- and post-test and a significant increase (RCI = 2.17).

Two of the three additional BSI maladaptive scales pre- and post-intervention, Atypicality and Withdrawal were at risk, but showed no change in RCI’s with values of 0.0 and 0.47 respectively. Child four exhibited Average levels of behaviors on the Attention Problems subscales before the training and an increase to the At-Risk range post intervention (RCI = -2.24).
Table 8

**BASC-2 Pre-/Post-intervention Scores with RCI for Child 4**

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing Problems</td>
<td>62#</td>
<td>53</td>
<td>-1.78</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>54</td>
<td>51</td>
<td>-0.50</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
<td>61#</td>
<td>59</td>
<td>-0.35</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>44</td>
<td>32#</td>
<td>-1.82</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>63#</td>
<td>54</td>
<td>-2.16*</td>
</tr>
<tr>
<td>Aggression</td>
<td>59</td>
<td>48</td>
<td>-1.73*</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>60#</td>
<td>56</td>
<td>-1.01</td>
</tr>
<tr>
<td>Anxiety</td>
<td>47</td>
<td>32</td>
<td>-2.49*</td>
</tr>
<tr>
<td>Depression</td>
<td>51</td>
<td>50</td>
<td>-0.20</td>
</tr>
<tr>
<td>Somatization</td>
<td>61#</td>
<td>71^</td>
<td>2.18*</td>
</tr>
<tr>
<td>Atypicality</td>
<td>60#</td>
<td>60#</td>
<td>0</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>60#</td>
<td>64#</td>
<td>0.47</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>56</td>
<td>67#</td>
<td>2.24*</td>
</tr>
<tr>
<td>Adaptability</td>
<td>37#</td>
<td>28^</td>
<td>-1.52</td>
</tr>
<tr>
<td>Social Skills</td>
<td>50</td>
<td>32#</td>
<td>-2.91*</td>
</tr>
<tr>
<td>Leadership</td>
<td>49</td>
<td>38#</td>
<td>-1.67*</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
<td>38#</td>
<td>35#</td>
<td>-0.45</td>
</tr>
<tr>
<td>Functional Communication</td>
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<td>41</td>
<td>-1.75*</td>
</tr>
</tbody>
</table>

(Note: "#" denotes At-Risk, "^" denotes Clinically Significant, "*" denotes critical RCI)

Overall, Adaptive Skills were rated to be in the Average range before the intervention; afterwards, the post-test score show a decrease into the At-Risk range (RCI=-1.82). The pre-intervention scale scores of Adaptability and Social Skills were in the At-Risk and Average ranges, respectively. These two scales had significant decreases after the intervention with RCI values of -1.52 and -2.91, respectively. Activities of Daily Living exhibited a similar pre post-test score profile with the change failing to meet the critical RCI value. Prior to the intervention, Leadership was rated by Child four’s mother as Average, but post-test scores indicated a significant decrease in this scale (RCI = -
1.67). Though the pre- and post-test scores for Functional Communication remained in the Average range, a significant decrease was noted post-intervention (RCI = -1.75).

**Child Five**

Child five was 12 years, 9 months and represented by his mother and father. His formal diagnosis was ASD and his parents reported significant and constant tantrum and meltdown behaviors. On the C.O.A.S.T., Child five was listed as exhibiting Borderline Impairment with a score of 40.0. The C.O.A.S.T. score was lower than what the parents reported as frequent tantrums and melt downs.

Table 9 provides the pre- and post-test scores of Child five on the BASC-2 in addition to the RCI value. Originally, the BSI for Child five was rated to be in the At-Risk range, but was found to be in the Clinically Significant range after the intervention (RCI = 1.56). The score for the Externalizing Problems composite was in the At-Risk range prior to the intervention dropped to the Average range after the intervention; however, it failed to meet the value for critical significance. For Hyperactivity and Aggression, the parent indicated that Child five demonstrated behaviors consistently within the Average range before and after the training. Though the score for Conduct Problems was in the At-Risk range prior to the intervention and dropped to the Average range after the intervention (a modest decrease), it failed to meet the value for critical significance.

The Internalizing Scale was Average for pre- and post-test scores, but there was a critically significant increase (RCI = 1.85). Prior to the intervention, both Anxiety and Depression were within the Average range, but the parent rated Child five’s behavior At-
Risk after the intervention (RCI of 3.65 and 3.25, respectively). Somatization behaviors were consistently in the Average with a negligible decline post-intervention.

Child five’s mother rated Atypicality behaviors in the Average prior to the intervention then rated him as demonstrating Clinically Significant levels of behaviors after the intervention (RCI = 3.57). Withdrawal was rated as Clinically Significant on pre- and post-tests, with negligible change. Attention Problems were stable with an unremarkable RCI within the At-Risk range when assessed before and after the intervention.

Child five’s overall Adaptive Composite pre- and post-test scores were in the At-Risk range, with a negligible increase. Behaviors related to Adaptability and Leadership were consistently rated by the mother in the At-Risk range before and after the intervention. Social Skills were originally found to be within the Average range and post-test scores dropped into the At-Risk range, but it did not meet critical RCI significance. Functional Communication skills remained stable in the Average range before and after training. There was an increase in skills related to Activities of Daily Living, though it failed to meet the significance level.
Table 9

BASC-2 Pre-/Post-intervention Scores with RCI for Child 5

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite</td>
</tr>
<tr>
<td>Externalizing Problems</td>
</tr>
<tr>
<td>Internalizing Problems</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
</tr>
<tr>
<td>Adaptive Skills</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
</tr>
<tr>
<td>Hyperactivity</td>
</tr>
<tr>
<td>Aggression</td>
</tr>
<tr>
<td>Conduct Problems</td>
</tr>
<tr>
<td>Anxiety</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Somatization</td>
</tr>
<tr>
<td>Atypicality</td>
</tr>
<tr>
<td>Withdrawal</td>
</tr>
<tr>
<td>Attention Problems</td>
</tr>
<tr>
<td>Adaptability</td>
</tr>
<tr>
<td>Social Skills</td>
</tr>
<tr>
<td>Leadership</td>
</tr>
<tr>
<td>Activities of Daily Living</td>
</tr>
<tr>
<td>Functional Communication</td>
</tr>
</tbody>
</table>

(Note: * denotes At-Risk, ** denotes Clinically Significant, * denotes critical RCI)

Child Six

Child six was 11 years, 4 months and represented by both parents. His formal diagnosis was ASD and parents reported tantrums were common and meltdowns were of significant concern. Child six was found to be demonstrating Borderline Impairment with a score of 38.0 on the C.O.A.S.T., which revealed an inconsistency with parent reports of frequent maladaptive behaviors.

Table 10 provides the pre- and post-test scores of Child six on the BASC-2 in addition to the RCI value. Overall, the BSI was Clinically Significant for pre- and post-test scores for Child six. A small decrease was detected but the RCI value failed to meet
the critical value of 1.5. The Externalizing Composite was originally rated in the Clinically Significant range prior to the intervention and post-scores were found to be in the At-Risk range. The decrease in the level of externalizing behaviors was approaching significance (RCI = -1.39). Pre- and post-test scores revealed that Hyperactivity and Conduct Problems were stable in the At-Risk range; however, both scales evidenced a significant decrease according to the RCI values (-1.92 and -2.27, respectively). Behaviors related to the Aggression scale were found to remain consistent before and after the intervention, with an unremarkable (RCI=-0.62).

Child six’s mother’s pre- and post-test scores on the Internalizing Composite were both Clinically Significant with negligible differences before and after intervention. Both Anxiety and Depression were Clinically Significant were stable over the course of the intervention in the Clinically Significant range with unremarkable RCI values. Behaviors related to Somatization were rated to be in the Average range before and after intervention.

Atypicality and Withdrawal were rated in the Clinically Significant with insignificant changes pre- to post-test. Child six’s Attention Problems were rated by his mother as At-Risk before and after the intervention. No RCI change was found for Attention Problems.
Table 10

*BASC-2 Pre-/Post-intervention Scores with RCI for Child 6*

<table>
<thead>
<tr>
<th>Composite Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Externalizing Problems</td>
<td>70</td>
<td>63</td>
<td>-1.39</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>75</td>
<td>71</td>
<td>-0.67</td>
</tr>
<tr>
<td>Behavioral Symptom Index</td>
<td>79</td>
<td>74</td>
<td>-0.87</td>
</tr>
<tr>
<td>Adaptive Skills</td>
<td>30</td>
<td>29</td>
<td>-0.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Score Summary</th>
<th>Pre</th>
<th>Post</th>
<th>RCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyperactivity</td>
<td>69</td>
<td>61</td>
<td>-1.92</td>
</tr>
<tr>
<td>Aggression</td>
<td>67</td>
<td>63</td>
<td>-0.63</td>
</tr>
</tbody>
</table>
| Conduct Problems        | 69  | 60   | -2.27*
| Anxiety                 | 77  | 73   | -0.66|
| Depression              | 84  | 81   | -0.61|
| Somatization            | 49  | 47   | -0.44|
| Atypicality             | 72  | 66   | -1.02|
| Withdrawal              | 83  | 79   | -0.47|
| Attention Problems      | 61  | 61   | 0    |
| Adaptability            | 24  | 26   | 0.34 |
| Social Skills           | 40  | 34   | -0.97|
| Leadership              | 33  | 29   | -0.61|
| Activities of Daily Living | 33  | 33   | 0    |
| Functional Communication| 37  | 37   | 0    |

(Note: "# denotes At-Risk, "^" denotes Clinically Significant, "^" denotes critical RCI)

The Adaptive Skills Composite was rated to be in the Clinically Significant range before and after the intervention. Child six’s Adaptability skills were found to be in the Clinically Significant range and the pre- and post-test scores were stable. Prior to the intervention, the mother rated Social Skills within the Average range, but At-Risk after the intervention, but the RCI value failed to meet critical significance. Child six exhibited Leadership skills in the At-Risk range according to the pre-test score, but dropped to the Clinically Significant level after the intervention (RCI=−0.61). Activities for Daily Living and Functional Communication were found to be in the At-Risk ranges and registering no change in RCI values in pre- and post-test scores.


**Discussion of Findings**

The purpose of the study was to teach the parents of children with HFA a self-management intervention to empower their child to control their undesired and maladaptive behaviors when over-stimulated. Success was measured through decreases and increases in maladaptive and adaptive behaviors, respectively. Overall, the results of the study were mixed, with half the case studies showing marked improvement in maladaptive behaviors, meaning a decrease in maladaptive behaviors. Only one case showed improvement in adaptive behaviors.

Children diagnosed with ASD display challenging behaviors which can be defined as negative interpersonal and social behaviors that interfere with peer relations and can interfere with the physical, mental and quality of life (Mukaddes & Topcu, 2006; Nissen & Haveman, 1997). The BASC-2 is a broad measure of behavior and offers several composites of maladaptive behavior that can be helpful in assessing a variety of concerns: Externalizing, Internalizing, and the Behavioral Symptoms Index (BSI). Each composite possessed similar trends. For the Externalizing Composite, four cases showed no statistical change while one-third of the cases showed decreases in overt maladaptive behaviors after the implementation of the ACCEPTS. The trend for the Internalizing Composite was similar in that two-thirds of the cases showed no change; however, two cases evidenced increases in this type of maladaptive behavior. Finally, the BSI which includes Externalizing and Internalizing Composites as well as a few other subscales also had four cases which showed no statistical differences, one case with an increase and another with a decrease after parents were given training on the intervention.
Taking a closer look at the individual subscales of the respective maladaptive composites is warranted. In general, the six profiles before and after the intervention indicated elevated levels on all Externalizing Composite Subscales, particularly in Hyperactivity and Aggression, which supported the research findings of Knoll (2008). In the present study, half of the cases showed a measurable decrease in Hyperactivity after their parents completed the intervention. This is significant since the goals of the parent were to reduce undesired behaviors such as hyperactivity.

The Internalizing Composite, which included Anxiety, Depression, and Somatization, exhibited a mixed trend which also confirmed Knoll’s (2008) findings. Though the overall Internalizing Composite scores fluctuated according to the child with ASD, there were documented increases in both Anxiety and Somatization after the intervention was implemented. The finding from the current study supported both Dawson, Spencer, Hill, Galpert, and Watson (1990) and Mahan and Matson’s findings (2011) which determined there was a higher incidence of Somatization behaviors in general. Finally, only Atypicality, one of the subscales included in the BSI (but not the Externalizing or Internalizing Composite) evidenced an increase in two cases. Children diagnosed with ASD tend to score higher on the Atypicality subscale (Knoll, 2008) and are coupled with the higher levels in Anxiety and Somatization as determined by White, Ollendick, and Bray (2011). Also, in consideration of the goodness of fit for each child, if the ACCEPTS intervention was a mismatch for the child and his symptomology or personality, there would be an increase in either externalizing or internalizing behaviors.

On the BASC-2, the Adaptive Behaviors Composite encompassed how the test subjects were able to adapt to community and home environments (Reynolds &
Kamphaus, 2004). On the Adaptive Composite, four cases showed no change, one had a
decrease and another showed an increase. The subscales in Adaptive Composite include
Adaptability, Social Skills, Leadership, Activities of Daily Living, Functional
Communication, and Adaptive Skills (Reynolds & Kamphaus, 2004). Mahan and Matson
(2011) and Knoll (2008) described similar findings as the present study with children
diagnosed with ASD score lower on the Adaptive Skills Composite than their typically
developed peers. The core symptomology of ASD include deficits in adaptability, social
skills, and functional communication, which are measured on the BASC. Since the
ACCEPTS intervention does not incorporate these aspects, one would not expect a
significant change in these behaviors. The fact that these skills remained stable across
the majority of cases in the present study indicate that integrating the ACCEPTS
intervention does not detract from pre-existing positive skills.

Interestingly, for cases with the most improvement in decreasing maladaptive
behaviors after the intervention showed no increase in adaptive behaviors, with one case
actually showing a decrease. These results seem counterintuitive, since if one is reducing
undesired behaviors than an increase in appropriate behaviors would be expected. There
are two possible explanations. One is related to the instrument, itself. Though the
relationship between maladaptive and adaptive behaviors is not linear, it should be noted
that maladaptive and adaptive behaviors are not necessarily mutually exclusive (Knoll,
2008; Mahan & Matson, 2011). However, the scales on the BASC-2 may not be polar
opposites so that a decrease in maladaptive behavior does not necessarily mean an
increase in adaptive behaviors as measured by this tool. While the results of the present
study indicated that the ACCEPTS intervention was partially successful in diminishing maladaptive behaviors, it failed to enhance adaptive skills of the children with ASD.

The second explanation as to why the children identified with ASD in the present study failed to exhibit improvements in adaptive behaviors is related to the intervention. While the ACCEPTS intervention provided methods to decrease maladaptive behaviors, behaviors falling under the Adaptive Composite are not the sole target. It should be pointed out that the ACCEPTS intervention and DBT in general (Chapman, 2006) is primarily focused on undesired behaviors and replacing them with a more functionally effective behavior (Koch, 2010). Contextually, functionally equivalent replacement behaviors or FERBs may be more adaptive than a tantrum or a meltdown; however, FERBs are not necessarily considered to be adaptive behaviors in the traditional sense, but rather a more productive skill to replace one that is less effective (Koch, 2010).

The previous paragraphs emphasized and reported on increases and/or decreases of behavior according to statistical differences. However, Gresham (2005) discussed Just Noticeable Differences (JND) in how much a behavior must change before it was noticed by someone to determine whether the intervention is effective. The JND principle is important for this interventional study with students with ASD because: 1) the sensitivity of the behavioral tool (BASC-2) for progress monitoring has yet to be researched extensively; 2) the short amount of time for implementation of the ACCEPTS; 3) it serves as a morale booster for child and parent. For three cases with no changes in the Externalizing Composite, the parents of three cases reported visible improvement in behaviors in Hyperactivity, Aggression, and/or Conduct Disorder. For the four cases with relatively no changes in the Internalizing Composite, the parents of three cases reported
JND improvement in behaviors in Anxiety, Depression, and/or Somatization. Despite the relatively low change in the BSI, the parents of all four cases reported definite improvement in behaviors in Atypicality, Withdrawal, and/or Attention Problems. In her thesis on teaching social skills to elementary children with ASD, Dowling (2010) noted that statistical data may not be the sole success measure but that teachers, who are charged with responding to behavior disturbances, are in a position to notice the behaviors as they apply to JND. With that in mind, JND may actually be a far more sensitive measure for success.

Two children had clinical diagnoses of HFA, while four were diagnosed with ASD. Prior to the study, the parents of four ASD cases reported moderate to severe tantrums, and significant meltdowns in terms of frequency and intensity. Mild tantrums and/or meltdowns were reported from the parents of two HFA cases. Overall, the C.O.A.S.T. results were different with parent reports or clinical diagnoses. In general, the parental rating on the C.O.A.S.T. was lower than what was described during training sessions. The difference between parent report and scores obtained on the COAST can be due to several factors: 1) C.O.A.S.T. is tentatively based on the DSM-V criteria for ASD, but not necessarily reliant on the requirement of having all the required symptoms in each individual triad; 2) the rating system of C.O.A.S.T. allows for the parents to identify areas of relative strength which could possibly lead to a lower score; and 3) the scoring of the C.O.A.S.T. does not depend on frequency, and instead emphasizes behavioral descriptions or “styles of behavior.” (Ganzler & Sherman, 2011)

It is consistent with the widely held belief that the earlier the intervention, the higher success rate (Smith, 1999). It should also be noted that the frequency, intensity,
and chronicity of the maladaptive behaviors can cause the child to be more resistant to interventions (Gresham, 1991; Nevin, 1988). For the present study, the two youngest children (elementary aged) showed significant improvements. Conversely, the three children least affected by the parent training and implementation of ACCEPTS were also the oldest. This supports the notion of early intervention because younger children seem to benefit more and gain skills quickly especially in comparison with older children with the same diagnosis and implementation of same or comparable interventions (Fenske, Zalenski, Krantz, & McClannahan, 1985; Lovaas & Smith, 1988).

In considering fidelity, Symes, Remington, Brown, and Hastings (2006) discussed that consistent implementation of an intervention is the strongest indicator of outcome success. In the present study, the parents that demonstrated the behaviors that would indicate consistent implementation of the intervention including: attended every meeting, proactively parented their children by incorporating ACCEPTS, eager for training and consultation as evidenced by bringing their ACCEPTS schedule for review, and participating in ongoing group discussions. It was these children who benefited the most and exhibited the most positive outcomes because their parents were adequately trained in the ACCEPTS intervention and implemented the techniques as specified by Koch (2010). This strengthened the theory according to Wickstrom, Ollendick, and Bray (1998) that strict implementation of an evidence-based intervention will garner the most effective student outcomes (Tylor, 2013).

Nation and colleagues (2003) discussed the need for sufficient dosage in implementing a successful intervention. Dosage was defined as program intensity as a measurement as a result of quantity and quality of hours, session length and frequency,
and the duration of the intervention (Nation et al., 2003). Since there was a restriction in terms of the length of the study, the duration was less of a consideration, but those parents reporting the highest success also reported they consistently and frequently implemented the ACCEPTS method at home and/or within the school environment. One of the most significant cases was in residential treatment with an undetermined release date at the beginning of the intervention. Three months after 24/7 implementation by the facility staff, he was released back to his parents and was able to return to public school. The parents who were reported inconsistent application of the intervention reported only some changes.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the study was to help train parents how to teach their children with ASD an intervention to reduce undesired behaviors. For students with ASD or AS, tantrums (persistent verbal outbursts) and meltdowns (extreme negative emotional or physical response) are common behaviors resulting in many negative consequences such as lowered achievement levels and isolation from peers and others (Benaron, 2009; Schreibman, 2005). The nature of tantrums and meltdowns can also lead to severely negatively affecting the family as a whole resulting in poor sibling and parental relationships (Harris & Glasberg, 1994; Howlin, 1988). In the school setting, teachers are trained to address behavioral issues; however, parents are rarely involved in formal training or education to improve their child’s maladaptive behaviors. Research has found that involving parents in the intervention process is a crucial part of an intervention’s overall success (Strauss et al., 2012). Since this component is often disregarded, this study implemented a self-management intervention to empower the child with ASD to control overstimulation and avoid tantrums and meltdowns.

The study was a pre-post intervention design with a total of six families participating all of whom had one male child diagnosed with either HFA or AS. Children in the study ranged in age from seven to twelve years. All families were married couples and half attended jointly with the remaining being represented by the mothers. The
ACCEPTS intervention (Koch, 2010) was utilized for the study because it incorporates aspects of self-management and CBT, both of which are identified by the NAC as established, effective inventions for students with ASD. The ACCEPTS also employs aspects of the DBT model which in conjunction with CBT has shown success in addressing undesired behaviors various populations (Linehan, 1993). The efficacy of self-management interventions to reduce maladaptive behaviors has been well established (Koegel, Koegel, Hurley, & Frey, 1992). In fact, Luiselli (2011) found that a child who is empowered to control their maladaptive behaviors will experience strong internal reinforcement and continued success in eliminating these undesired behaviors. Due to the simplistic nature of self-management techniques, training parents will only assist children with ASD in progressing towards a higher quality of life.

The research hypotheses were centered on the behaviors of the children diagnosed with ASD. The main assumption for the current study was that teaching parents with children with ASD a self-management technique would result in a decrease in maladaptive behaviors. The second hypothesis was that these children would demonstrate a corresponding increase in adaptive behaviors. In order to measure this, several tools were utilized. In an effort to have a common indicator for ASD symptoms, the C.O.A.S.T. was given to the parents prior to the intervention. A second instrument, BASC-2, was used to determine a pre-intervention level of behaviors exhibited by the children with ASD. This was chosen due to its preference by school psychologists in working with children with ASD (Mahan & Matson, 2011). This instrument has three composites that address behaviors: Externalizing, Internalizing, and Behaviors Symptoms Index which each contain three subscales of maladaptive behaviors. An Adaptive Skills
Composite is also included in the BASC-2. The BASC-2 was given again to the parents after the intervention instruction.

In relation to the first hypothesis, the results of study were varied with three of the families showing statistical decreases in maladaptive behaviors on the BASC-2 after the implementation of the ACCEPTS. Two children showed decreases in the Externalizing and Internalizing Composites and the BSI. When looking at the individual subscales, children showed decreases in Atypicality and Hyperactivity. Interestingly, the Anxiety and Somatization subscales were increased in one-third of the cases. Parents of children who evidenced no statistical changes from pre-test to post-test scores on the BASC-2 did report just noticeable differences. That is, they witnessed small decreases in tantrums and meltdowns on a daily basis that were not measurable by the BASC-2.

With a decrease in maladaptive behaviors, the second research hypothesis was that a subsequent increase in adaptive behaviors would be observed in the pre/post BASC-2 profiles. Unfortunately, the vast majority of the children with ASD in the study evidenced no change, with one case actually exhibiting a decrease in adaptive scores. Even those participants which reduced their maladaptive behaviors, showed no change in their adaptive skills. The relationship (or maybe lack thereof) between decreasing maladaptive behaviors and increasing adaptive behaviors was not anticipated. This could also be a result of ACCEPTS focusing primarily on maladaptive or undesired behaviors. In general, this study confirmed previous research findings that younger children receiving intervention respond with more positive results. The three cases showing little or no change were in their teens that may be more resistant to intervention efforts (Gresham, 1991). This might indicate the importance of earlier intervention for higher
success rates. The parents who evidenced strong adherence to the ACCEPTS principles of implementation saw the most decreases in maladaptive behaviors. Related to the fidelity was the dosage or how much/often the ACCEPTS intervention was utilized by the student and family. For those children who were provided more opportunities to employ the ACCEPTS toolkit in the home environment, a noticeable, if not statistical difference in pre-post scores were observed.

This study had four limitations. As with many other research studies conducted with students diagnosed with ASD, the small sample size makes generalizations of findings problematic. In an effort to maximize the interpretations of the study, the sample group was homogenous in terms of gender, social and behavioral deficits, and diagnosis. For future studies, it is recommended to control and group children closer in age.

The next two limitations are related to the implementation of the intervention including the amount of time to incorporate and evaluate the intervention’s success as well as the fidelity of implementation. The study offered a small window in which the behavior changes were evaluated. However, both quality and quantity of time were important factors in the success of the intervention (Nation et al., 2003). By having the parent meetings on a weekly basis over the course of months helped to ensure quantity. Quality was improved by inviting an expert on the intervention to make the initial presentation as well as provide follow up on intervention plans with parents. Quantity was improved through additional sessions as well as recommendations to implement the intervention in other settings such as the school of attendance. The parents who had the greatest success also employed the ACCEPTS in another setting thus increasing the dosage. Both of these factors attempted to strength treatment fidelity concerns. Parental
involvement had a big determination in the outcome. Parent attendance and effort were all indicators of the intervention dosage and fidelity, and ultimately the success the child with ASD exhibited.

For the final limitation, the study embraced varying definitions of behavioral change to discuss the results instead of solely relying on statistical measurements for change. For example, Gresham (2005) stated one measure of a study’s effectiveness is the changes on social impact measures, or changes recognized to be most integrally important in everyday life, and are valued because schools and health institutions use them to measure the success or failure of interventions. Additionally, Sechrest, McKnight, and McKnight’s (1996) position of implementing just noticeable differences (JND) approach which questions how much of a difference in behaviors is required before it is noticed by significant others in the child’s environments or reported on the social impact measure (as cited in Gresham, 2005). Based on parent feedback, they detected minor improvements in maladaptive behavior that were overlooked by the instrument itself as well as the RCI procedures. Also, it is important to note that students with ASD especially those with significant behavioral deficits would have to exhibit substantial gains in order to show improvement on an objective behavioral measure that is utilized to determine profiles rather than measure progress.

Future studies could consider a number of factors. It would be most beneficial for the implementation to occur in multiple settings. In this manner, the child is expected to practice self-management skills consistently across settings to decrease maladaptive behaviors and improve generalization of skills. Starting the parent training to coincide with the start of the school would have several benefits such as comparing grades and
school disciplinary actions as indicators and measures of the success of the intervention.
In relation to this, the duration ACCEPTS implementation should be extended nine months (again corresponding to the school calendar) to determine the short- and long-term effects of the intervention. Increasing the sample size that grouped similarly aged children (primary vs. secondary) would improve the homogeneity and thus the interpretive power of the results obtained. Finally, it would be best to use other interventions to enhance social and communication skills for a positive outcome.
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APPENDIX A
October 12, 2011

David Bennett
702 Mangrove Avenue#237
Chico, CA 95926

Dear David Bennett,

As the Chair of the Campus Institutional Review Board, I have determined that following your Full Board review, no further modifications are needed in your research proposal entitled "DUAL INTERVENTION STRATEGIES FOR SELF-REGULATING BEHAVIOR IN CHILDREN WITH HIGH FUNCTIONING AUTISM". This clearance allows you to proceed with your study.

I do ask that you notify our office should there be any further modifications to, or complications arising from or within, the study. In addition, should this project continue longer than the authorized date, you will need to apply for an extension from our office. When your data collection is complete, you will need to turn in the attached Post Data Collection Report for final approval. Students should be aware that failure to comply with any HSRC requirements will delay graduation. If you should have any questions regarding this clearance, please do not hesitate to contact me.

Sincerely,

John Mahoney, Ph.D., Chair
Human Subjects in Research Committee

Attachment: Post Data Collection Report

cc: Gwen Sheldon (450)
You’re Invited!!

Does your child have periodic outbursts? Severe tantrums? Meltdowns? Have these behaviors caused disruptions at school or family events? Ever wish there was something you could do to help your child control their undesired behaviors or outbursts?

A graduate student is conducting a study at CSU-Chico to assess the benefits of a behavioral intervention strategy (ACCEPTS) that will help children with High Functioning Autism to control/reduce tantrum or undesired behaviors. The intervention will occur over a 6 week period with survey follow up at 3 months (after the intervention has concluded). The author of the intervention program, Dr. Steve Koch, will also be working in cooperation with this study. There is no cost to participate! The benefits of the study will be to decrease undesirable behaviors as well as creating a less disruptive environment at home and at school.

For more information, or to request a registration form, please contact Dave Bennett at (530) 321-7936.
APPENDIX C
Dear Parent or Guardian,

This letter serves as an informed consent for the following research study, “Dual intervention strategies for self-regulating behavior in children with high functioning autism”. As a graduate student working on my master’s degree in the College of Behavioral and Social Sciences from California State University, Chico, it is important to examine research as it relates to effective coping strategies for children with high functioning autism. The purpose of this study is to examine a dual intervention that will teach the child to self-regulate and control disruptive or undesired behaviors that can eventually lead to severe tantrum or “meltdown” behaviors as a result of over-stimulation. The research will be beneficial not only to those in the study, but I believe it will serve as a template for families and schools to reduce those undesired behaviors.

In this study, I plan to implement two separate interventions that will modify and regulate the behaviors. One strategy is a behavior therapy that allows the child to recognize the affects of the autism and allows the child to regulate negative feelings that lead to undesired behaviors. The other is to adjust the diet of the child and regulate the intake of the child’s dietary structure. The former requires the parent(s) to sit with their child and come up with four to five tasks in seven different areas that they can perform when they feel the onset of over-stimulation. The latter will focus on the diet and what can/should be minimized and what can/should be increased.

Participation in this study will require the parents to complete four surveys in the areas of general demographics, autism behavioral characteristics, overall behavior assessment (taken twice, before and after the study) and a Dietary Habits Survey. There will be approximately six meetings, four to discuss implementing the interventions. The other two will be utilized to provide troubleshooting assistance to parents in either of the interventions. The meetings will run about 45 minutes each. At the conclusion of the study, the groups will be provided information regarding the intervention they did not receive.

Your participation is entirely voluntary. There is no penalty for not participating in this study and participants can withdraw at any time without penalty or reprisal. As the primary researcher, I will be the only one who knows the true identities of the students who contribute to the study. All information obtained will be kept confidential except as required by state law (i.e., imminent danger to self or others or suspected child abuse/neglect). There are no foreseeable risks to the participants in this study. Benefits to the parent include improved relationship with the child with autism as their self-control of their outburst/tantrum behaviors increases, fewer incidents at school, better overall mental and physical health, and an array of coping strategies to help them self-regulate.
For further information, please contact the principle researcher California State University, Dave Bennett (530) 321-7936 and Thesis Advisor, Dr. Leesa Huang (530) 898-5164.

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David D. Bennett          Leesa Huang, Ph. D., NCSP
Principal Investigator           Thesis Advisor

Informed Consent
1. David Bennett, CSU Chico College of Behavioral and Social Science Interdisciplinary Graduate Student, the principle researcher has access to documents verifying the diagnosis of my child, such as IEP documents, or other written documents and it is understood that this information is kept confidential and he will be the only person who will know the true identity of my child._____ (initial)
2. I agree to complete the Basic Assessment System for Children (BASC) which will take approximately 20-30 minutes before and after the study._____ (initial)
3. I agree to maintain a journal on undesired behaviors of my child and track food consumed during the study._____ (initial)
4. I understand that the study may require dietary changes for my child or my family, and will do my best to conform to the dietary recommendations._____ (initial)
5. I understand that I will need to work with my child to formulate list of tasks and implement the intervention strategies as recommended._____ (initial)
6. I understand that the study will consist of three groups, with one using the behavior/nutrition intervention, and the other two using either the nutrition or the behavior intervention and understand that the participants will be randomly chosen._____ (initial)
7. I agree to complete all surveys and that I will be offered the results._____ (initial)
8. Your signature on this page grants permission for your child to participate in the previously described and permission to receive all coping skills from David Bennett, Graduate Student of the College of Behavioral and Asocial Sciences, California State University Chico.

________________________  ________________________
Parent or Legal Guardian/Date  Parent or Legal Guardian/ Date
APPENDIX D
Oral Script for Potential Participants and Their Children
In the Behavior Intervention Study

Hello, my name is Dave Bennett, and aside from being a graduate student at Chico State, I am also the father of a son with High Function Autism in the form of Asperger’s Syndrome. He wasn’t properly diagnosed until he was nine years old, and his behavior had become so bad, he was having full blown meltdowns to the point of needed to be restrained. He had been arrested on three felony counts of assault and battery against two teachers. When they tried to restrain him, he was taken in on a 5150 (psych evaluation). He was suspended over 60 times over how many years?, and sent to Sutter Children’s Psychiatric Hospital for a 10 day evaluation. When I took over primary custody in 2009, he was failing all his courses and the school wanted to have him repeat 7th grade. I seriously was afraid he would be institutionalized in some capacity.

I decided to abandon my goal of getting a Bachelor’s degree in Nursing when I completed pre-nursing requirements, and instead applied to the master’s program in Behavioral and Social Science. Through my ongoing research I found a behavior intervention that helped my son to the point that he is now in the top 20%, and is currently a straight A student as a sophomore at Chico High School. This remarkable transformation was achieved through a behavior intervention strategy that allows the child to acknowledge they are being over-stimulated and about ready to go into tantrum or meltdown behaviors, and gives them the coping strategy to self regulate.

I am directing this to the children present: I know there are times when it just seems there are so many things happening at once that you feel like you can’t handle it. I know when things get like that you feel like you just have to lash out at someone or something. That your body and mind seem like they are doing things you have no control over. My son called that “the angry place”. Do you have an angry place? Do you sometimes feel so overwhelmed that you just can’t deal with it? I want to show your parents how to help you control those feelings and bring your self back to feeling good again.

The initial part of the study will last for six weeks. There will be some surveys or questionnaires your parents will fill out discussing your behaviors. Your parents will meet once a week with me and I will stay in contact with them to see how you guys are doing. After the six week period, they will continue the study on their own and we will have limited contact. I will always be available to you or your parents for the following three months when the study concludes. Your parents will then be asked to complete another survey, so we can determine how successful the study was in helping you control when you feel overwhelmed.
This is completely voluntary, and you can stop at anytime. There may be some weird feelings when you start the program, but you will quickly see how it helps you control those times when you get frustrated. We want you to discuss this with your parents to see if you want to learn how to get yourself back to the happy place. You will need to sit down with your parents and find some things you can do when you start to feel so stressed that it might lead to an outburst. You will not be forced to participate if you don’t want to and you can quit the study if you don’t feel like it’s working for you. But this study will be something you can do with your family that can help you when you start having bad feelings. So you need to talk this over with your parents and they need to get back to me within the next day or two so we can start the study.

If there are any questions from anyone in the audience, feel free to raise your hand and ask away. Also, I will leave my number in case you think of any questions that after you leave today.