Title
The Therapeutic Process and Outcome during Cognitive Behavioral Therapy for Children with Anxiety and Autism Spectrum Disorders

Permalink
https://escholarship.org/uc/item/11c6j8w3

Author
Van Dyke, Marilyn

Publication Date
2014

Peer reviewed|Thesis/dissertation
The Therapeutic Process and Outcome during Cognitive Behavioral Therapy for Children with Anxiety and Autism Spectrum Disorders

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Psychology

by

Marilyn Virginia Van Dyke

2014
The Therapeutic Process and Outcome during Cognitive Behavioral Therapy for Children with Anxiety and Autism Spectrum Disorders

by

Marilyn Virginia Van Dyke

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2014

Professor Jeffrey Wood, Chair

The purpose of this dissertation was to investigate the therapeutic process and outcomes of cognitive behavioral therapy used to treat anxiety disorders in twenty-two elementary school-aged children (7- to 11-year-olds) who had autism spectrum disorder, by using child and parent verbalizations and behavior collected during a randomized controlled trial, and to develop a valid and reliable instrument for use in autism spectrum disorders treatment research. Transcripts of audiotaped recordings taken from child and parent discourse during treatment sessions were analyzed using mixed methods research, specifically, thematic analysis and repeated measures ANOVAs after data was collected during the original randomized controlled trial. The original randomized controlled trial, previously published, showed favorable quantitative results based upon parent-report measures, but it is possible that results may have been inflated due to the expectation of success. Child and parent discourse and behaviors across treatment sessions during the RCT study were analyzed in this dissertation using mixed methods research. Results indicated statistically significant improvement in anxiety reduction, statistically significant improvement in social communication, statistically significant improvement in child...
self-concept, and statistically significant improvement in positive parental verbal interactions with their child. Thematic content analyses revealed an increase in the sense of belonging, pride, bravery, and parental encouragement by the end of therapy, week 15.
The dissertation of Marilyn Virginia Van Dyke is approved.

Connie Kasari
Lois Weinberg
Thomas S. Weisner

Jeffrey Wood, Committee Chair

University of California, Los Angeles 2014
DEDICATION

This dissertation is dedicated to my husband, John Bryan Van Dyke, and my son, Trevor John Van Dyke.
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. Method</td>
<td>39</td>
</tr>
<tr>
<td>3. Results</td>
<td>72</td>
</tr>
<tr>
<td>4. Discussion</td>
<td>89</td>
</tr>
<tr>
<td>5. Summary and Concluding Remarks</td>
<td>112</td>
</tr>
<tr>
<td>6. Tables</td>
<td>114</td>
</tr>
<tr>
<td>7. References</td>
<td>164</td>
</tr>
<tr>
<td>Number</td>
<td>Title</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Table 1</td>
<td>Demographics for immediate treatment condition group</td>
</tr>
<tr>
<td>Table 2</td>
<td>Blended results: qualitative methods with quantitative methods</td>
</tr>
<tr>
<td>Table 3</td>
<td>Appendix: Qualitative Tables: Research Question #2, weeks 2, 4</td>
</tr>
<tr>
<td>Table 4</td>
<td>Research Question #2, weeks 10 and 15</td>
</tr>
<tr>
<td>Table 5</td>
<td>Research Question #3, weeks 2, 4</td>
</tr>
<tr>
<td>Table 6</td>
<td>Research Question #3, weeks 10, 15</td>
</tr>
<tr>
<td>Table 7</td>
<td>Research Question #4, weeks 2, 4</td>
</tr>
<tr>
<td>Table 8</td>
<td>Research Question #4, weeks 10, 15</td>
</tr>
<tr>
<td>Table 9</td>
<td>Interrater Reliability for the Individual PASTOS Items</td>
</tr>
<tr>
<td>Table 10</td>
<td>PASTOS Internal Consistency of PASTOS Subscales</td>
</tr>
<tr>
<td>Table 11</td>
<td>Correlations Among the PASTOS Subscales</td>
</tr>
<tr>
<td>Table 12</td>
<td>Correlations Between the MASC and the PASTOS</td>
</tr>
<tr>
<td>Table 13</td>
<td>Correlations Between the SSRS and the PASTOS</td>
</tr>
<tr>
<td>Table 14</td>
<td>Correlations Between the SEQ-C and the PASTOS</td>
</tr>
<tr>
<td>Table 15</td>
<td>Means and Standard Deviations for Outcome Measures</td>
</tr>
<tr>
<td>Table 16</td>
<td>Means and Standard Deviations for Outcome Measures- Subs</td>
</tr>
<tr>
<td>Table 17</td>
<td>Regression Analysis of PASTOS Subscales</td>
</tr>
<tr>
<td>Table 18</td>
<td>Regression Analysis of Change in Anxiety</td>
</tr>
<tr>
<td>Table 19</td>
<td>Regression Analysis of Change in Positive Parental Verbal</td>
</tr>
<tr>
<td>Table 20</td>
<td>Regression Analysis of Change in Child Initiations</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENTS

I have so many people and so many reasons to be thankful and grateful, that I really don't know where to begin. First of all, I would like to thank my advisor and mentor, Dr. Jeffrey James Wood, who always supported my many research whims that I often jumped into, running down one tunnel after another. I especially want to thank Dr. Karen Sze-Wood who was so very patient, an incredible therapist and writer, mother, wife, and so very funny. Beijing and Hong Kong, Van Halen, and Def Leppard, and the Soboba. These are memories that I will never forget. Thank you, Dr. Connie Kasari, for your wonderful smile, and your kindness. You are so incredible, and I am so very thankful for all that you do for the families affected by ASD. Thank you, Dr. Amy Drahota, for including me on the BIACA-1 study, and thank you for putting me up at your house when I attended a Courage Campaign meeting to overturn Prop 8. Dr. Kate Edwards, I loved the time we spent together coding research, protesting the Prop 8 aftermath, and horseback riding. Dr. Greg Tanaka thank you for introducing me to the world of qualitative research. It opened up my work. Dr. Thomas Weisner, thank you so much for mentoring me in the world of mixed methods. Mixed methods really does tell the complete story and enables us to find things that we may otherwise overlook, important things for our research. Thank you Dr. Lois Weinberg for your incredible knowledge of the laws that protects individuals with disabilities and their families, and thank you for advocating and fighting for those who many times are forgotten, the foster children. Dr. Mary Blake Huer, who saved my life and encouraged me to press on so that I could become an ASHA speech-language pathologist and make a difference in people's lives. Dr. B.J. Freeman, without whom, I never ever would have come so far. I will never forget the day you told me, when I said, "I think my son has high-functioning autism, and you said, "You're exactly right. We'll work on this together, and call me B.J."") I was so, so impressed and so relieved. Wow! A professional who cared. I could sense it, and it meant the world to me. Thank you so very much, B.J. and thank you to Mr. Jack Miller. Our family misses you terribly. You and B.J. were our life through some very tough times. You were so very awesome and so very funny. We loved hiking with you and we loved your friendship. I want
to thank Dr. Cori Fujii for being so passionate about autism, autism research, an incredible therapist, and for her incredible smile. Thank you for your friendship and encouragement, Cori. Thanks to Dr. Patty Renno, always calm and positive and on the cutting edge of autism research. Thank you Dr. Kelly Decker for supervising, mentoring, and running with me in our weekly runs with Cori and Patty. I especially want to thank the families and children who have autism spectrum disorders. I am forever in awe of your resilience and strength, and I learned so much from you all. I want to thank the many people
I met in the Gay, Lesbian, Transgender, and Bisexual communities. You are awesome and proud, and you so inspired me. All my friends in Equality Network, David McCoy, Doug and Jason Carlson, Dr. David Comfort, Darren, Louey, Troy, Scott, Rick and Madonna. Don't ever stop demanding full equality. It is your civil right. You deserve RESPECT. And Bryan, my husband, long suffering and patient. I love you so very much, and even though we are separated by miles and careers right now, I miss you terribly. Our love is strong and I know that we will be together soon. Trevor, my very special, one and only son, with whom I have had the most incredible journey, I love you so very much and am so proud of you. You are an incredible person. I loved watching "Psych" episodes with you. My dogs, Marcos, Domino, and Sandy, you are my rocks right now, my Three Muskateers. I am so very grateful and thankful for you all, Martha, Bronwyn, Theresa, I hope I make you proud.
VITA

December 15, 1955          Born Santa Monica, California

1979                        B. S. Business Administration, Management
                            California State University, Chico

1984                        Master of Business Administration
                            California Polytechnic State University, San Luis Obispo

2002                        Master of Arts Communicative Disorders
                            California State University, Fullerton
                            National Student Speech Language Hearing Association
                            Student of the Year

2007-2008                   Autism Speaks Community Service Award Grant

PUBLICATIONS AND PRESENTATIONS

cognitive behavioral therapy on daily living skills in children with high-
functioning autism and concurrent anxiety disorders. Journal of Autism and
Developmental Disorders. 41(3), 257-265.

successes of inclusive education efforts. Language Arts, 84(4), 385-389.

retarded?” Focus on Autism and Other Developmental Disabilities, 21(2), Sum 2006, 86-
88.


on parent-reported autism symptoms in elementary school-aged children with high-

Behavioral Therapy on Observed Autism Symptom Severity During School
Recess: A Preliminary Randomized, Controlled Trial. Journal of Autism and
Autism spectrum disorder (ASD) is a neurobiological disorder that encompasses three core areas of symptomatology (DSM-IV; APA, 2000): 1) qualitative impairments in social-emotional reciprocity; 2) qualitative impairments in communication; and 3) the presence of repetitive or restricted interests, behaviors, speech, language or thoughts. It is currently estimated to affect 1 in every 50 children in the United States (CDC, 2013; Fombonne, 2005; Kogan et al., 2009) making it one of the most common childhood neurobiological conditions. Anxiety disorders are a common and impairing co-occurring condition in the ASD population (e.g. de Bruin, Meester, de Nijs & Verheij, 2007; Green, Gilchrist, Burton & Cox, 2000; Leyfer et al., 2006; Muris, Steerman, Merckelbach, Holdrinet, & Meesters, 1998; Simonoff, et al., 2008), and it is estimated that many youth with ASD are affected and impaired by anxiety which adds an additional layer of impairment leading to even poorer outcomes for this population of children (Bellini, 2004; Ben-Sasson et al., 2008; Kelly et al., 2008; Sukhodolsky et al., 2008). Recent research studies have investigated the use of cognitive behavioral therapy (CBT) to address anxiety in children and youth with high-functioning autism, suggesting that it is an efficacious treatment (Fujii et al., 2013; Reaven et al., 2009; Sofronoff, Attwood, & Hinton, 2005; Storch et al., 2012; White, Ollendick, Scahill, Oswald & Albano, 2009; Wood, Drahota, Sze, Har, et al., 2009); however most results were based upon parent and therapist-report instruments. The use of child-report instruments has produced mixed results, possibly because children with autism spectrum disorder may not always be accurate reporters of their own emotions (e.g. Capps, Yirmiya, & Sigman, 1992; Hill, Bertoz, & Frith, 2004). To date there have been no studies investigating child and parent discourse and behavior during CBT with children with autism spectrum disorder.
spectrum disorder using mixed methods research. A refined investigation using the transcripts from such events, originally recorded on audiotapes, may yield further insight into individual factors that may affect treatment response during CBT therapy, thereby enhancing efforts to treat this population.

The prevalence of autism spectrum disorders (ASDs) in the United States is high: it is now currently estimated to be 1 in 50 children, per the most recent parent-report data collected by the United States Centers for Disease Control and Prevention (CDC; 2013). This makes ASD a common childhood condition. Given the high rate of psychiatric disorders in this population (e.g. Brereton, Tonge & Einfeld, 2006; Ghaziuddin, 2002; Gillott, Furniss, & Walter, 2001; Leyfer et al., 2006; Muris, Steerman, Merckelbach, Holdrinet, & Meesters, 1998; Sukhodolsky et al., 2008; Weisbrot, Gadow, DeVincent & Pomeroy, 2005), developing evidence-based treatments (Chambless & Hollon, 1998) for psychopathology such as anxiety, as well as the core symptoms of autism, is a pressing concern.

**Autism and Evidenced-Based Treatments**

Autism spectrum disorders (ASDs) have been found to be difficult to treat, particularly with respect to the generalizability of treatment effects across multiple contexts. The use of parent training is now considered to be an essential component of educating children with autism (National Research Council, 2005). Providing parent training has been shown to reduce parental stress and improve the quality of life for the family (Koegel et al., 1996); and helps with generalization and maintenance of skills over time. (Koegel, Schreibman, Britten, Burke, & O’Neill, 1982). The Education for All Handicapped Children Act (EHCA, 1975) was legislated in 1975 to provide funding to states, parent centers, and research centers for supporting access to public education for students with disabilities. This led to the enactment of The Individuals with
with Disabilities Education Act (IDEA), the federal legislation that mandates special education and related services for children with autism spectrum disorder, mandates that parents be involved with their child's education. Specifically, in the Federal Regulations 34 C.F.R. 300.34, IDEA (2004) it is listed the different types of Related Services that are to be provided by the local educational agencies (LEAs), and definitions of the various related services are provided in the code. For example, subsection (c) (8) defines parent counseling and training as: (i) Assisting parents in understanding the special needs of their child; (ii) Providing parents with information about child development; and (iii) Helping parents to acquire the necessary skills that will allow them to support the implementation of their child’s IEP or IFSP. In the Federal Regulations: Part 300 / A / 300.34 / c / 10 / (v) it is further stated that local educational agencies are to implement “planning and managing a program of psychological services, including psychological counseling for children and parents.” In addition, the Official Comments to the Federal Regulations under IDEA 2004, published in the August 14, 2006 Federal Register (Volume 71, No. 156, at p. 46,539 et seq.), emphasize the importance of retaining the former language of the parent counseling and training regulations from 1999 (e.g. www.wrightslaw.com.htm). The Department of Education states that there should be “no question that parent counseling and training include helping parents acquire skills that will help them support the implementation of their child’s IEP or IFSP” (at p. 46,573; Wrightslaw, 2013). Thus, parent training is an important part of a school district’s obligation in working with families of children with autism spectrum disorder (20 U.S.C. 1401(26). These types of services would include parent training for families affected by autism spectrum disorders using evidence-based treatments such as cognitive behavioral therapy (CBT).
Further with the passage of the No Child Left Behind Act, Public Law 107-110 (NCLB) signed into law, January 8, 2002, there has been an increased emphasis on providing evidence-based treatments and methods of instruction. Educational agencies receiving federal funds from NCLB must provide instruction and “supplemental educational services” (SES), including counseling, that are “high-quality, research-based, and designed to increase student academic achievement.” This applies to all students, including students with ASD. Although school districts are required by law to use evidence-based practices, dissemination and implementation of evidence-based practices in teaching, counseling, mental health, and speech and language services has been plagued with problems. There continues to be provision of services which may not necessarily have empirical research supporting their use. For example, in a recent literature review of communication-based treatments for children and youth with autism spectrum disorders, Brunner and Seung (2009) found that some treatments have empirical support for being efficacious, but other methods remain in an exploratory state of study. The authors reviewed studies published between 2002 and 2007 and found 36 that met criteria for being an evidence-based communication-based treatment. Seven treatment categories were found: applied behavior analysis (ABA), naturalistic behavioral, developmental, classroom-based, video modeling, social skills training, and augmentative and alternative communication. Naturalistic behavioral interventions that use behavioral treatment methods to teach communication skills such as joint attention, symbolic play, turn taking, requesting, and spontaneous verbalizations have been found to be efficacious (Brunner & Seung, 2009). Examples of these approaches include milieu teaching which incorporates incidental teaching, the mand model, and time delay (Alpert & Kaiser, 1992), engineering the environment to facilitate social communication (Warren & Kaiser, 1986), and a randomized controlled trial in which milieu teaching was incorporated in groups (Kasari, Freeman, & Paparella, 2006) to teach joint attention and
symbolic play skills. Results from these studies suggest that naturalistic behavioral interventions are efficacious treatments useful for clinical intervention and research (Brunner & Seung, 2009).

Parent-based developmental interventions such as the floor time techniques (Wieder & Greenspan, 2003); transactional support model (Prizant, Wetherby, Rubin, & Laurent, 2006); and the More Than Words also known as The Hanen approach by Sussman (1999) have received some support, particularly for those children who are more impaired verbally (Prelock, Calhoun, Morris, & Platt, 2011). Studies suggest that improving maternal sensitivity to communication attempts by the young child may lead to improvements in the reciprocal social-communication interactions of the children (Mahoney & Perales, 2003; Aldred, Green, & Adams, 2004; and Ingersoll, Dvortcsak, Whalen, & Sikora, 2005). These various approaches have been used mostly with younger children with ASD.

Video modeling and video self-modeling have been found to be efficacious treatments for children and adolescents with ASD (Bellini & Akullian, 2007; Brunner & Seung, 2009; Kroeger, Schultz, & Newson, 2007); however numerous studies investigating the effects of social skills training, and a recent meta-analysis of studies published between 1986 and 2005 (Bellini, Peters, Benner, & Hopf, 2007), have found that school-based social skills training interventions are minimally effective in addressing the social-communication skills difficulties of children with ASD (Brunner & Seung, 2009). Classroom-based interventions such as TEACCH and Project DATA, unfortunately, have not been found to be efficacious (Brunner & Seung, 2009). The literature regarding efficacious and effective evidence-based interventions for children with ASD is plagued by methodological confounds and numerous inconsistencies making it difficult to generalize across populations.
Currently, social skills training is often suggested as an important therapy adjunct for elementary school-aged children with high-functioning autism, in an effort to promote better peer interactions and possible friendships. This may help some children with ASD if they need to acquire the skills, in other words, if it is a skill deficit for them; however, after an extensive review of the literature, Rao, Beidel, and Murray (2008) found that social skills interventions, while the intent is good, have minimal empirical support. The children frequently fail to use the skills that they have been taught in contrived settings (such as a group setting at school) during actual live social situations with peers at their school or during get-togethers with peers at their homes. The training that the children received in various interventions aimed at teaching them correct social skills has not been generalizing to other settings. Children with autism have long been known to have difficulty generalizing learned information from one setting to another, particularly when in an actual, live social situation.

Due to the many ineffective interventions that have emerged for autism and the difficulty of intervening in the disorder, guidelines for autism treatment research have been established, and the following are some of the recommendations made (Gresham, Beebe-Frankenberger, & MacMillan, 1999):

1. Research studies should use experimental designs that compare treatment approaches.
2. Experimental designs should include random assignment to treatment conditions.
3. Standard treatment protocols should be used in both laboratory and naturalistic settings. The purpose is to establish not only if a treatment is efficacious but also if it is effective.
4. Outside evaluators not invested in the outcomes of research should be used.
5. Procedural integrity should be established to ensure that treatment is completed as planned (i.e. treatment integrity and treatment fidelity).
6. Longitudinal designs should be used to ascertain immediate, middle range, and long-term treatment effects.

These recommendations parallel those made in 1998 by Lonigan, Elber, and Johnson who wrote an article entitled ‘Empirically supported interventions for children: An overview’ which detailed the Clinical Child and Pediatric Psychology sections of Division 12 of the American Psychological Association (APA) task force that provided guidelines for evaluating efficacy research on five childhood disorders: depression, anxiety disorders, attention deficit/hyperactivity disorder, conduct disorder and autism. The task force was originally formed under the chairmanship of Dr. Diane Chambless (Chambless & Hollon, 1998), to detail specific research practices that could be used to establish efficacy in psychological interventions to establish a more secure scientific basis for applied psychological interventions, help manage costs, and improve accountability in practitioners (Pugh, 2010). Until fairly recently (e.g. Kasari et al., 2006), no comprehensive treatment outcome study met the criteria for being considered as an efficacious treatment for autism as is set forth by the APA Division 12 Task Force. Thus, it had become very important for well-established and efficacious treatments for autism to be developed, and for treatment researchers to be mindful of APA Division 12 Task Force guidelines.

There have been two treatment studies conducted at UCLA over the last five years that have been subjected to the rigorous criteria put forth by Division 12 of the APA. Both treatment studies used randomized controlled trials (RCTs). Results from the Wood, Drahota, Sze, Har, and colleagues (2009) randomized controlled trial of cognitive behavioral therapy suggested that it was probably efficacious as a treatment for anxiety disorders, as well as two core symptom areas of autism: social-emotional reciprocity and poor adaptive behavior skills (Drahota, Wood, Sze, & Van Dyke, 2010; Wood, Drahota, Sze, Van Dyke et al., 2009). Additional treatment
studies that were conducted using cognitive behavioral therapy to treat anxiety in high-functioning children and youth with autism replicated results obtained by Wood, Drahota, Sze, Har, and colleagues, (2009) showing CBT to be an *efficacious* treatment for those affected by ASD (e.g. Fujii et al., 2013; Storch, Arnold et al., 2013; Storch, Larson et al., 2013).

As researchers continue to investigate and refine treatments for children with ASD, evidence-based treatments such as cognitive behavioral therapy (CBT) will need to be more widely disseminated into the community such as public schools or community-based therapy clinics. Sometimes resistance to the use of evidence-based mental health treatments, such as cognitive behavioral therapy, may be encountered within the public schools for a variety of reasons. For example, research by Kataoka, Rowan, and Hoagwood (2009) found that one difficulty in the implementation of wider dissemination of evidence-based services such as cognitive behavioral therapy (CBT) in the schools is funding. Most of the funding comes from the federal IDEA funds, state special education funds, local funds, general funds, and NCLB. In their review of the literature, the authors found that a lack of funding was a major barrier to provision of mental health services such as cognitive behavioral therapy. Unfortunately priorities at school-site tend to focus on academic improvement and achievement, and administrators may not be aware or supportive of third-party reimbursement that may be available in addition to federal funds from the Individuals with Disabilities Education Act (IDEA) and NCLB and state and local governments such as funding that may be provided by insurance companies (if the families have insurance). The authors also discussed an additional barrier of collection of monies due to a school district from the many different funding sources.

Speech and language therapy (communication) is another service that is included as “related services” under federal IDEA law, and is impacted by the need for evidence-based treatments is one that affects one of the core deficits of autism spectrum disorders;
communication. Communication training has been provided at school-site by speech-language pathologists, in mostly pull-out small group settings. This type of service may also suffer the same results as pull-out social skills training: the results may not generalize to real-life situations such as on the playground or on a playdate because the child hasn’t actually practiced the skills in those settings. In a systematic review of different service delivery models on communication outcomes for elementary school-aged children, Cirrin, Schooling, Nelson, Diehl, Flynn, Staskowski, et al. (2010) found only 5 studies over the last 30 years that met criteria for the following experimental designs: randomized clinical trial, nonrandomized comparison study, and single-subject design. Findings gleaned from the review included that the effectiveness of classroom-based direct services can be as effective as pullout sessions for some intervention goals, and that highly trained assistants using a manual prepared by an SLP for guidance on intervention can provide services to some children. One of the studies reviewed showed that team teaching by a classroom teacher and SLP led to larger acquisition of vocabulary in preschoolers. More evidence-based research is needed in the speech and language, communication field.

**Description of Cognitive Behavioral Therapy.** Cognitive behavioral therapy (CBT) is now considered to be an efficacious treatment for children with autism spectrum disorder. It focuses on four treatment domains: 1) emotion education (i.e. identifying physical sensations of anxiety); 2) cognitive restructuring of negative schemata (i.e. recognizing and identifying negative thoughts that accompany anxiety in a particular context such as giving a speech in front of others); 3) the generation of new positive schemata to compete with previously learned negative schemata; and 4) the accompanying graduated exposures to fearful stimuli (e.g. dogs, separation from parent, potential peer laughing) in an effort to habituate (i.e. make the individual less responsive) to the previously feared situations (Brewin, 2006).
The UCLA BIACA Project. The data from the randomized controlled trial of cognitive behavioral therapy by Wood, Drahota, Sze, Har, and colleagues (2009) will be used to extract child and parent verbalizations and behaviors for the proposed dissertation. The original RCT was named Behavioral Interventions for Anxiety in Children with Autism (BIACA), and it involved using modular cognitive behavioral therapy (Chorpita et al., 2004) to address anxiety disorders, social initiations, friendships, self-help skills, repetitive behaviors, and parent-child communication behaviors across sixteen weeks of weekly 90-minute individual CBT treatment sessions. A treatment manual was developed by Wood and colleagues (2007) and was used by therapists to ensure fidelity of treatment. The manual was modified for children with ASD and originally came from the Building Confidence manual by Wood and McLeod (2008) that addressed anxiety in typically developing elementary school-aged children who had anxiety. The Wood and McLeod (2008) manual was further enhanced to address children with autism spectrum disorders (Wood et al., 2007) by including modules on rewards and privileges to encourage participation and motivation, develop mutual goal setting between parent and child, independent performance of self-help skills, school site visits to encourage generalization of newly learned skills across environments, homework assignments to encourage generalization of newly learned skills, playdates to encourage friendship development, and mentoring by the child with autism spectrum disorder to encourage the development of perspective-taking, as well as improve self-confidence. The manual also included components of psycho-education to inform the parents about parental behavior that can contribute to the maintenance of maladaptive anxious behaviors as well as descriptions of behavioral patterns that make up core autism symptoms.

Results from the original RCT, the Wood, Drahota, Sze, Har, and colleagues (2009) BIACA study, indicated that 78.5% of the CBT group met the Clinical Global Impressions-
Improvement scale (CGI-I; Guy, 1976) criteria for positive response at post-treatment. This scale is used by an independent evaluator to assess improvement in anxiety symptoms by comparing pre-treatment scores with post-treatment scores taken from an anxiety diagnostic semi-structured interview, the Anxiety Diagnostic Interview Scale (ADIS C/P; Silverman & Albano, 1996). Children who received a rating of 1, 2, or 3 (completely recovered, very much better, or much better) by an independent evaluator on the post-treatment assessment using the ADIS C/P (Silverman & Albano, 1996), a semi-structured diagnostic interview for childhood anxiety disorders for parents and children with favorable psychometric properties (e.g. Wood, Piacentini, Bergman, McCracken, & Barrios, 2002) were considered to be treatment responders in the randomized controlled trial (Wood, Drahota, Sze, Har, et al., 2009). Additional studies using the Wood and colleagues (2007) unpublished treatment manual of the BIACA cognitive behavioral treatment program during the randomized controlled trial (Wood, Drahota, Sze, Har et al., 2009) suggested that children with autism spectrum disorders showed significant reductions in total parent-reported autism symptoms (Wood, Drahota, Sze, Van Dyke et al., 2009) as well as significant improvements in the independent performance of daily living skills (Drahota et al., 2011). For example, in the study by Wood, Drahota, Sze, Van Dyke, and colleagues (2009), the Social Responsiveness Scale (Constantino & Gruber, 2005), was used to determine the effects of the treatment on overall social responsiveness, as well as by individual subscales. Subscales measuring Social Communication, Social Motivation, and Social Awareness found the CBT group to be significantly improved compared to a waitlist control group per parent report ($p < .05$). This was recently replicated by Storch and colleagues (2013).

The children also showed significant improvements in their independent performance of daily living skills (Drahota et al., 2011) which are developmentally appropriate practical skills related to caring for personal needs such as toileting, bathing, and dressing; family daily living
skills consisting of skills such as putting homework in backpack or making one’s lunch, and community skills, such as knowing it is unsafe to accept rides from a stranger. The parent-report instrument used to collect this data was the Vineland Adaptive Behavior Scales (VABS; Sparrow, Balla, & Cicchetti, 1984). Children in the immediate treatment group improved their age equivalent years by almost one full year, beginning at age equivalent of 4.1 years and moving to age 5.0 years (Drahota et al., 2011). Additionally, correlational analyses suggested that there was an association between clinician-rated anxiety severity score change at the end of treatment, parent-reported independent daily living skills and parental intrusiveness at the end of treatment (Drahota et al., 2011), suggesting that parent communication styles may have changed to encourage more autonomous performance of difficult tasks by the children, thereby decreasing anxiety, as is suggested by the Wood (2006) parental intrusiveness model.

Use of Child, Parent, and Therapist Discourse for Mixed Methods Research

For the proposed dissertation, the author will be using the data (transcripts) of child and parent discourse taken from the Wood, Drahota, Sze, Har, and colleagues (2009), randomized controlled trial of cognitive behavioral therapy (CBT) that was used to treat anxiety, social and daily living skills maladaptive behaviors in children with autism spectrum disorders, with mixed methods research to investigate the therapeutic process and outcome across sixteen weeks of cognitive behavioral therapy. To date there has not been a mixed methods research study across time using child and parent discourse to study the therapeutic process and outcomes of cognitive behavioral therapy for children with autism spectrum disorders and anxiety.

While mixed methods research has been suggested as a third type of research that can be used to study complex human phenomenon (Tillman, Clemence, & Stevens, 2011) and integrate findings from the use of quantitative and qualitative methods together (Lieber & Weisner, 2011), it has not been used to investigate the therapeutic process and treatment outcomes with evidence-
based autism treatments, such as cognitive behavioral therapy. It has been suggested that mixed methods research may be useful in studies of complex human behavior such as psychopathology (Tillman et al., 2011); family psychology (Weisner & Fiese, 2011); and students receiving special education services. Using mixed methods research to study children with autism in specific treatments may further inform educators and other service delivery personnel of the potential of such treatments.

Mixed methods research seems to be particularly well-suited to study the change process across time during cognitive behavioral therapy treatment for anxiety and core autism symptomatology in children with autism (Wood, Drahota, Sze, Har, et al., 2009). There has been a long history of research supporting treatment process research (e.g. Woolley, Butler, & Wampler, 2000) in psychotherapy, with process research being concerned with interactional sequences between clients and therapists recognizing that the content of the therapy is embedded within the client-therapist interactions. These are the types of interactions that occurred during the sixteen-week CBT treatment conducted by Wood, Drahota, Sze, Har, and colleagues (2009) as well, and investigating client-therapist interactions using process research and mixed methods analysis may prove to be especially informative for treatment modifications and the continuing development of autism theory.

**Identifying Treatment Foci for the Mixed Method Analyses**

The narrow goal of this study is to develop a mixed-method analysis of treatment outcome in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial; however the broader goal of the study is to develop a more comprehensive mixed-method coding system that could be used to assess a variety of different autism treatments for school-aged children. A broad area of treatment targets were therefore considered for the coding system, not just anxiety. Specifically there are five domains of treatment targets: 1.) anxiety and related emotional states, 2.) self-help
skills mastery, 3.) core autism symptoms, 4.) child coping strategies, and 5.) parent-child interactions, that are of interest for the mixed-methods assessment. In the following sections, a brief review of these five domains and their intersection with and relevance to ASD is provided. In the Method section, procedures for developing mixed-method assessment of each of these areas in the context of child, parent, therapist discourse during intervention is discussed in detail.

**Anxiety and related emotional states in children with ASD.** Fear can be an overwhelming daily experience for children with autism (e.g. Bellini, 2004), and it has been found that there is an increased incidence of comorbid psychiatric disorders (e.g. anxiety, depression) in populations of children with high-functioning autism (Brereton et al., 2006; Ghaziuddin, 2002; Gillott et al., 2001; Leyfer et al., 2006; Muris et al., 1998; Sukhodolsky et al., 2008; Weisbrot et al., 2005). Anxiety disorders and fear can contribute further to the impairments already experienced by children with autism (Bellini, 2004; 2006).

Wood and Gadow (2010) suggest that anxiety may actually play a stronger role in the social avoidance often exhibited by high-functioning children with ASD than was previously suspected. Anxiety is characterized by physical symptoms such as a racing heart, headache, nausea, trembling, and shivering; and also the presence of negative thoughts that accompany the fear such as “I’m going to be hurt or die”; “I can’t do it and never will be able to do it”; “they’re going to laugh at me”; “I’m going to get sick”; “my friends will desert me,” “if I’m late to school, I’ll get an F and never get into college.” These negative self-statements tend to spiral and get worse each time the child avoids a situation that previously sparked excessive anxiety which leads to further catastrophic thoughts and avoidance of the feared situation in the future. Kendall and Treadwell (2007) found that anxious self-statements made by typically developing anxious youth (i.e. ages 9 through 13 years-old) predicted anxiety in youth with anxiety disorders, and that continued anxious self-statements are partial mediators of treatment gains.
In the Wood and Gadow (2010) hypothetical model of anxiety development in children with ASD, it is suggested that children with ASD encounter daily stressors from having ASD such as trying to fit in with what the social norms are at a particular point and place in time such as in the classroom or on the playground. When the child demonstrates an inappropriate behavior or comment, he/she may become the object of ridicule and embarrassment, leading to an avoidance of the social situation in the future. The effects of this are that the child avoids similar situations leading to increased withdrawal and avoidance, with the subsequent consequence of decreased opportunities to try and learn new ways of interacting with peers. To try to cope with the increased anxiety, a child with ASD may engage in repetitive behaviors, exacerbating further peer rejection. Hesitancy in initiating social-communicative interactions or the use of repetitive behaviors may thus be related to levels of anxiety in children with ASD. Both of these constructs will be coded using the proposed behavioral observation system.

**Negative self-statements.** Content specific “thought lists” have been used to investigate anxious thoughts in typically developing children, and it has been found that anxious children’s self-statements reflect themes of preoccupation (of the supposed potential threat), anticipation of the future negative outcome from the perceived threat, and negative self-evaluation after failure to handle or cope with the perceived threat (Fox, Houston, & Pitner, 1983; Kendall & Treadwell, 2007; Prins & Hanewald, 1997). In the proposed coding manual, the author will be investigating the extent to which children with high-functioning autism and anxiety disorders display negative self-statements that reflect feelings of fear of harm, fear of negative peer evaluation, self-deprecation, and worries across time, and as well as possible mechanisms of change such as cognitive restructuring of negative thoughts to positive self-statements about their improved ability to cope.
Perfectionism. In the proposed dissertation the author will be investigating the role of perfectionism in children with autism spectrum disorders and anxiety. Shafran, Cooper, & Fairburn (2002) described perfectionism as an over-dependence or reliance on self-evaluations based upon excessive, personally demanding standards, despite the fact that one may not personally be able to meet those standards. Perfectionistic beliefs have been found to correlate with anxiety and depression in typically developing children (Sherry, Hewitt, Flett, Gordon, & Harvey, 2003), and perfectionistic self-presentation is associated with psychological distress. Perfectionism in generalized anxiety disorder (GAD) is said to occur when a child worries excessively about negative events that might happen in the future. Many of the children with ASD in the Wood, Drahota, Sze, Har, and colleagues (2009) RCT had comorbid GAD. Worrying about making mistakes on homework or being late is common in this population as well, and is part of the GAD constellation of symptoms related to perfectionism. Using the proposed observational system to assess the extent of perfectionism present in children with ASD at the beginning and end of treatment may inform treatment researchers of possible additional targets in future CBT treatment, such as cognitive flexibility. Perhaps targeting the improvement of cognitive flexibility in future treatments may help to decrease rigidity in the ASD child.

Shame and stigma. Shame and stigma are anxiety-related feelings that are also of interest and will be assessed using the proposed observational system. In one of the therapy audiotapes from the published Wood and colleagues (2009) randomized controlled trial, a child was noted to have some unusual dialogue with his therapist. The therapist was attempting to highlight the reasons for doing the difficult exposures to anxiety-provoking situations. The child did not want to do the assigned in-vivo exposure because it was very anxiety-provoking for feelings of embarrassment. The child responded by avoidance and aggression, and shouted at the therapist,
“I don’t have that anymore!!” and “I don’t need your help!!” The child’s comments suggest that even at the age of nine years-old, he already recognized the stigma associated with having an “invisible” disability such as autism spectrum disorder, as well as the stigma associated with having a “psychological” or mental health illness. He did not want to be seen as “different”, and he appeared to be starting the process of hiding the disability, particularly to a professional in the mental health field. Hinshaw and Cicchetti (2000) and Lefly (1989) stated that symptoms of many childhood disorders such as autism spectrum disorder and ADHD single them out from their peers and cause problems in encounters with adults, leading to loneliness and isolation, and this has been found to similarly affect their families as well. Furthermore, though helpful for attempting to access services, the medical-model of labeling disability and mental illness doesn’t always encourage compassion. The individual may be viewed as flawed or become particularly vulnerable to self-blame for the disorders (Corrigan & Miller, 2004; Goffman, 1963).

Shame is a powerful negative emotion used by society to conform an individual’s behaviors to those of the culture around him or her (e.g. Apsler, 1975; Goffman, 1956; Modigliani, 1971; Parker & Thomas, 2009). Shame refers to the role of the self in a particular situation; and not the action itself, which is the focus of guilt. Shame is a more global, pervasive feeling of being inherently faulty. There is a cognitive self-awareness that focuses on shame, but not guilt (Parker & Thomas, 2009). Lewis (1971) defined differences between shame and guilt in the area of cognitive, affective, and motivational differences. With shame, the person is pronouncing judgment on the self. Perhaps as treatment evolved across time with the high-functioning children with autism in the Wood, Drahota, Sze, Har, and colleagues (2009) randomized controlled trial, they become more self-aware, and then perhaps a sense of shame began to occur for some when recognition of being and acting differently than their peers was
realized. Meyer, Mundy, Van Hecke, and Durocher (2006) suggest that awareness of being
different may exacerbate anxiety in children and youth with autism spectrum disorder.

The stigma that may be associated with disabilities has been described by adults with
disabilities and mental health issues (e.g. Martin, 2010; Stanley, Ridley, Harris, & Manthorpe,
2011; Watson, 2002). For example, Watson (2002) conducted qualitative research with 28
people, 14 men and 14 women, all of whom had disabilities. One of the themes found by Watson
(2002) was that people with disabilities displayed “rejection of impairment in the construction of
a self-identity”. Perhaps, as a child becomes more aware of stigma associated with disability and
subsequent shame, he begins to forge a new identity of the self, by first moving from the
negative emotion of shame (global, pervasive sense of the faulty self) to guilt (sense that one did
wrong or bad actions which is amenable to change), which would mean that he has control over
actions that deem him different from others, and is not inherently “bad.” When this occurs, he
rejects the label of “impairment.” In their qualitative study of 60 practitioners and students in the
human professions (e.g. social work and nursing) in the United Kingdom, Stanley and colleagues
(2011) found that people with disabilities did a very careful balancing between the risks of
disclosing their disability and seeking supports to enable them to be successful while in school,
as well as a struggle to protect and maintain a positive sense of the self. These were students with
“unseen” disabilities. The domain of shame and stigma has not been studied in children with
autism.

It is not clear when children with high-functioning autism may become aware of the self
or the stigma and shame associated with “disability”, particularly an “unseen” disability, or how
they begin to incorporate a label within their own sense of identity (e.g. Bruck, London, Landa &
Goodman, 2007), but this is an area that may prove fruitful for research, and is an area that will
be included in the mixed methods observational system that was developed for use in this study.
Self-Help Skills Mastery. Mastery of self-help skills, particularly personal self-help skills, has been found to be delayed in children with autism spectrum disorder (ASD). For example, Howlin, Goode, Hutton and Rutter, (2004) suggested that poor adaptive behavior skills, including personal self-help skills, leads to poorer outcomes in adults with ASD. Most adults studied in the Howlin and colleagues (2004) article did not live on their own, nor were they employed. It is therefore imperative that personal self-help skills be a target of evidence-based interventions for children with ASD. Many children with ASD have gross and fine motor skills delays, making it more difficult for them to master personal self-help skills such as washing and bathing on their own, toileting, tying their own shoes, and making their own lunches. Well-meaning families may inadvertently jump to help the child complete personal self-help tasks, forgetting to allow the child to struggle for a bit to begin to experience success on their own in order to develop a sense of mastery and positive self-appraisal (Bandura, 1987; 2001) which may lead to greater confidence and motivation to approach other difficult tasks a child may face. Success after struggling with a task becomes a motivating factor for continued exploration and attempted mastery of new challenges.

Parental over-involvement with children’s basic self-care tasks has been implicated in the maintenance of anxiety disorders in typically developing children (Wood, 2006; Drahota, Sterling, Hwang & Wood, 2013). According to Wood’s parental intrusiveness model, when a parent takes over and completes a self-care task that a child is capable of performing and that same-age peers are performing independently, they inadvertently prevent a child from struggling to learn the task and from feeling the sense of mastery that comes with completing the task themselves. This then perpetuates anxiety in the child because he or she is dependent upon the parent for tasks that they could be doing themselves. The child may develop a “learned helplessness” about a variety of novel tasks. While it is true that many children with autism have
fine motor skill delays making it more difficult to do things such as button buttons, pull zippers, snap snaps, and put on clothes, opportunities to develop these skills are thought to be imperative building blocks towards future independence.

Personal efficacy beliefs contribute significantly to levels of motivation and performance (Bandura, 2001). By allowing children to struggle some in their attempts to master basic self-care skills, caregivers can provide the child with opportunities to master challenging tasks, with the results being a child will be more likely to attempt more challenging tasks in the future. This builds confidence, which is a fundamental goal of Wood and McLeod’s (2008) Building Confidence manual developed to treat childhood anxiety disorders in typically developing children and modified to treat children with autism during the BIACA randomized controlled trial (Wood, Drahota, Sze, Har, et al., 2009). The proposed mixed-methods coding system will be used to assess this domain of functioning based on child and parent verbalizations and behavior during intervention sessions to document change and challenges over time.

**Social Communication.** This domain focuses on specific core symptoms of ASD in elementary school-aged children.

**Friendships.** There are a number of core autism symptoms that interventions for elementary school-age children attempt to address. One such symptom is a lack of friendships with peers. Friendships can provide an important buffer against the development of psychopathology such as social phobia and anxiety (Erath, Flanagan, Bierman, & Tu, 2010; Hartup & Stevens, 1997; Ladd, 1999; La Greca & Harrison, 2005). Research by Bauminger and Kasari (2000) found that many children with ASD wanted friends, but they had an underdeveloped concept of what friendship is, particularly along the lines of sharing of emotions or being someone that can provide emotional support. Rotherman, Fuller, Chamberlain, Kasari and Locke (2010) recently found that children with ASD, while generally accepted in general
education settings, are usually peripheral to the social networks of typically developing children, thus making it imperative to develop interventions to facilitate friendship development for children with ASD. Developing friendships was one target in the Wood and colleagues (2007) unpublished treatment manual, and the proposed observational system will examine the quality of child friendships using child and parent verbalizations and behaviors while working with their therapist.

**Receptive and Expressive Language (Communication).** This is one of the core deficit areas in ASD (APA, 2000). Early communication research with high-functioning children with autism (i.e. IQs above 70) have detailed social-communication deficits that the children manifest: Baltaxe (1977) identified three patterns of pragmatic deficits in language: 1) impairments in the speaker-hearer role relationship; 2) impairments in the rules of conduct governing a dialogue (i.e. the listener’s social status, how long to talk, when to give a turn to the listener, when to make a comment, when and how to change topics, how to initiate or take leave during conversation, and 3) impairments in the foregrounding and backgrounding of information (e.g. providing just the right amount of information to a listener to inform them of the characters, setting, emotions involved on a particular topic). These early identified communication deficits are also strongly related to perspective-taking and “theory of mind”, known to be an area of difficulty for those on the autism spectrum (e.g. Baron-Cohen, Leslie & Frith, 1985; Tager-Flusberg, 1991; 1992). While it has been suggested in the past that grammatical and phonological aspects of language functioning in children with high-functioning autism are not impaired (e.g. Bartak, Rutter, & Cox, 1975; Pierce & Bartolucci, 1977; Tager-Flusber, 1981); some studies have suggested that this may not be true in all cases (e.g. Minshew, Goldstein, &Siegel, 1995; Muller et al., 1999). For example, Gillon and Dodd (1993) reported that children with HFA produced lower scores on the sentence formulation subtest of the Clinical Evaluation of Language Fundamentals-Revised
(CELF-R; Semel, Wiig, & Secord, 1995). It may be possible that deficits in working memory, attention, and other executive function impairments inherent in ASD (e.g. Eack, et al., 2013), produce interference in timely sentence formulation, and anxiety may add an additional burden on an already overtaxed system. Additional symptoms of atypical communication often characterize ASD. For example, research has suggested a weakness in the understanding of nonliteral language, such as that used in humor, is present in children with high-functioning autism (Kasari & Rotherman-Fuller, 2005). Preschool children with high-functioning autism have been found to produce significantly less humor overall and less humor involving nonverbal incongruity (St. James & Tager-Flusberg, 1994). In a study that compared preschool children with autism to Down syndrome preschool children, it was found that only the children with Down syndrome produced jokes, and that even though preschoolers with autism can produce and appreciate some humor in a naturalistic setting, they did so at a significantly reduced level compared to controls (St. James & Tager-Flusberg, 1994). Humor and laughter involves engagement and sharing of a positive emotion with another, and this has been found to be different in children with autism (Reddy, Williams & Vaughan, 2002). Preschool children with autism have been found to display laughter in strange situations, but not towards a funny face or a socially inappropriate act (Reddy et al., 2002). Additionally, children with autism were found to rarely attempt joining in another’s laughter, and they displayed higher frequencies of unshared laughter in interactive situations, as well as lower frequencies of smiles in response to another’s laughter (Reddy et al., 2002).

To date there has not been an observational coding system used to assess communication abilities, specifically pragmatics, (i.e. the use of language in social contexts for a variety of reasons), in high-functioning children with ASD that uses extensiveness rating scales to document change in communication abilities over time as an outcome measure. In the past,
researchers have put great effort into trying to define pragmatic language deficits underlying communication abilities in high-functioning children with autism. For example, pragmatic rating scales were developed to document and define the pragmatic language deficits in children with high-functioning autism (e.g. Lam & Yeung, 2012; Landa, Piven, Wzorek, Gayle, Chase, & Folstein, 1992; de Villiers, Fine, Ginsberg, Vaccarella, & Szatmari, 2007), however, the various developed tools have not been used to measure communication change over time as a treatment outcome. The proposed observational coding system will assess child social communication (pragmatics) and parent-child communication across time to document changes in communication abilities, particularly as they relate to social interactions with peers and friends, and between parent and child.

*Understanding and Expression of Emotion.* Emotion understanding and expression is affected in children with high-functioning autism (Capps, Yurmiya, & Sigman, 1992; Heerey, Keltner, & Capps, 2003; Kasari, Sigman, Mundy, & Yirmiya, 1990; Losh & Capps, 2006; Sigman, Kasari, Kwon, & Yirmaya, 1992). Children with autism have difficulty recognizing and processing emotions in themselves and in others (e.g. Heery et al., 2003; Hill, Bertoz & Frith, 2004), and they have been found to have joint attention deficits that are associated with disturbances in affective sharing (Kasari et al., 1990). They have been found to be less responsive to hurts and fears of others as well as display less facial affect in these situations (Sigman et al., 1992). Children with ASD have more difficulty talking about socially derived emotions such as *pride* and *embarrassment*; resulting in the need for additional time and prompting from more experienced communication partners in order to express these complex emotions; as well as displaying a limited understanding of the importance of an audience in embarrassing situations (Heery et al., 2003).
Losh and Capps (2006) investigated emotional understanding using a procedure adapted from Seidner, Stipek, and Feshbach (1988) in which a list of simple emotions (happy, sad, angry, afraid, and disgusted); complex emotions (curious, disappointed, and surprised); complex, self-conscious emotions (proud, embarrassed, guilty, and ashamed); and two non-emotion words (tired and sick), were presented in random order. The children were asked for definitions as well as a description of a time when they felt these emotions. The children with autism were found to have less coherent descriptions of their emotional experiences, and they were less likely to organize their descriptions in a personal causal-explanatory framework compared to typically developing children. The ability to understand emotions in self and in others, and to express them verbally, particularly those related to anxiety, will be assessed as a part of a child’s communication ability in the proposed observational coding system. The ability to tell a short narrative involving emotion will also be assessed using the developed observational system.

Difficulties with self-awareness when telling personal narratives. Telling their own personal narratives by inserting the “self” into a narrative has also been found to be challenging for children, adolescents and adults with autism (Capps, Kehres, & Sigman, 1998; Lee & Hobson, 1998; Millward, Powell, Messer, & Jordan, 2000), suggesting a difficulty with the concept of “self” vs. “other”. Lee and Hobson (1998) suggested that children with autism displayed deficiencies in specific “global” aspects of self-awareness in that they were less likely to view themselves in the context of their relationships and interactions with other people. Capps, Kehres, & Sigman (1998) researched conversational abilities in high-functioning children with autism and found that the children were willing to engage in conversation with another person (adult), were able to produce sustained dialogue, but they failed to respond to comments and questions more often than children with developmental delay, and they less often produced relevant, novel additions to the topic of conversation. The children with autism were also found
to produce fewer narratives of personal experience. The children in the Capps and colleagues study (1998) were found to use developmentally primitive ways to continue conversation such as repetition, routinized scripts, often odd scripts (e.g. parts of movies), and other idiosyncratic, non-contingent remarks. The children demonstrated little co-construction of a shared topic of conversation and the way the conversation was heading. This was found in the research of Sigman and Capps (1997) that persons with autism have a limited ability to build a shared understanding of experiences and events.

Crane, Goddard, and Pring (2010) recently investigated self-defining and everyday autobiographical memories of adults with ASD and typically developing controls. The authors found that both groups were able to distinguish between the types of memories, but people with ASD were less able to extract meaning from their memories, suggesting difficulty with updating the “self” using past experiences. Observations of a child’s ability to spontaneously share a personal narrative will be assessed with the newly developed observational system.

*Other verbal behaviors*. An additional communication intervention that has been showing promise in facilitating on-topic responses and initiations in children with autism spectrum disorder with peers, involves teaching social and cognitive reasons for using language (i.e. the reasons for the use of language called pragmatics). Crooke, Hendrix, and Rachman (2008) conducted a large, single-subject design, multiple baseline study in which the effectiveness of teaching a social cognitive approach to six males with high-functioning autism spectrum disorder was investigated. Results indicated that significant changes occurred in the unexpected verbal behaviors, expected verbal behaviors, initiations of conversation, and listening and thinking with the eyes.

The proposed observational system will attempt to measure the extent to which initiations, expected verbal response to another, unexpected verbal response to another, and
“expansions” (defined as an increase in sentence length as well as the addition of relevant information about the topic that is being discussed), are present during therapy sessions. It is hypothesized that by using the Wood and Gadow (2010) model of anxiety and autism, it may be suggested that anxiety interferes with a child’s ability to respond, initiate and elaborate on another’s topic of conversation.

Child Self-Perception (Coping and Confidence). Researchers have been striving to understand coping in typically developing children during stressful situations for a number of years (e.g. Heckhausen & Schulz, 1995; Lazarus & Folkman, 1984; Rothbaum, Weisz, & Snyder, 1982; Weisz, Rothbaum, & Blackburn, 1984). For example Lazarus and Folkman (1984) have defined successful coping as “the ability to continuously adjust cognitive and behavioral efforts in order to manage demands that are appraised as taxing a person’s resources,” (p. 10). Heckhausen and Schulz (1995) introduced the term ‘primary control strategy’ to refer to “behaviors directed at the external environment and involves attempts to change the world to fit the needs and desires of the individual,” (p. 284.) Heckhausen and Schulz (1995) further defined the term ‘secondary control’, which is targeted at internal processes and serves to minimize losses in, maintain, and expand existing levels of primary control,” (p.284).

Primary control strategies promote a sense of self-efficacy (Bandura, 1982; Heckhausen & Schulz, 1995). When a person is not able to attain the desired goal, primary coping is not adaptive, and secondary coping must be employed. Secondary control strategies involve “processes that are primarily cognitive” (p. 285). If an individual persists in trying to control the environment during an uncontrollable event, he or she is more likely to develop feelings of low self-efficacy (Bandura, 1982; Heckhausen & Schulz, 1995). Secondary coping strategies are more beneficial in uncontrollable situations. Secondary coping strategies facilitate emotional
recovery from a failure to attain a goal, and they can preserve a child’s sense of self-efficacy (Babb, Levin, & Arseneault, 2010).

Research that has investigated children’s social relationships and emotion regulation strategies has suggested that the use of positive coping skills are associated with positive social outcomes (e.g. Compas, Banez, Malcarne, & Worsham, 1991; Hubbard & Coie, 1994; Kalpidou, Power, Cherry, & Gottfried, 2004; Kopp, 1989; McDowell, O’Neil, & Parke, 2000; Mize & Cox, 1990; Saarni, 1999). Being flexible through stressful situations is considered to be a hallmark of adaptive coping abilities (Babb et al., 2010; Compas, Worsham & Ey, 1992; Lazarus & Folkman, 1984) and is associated with social competence (Eisenberg & Fabes, 1992; Halberstadt, Denham & Dunsmore, 2001; Saarni, 1999). Coping inflexibility leads to problematic social functioning (Babb et al., 2010). For example, boys in the fifth grade who were rated as aggressive or isolated by their peers were found to generate fewer appropriate solutions to conflicts (Mayeux & Cillessen, 2003; Richard & Dodge, 1982). In comparison to children who scored high on social competence, same-age children who scored low applied the same primary forms of coping over time (D’Amico, 1995). They did not vary their styles of coping despite a stressful situation being uncontrollable.

Coping flexibility research by Cheng (2001, 2003) found that in successfully flexible adults, the participants with successful outcomes used a wide variety of coping strategies and the strategies used were dependent upon perceived controllability of the stressful event. The people who coped the most successfully with stressful situations used problem-focused (primary) strategies when the event was perceived to be controllable, and emotion-focused strategies (secondary) when the situation was uncontrollable. Babb et al., (2010) investigated the coping flexibility in typically developing children compared with children with ADHD. The authors found that the children with ADHD used more antisocial strategies to cope with stressful
situations, and this was accounted for by their use of a smaller repertoire of coping strategies such as dominating or re-directing the flow of social interactions. Researchers have suggested that executive dysfunction occurs quite frequently in people with autism spectrum disorders, (e.g. Eack, et al., 2013; Griffith, Pennington, Wehner, & Rogers, 1999; Hill et al., 2004; Hughes, 1996; Hughes, Russell, & Robbins, 1994; Louise, Muldoon, Hasan, O’Brien, & Stewart, 2008), which suggests that cognitive inflexibility, particularly during stressful social situations, may affect social competence in people with ASD.

Cognitive flexibility is targeted in traditional cognitive behavioral therapy (CBT) used to treat childhood anxiety disorders, as part of the treatment to help a child cope with feelings of fear by developing alternative positive thoughts to compete (e.g. Brewin, 2006) with previously developed negative thoughts experienced during an exposure to a feared event, such as giving a speech in front of others. This is called cognitive restructuring, and it is one way to cope with a potentially uncontrollable situation that one cannot avoid. There are generally two types of positive thoughts that are used in the Wood and colleagues (2007) treatment: 1) What is the likelihood of the negative event happening; 2) If it did happen, how bad would it be? For example, if a child were to make a mistake while giving an oral presentation, he would be asked to reflect about the likelihood that anyone would remember the mistake a week from now, one year from now, 10 years from now, and so on. In the proposed dissertation, the extent to which a child uses coping thoughts to enable him or her to face feared or stressful events will be assessed.

**Self-confidence and self-esteem.** Self-confidence is a component of self-esteem (Owens, 1993). Self-esteem refers to an individual’s evaluation of the self (Gresham, Elliott, & Evans-Hernandez, 1993; Rosenberg, 1979; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995), and self-confidence is defined as a “realistic confidence in one’s own judgment, ability, power, etc.” (e.g. http://www.dictionary.reference.com/browse/). For children with disabilities,
including those on the autism spectrum, the possibility of leading a successful life decreases when self-confidence and self-esteem are low; therefore self-confidence and self-esteem are critical elements for their success (Ezell & Klein-Ezell, 2003). In their book *Childhood Anxiety Disorders*, Wood and McLeod (2008) detail the use of a manualized treatment, *Building Confidence*, developed at UCLA, for typically developing children with anxiety disorders. A core component of the manual is allowing the child to participate and perform personal self-help skills to provide a sense of mastery and confidence. Research has shown that building a sense of mastery from accomplishing a difficult task improves self-confidence. For example, research by Ezell and Klein-Ezell (2003) in which children with disabilities were taught magic tricks to perform in front of their class, significantly boosted their self-image. Twenty-six children were involved from both elementary and middle schools, with various diagnoses. *The Student Self-Concept Scale* (SSCS; Gresham, Elliott, & Evans-Fernandez, 1993) was used at pre- (beginning of school semester) and post -treatment (end of school semester) to determine students’ self-esteem and self-confidence. University college students were responsible for training the students at least one magic trick that they could perform in front of the class. Significant differences were found between pre- and post-test scores of the *Self-Image* dimension of the Self-Confidence domain on the SSCS (t (25) = -13.992, p < .001). Child magicians in the study were taught secret moves that were only known to them. This experience provided a large boost to self-esteem and self-confidence of the children and youth with developmental disabilities.

Children in the study were provided with many opportunities that resulted in successful experiences, one small step at a time. Bunker (1991) states that “children acquire self-confidence and self-esteem as a result of successful experiences,” (p. 467). This is the concept behind the *Building Confidence* treatment manual that was modified for use with children with high-functioning autism (Wood et al., 2007) in the original randomized controlled trial of cognitive
behavioral therapy (Wood, Drahota, Sze, Har, et al., 2009). In the proposed therapy process observation system, child verbalizations and behaviors will be analyzed for the presence of self-confident statements in therapy sessions.

**Parent-Child Verbal Interactions.** Research has suggested that a parent communication style involving control, criticism, and insensitivity significantly predicts poorer outcomes during treatment for anxiety disorders (Capps, Sigman, Sena, Henkar, & Whalen, 1996; Lieb, et al., 2000; Spokas & Heimberg, 2009; Whaley, Pinto, & Sigman, 1999; Wood, 2006); Wood, Kiff, Jacobs, Ifekwunigwe & Piacentini, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In a study that assessed parent-child communication interactions, Whaley et al., (1999) found that maternal behaviors that were exhibited during interactions with their anxious children predicted child anxiety. Mothers who were less warm and positive in their interactions with their children granted less autonomy, were more critical, and more catastrophizing than mothers of control children. In the proposed dissertation, the newly developed observational system will assess parental communication style to determine the presence of negative and positive styles.

**Justification for Use of Mixed Methods Research with Child and Parent Discourse**

The use of a randomized controlled trial (Wood, Drahota, Sze, Har et al., 2009), with quantitative research methods applied to data collected from parent-report instruments that were used to investigate the complex phenomenon of autism and comorbid anxiety disorders in a tightly controlled environment, would be additionally enhanced by further investigation using mixed methods research. It may be possible to further define potential causes of treatment success and failures using mixed methods research. A limitation to using parent-report results only is that there may have been the expectation by the participants that the treatment will work, which can create a type of “halo” effect, thereby inflating the results. Another difficulty with
attempting to use self-report measures with this population of children is that the children may not be accurate reporters of their own emotions with respect to identifying the feelings of anxiety or fear, and this may also be due to language processing difficulties inherent with ASD (Hill et al., 2004; Hale & Tager-Flusberg, 2003). Using parent-report instruments and quantitative methods to report results from the original RCT (Wood, Drahota, Sze, Har et al., 2009), researchers were not able to fully investigate possible reasons that some children did not respond to treatment. Using mixed methods research applied to child and parent discourse with their therapist across time, the proposed observational system may provide information on possible causes for non-responders thereby enabling potential enhancements to future modifications of the CBT treatment (Wood et al., 2007).

Qualitative researchers answer “why” and “how” questions regarding complex processes, such as the processes that a family goes through when treating co-occurring anxiety and autism spectrum disorders. Understanding why, how and in which contexts the CBT intervention developed by Wood and colleagues (2007) works the best, may lead to better outcomes in those who did not respond well. Qualitative research can be used to develop new theory grounded in the data (Glasser & Strauss, 1967) or to inform existing theory. Perhaps hesitation to interact with peers may not be due to social skills deficits (Rao et al., 2008), but instead be more closely related to previous bad experiences with peer interactions (Wood & Gadow, 2010) due to social awkwardness, immature behavior or interests, or even perhaps fear of being “found out” as a person with a disability with associated shame, stigma and demoralization that occurs to the person and also to their parents (Brown, Borden, Clingerman & Jenkins, 1988; Cavelti, Kvrgiz, Beck, Rusch & Vauth, 2012; Link, Mirotznik & Cullen, 1991; Wood & Gadow, 2010). Understanding the complex processes may help treatment researchers to develop additional
modifications to the CBT (Wood et al., 2007) to enhance its generalizability and transportability to other contexts in addition to university settings.

**Description of mixed methods research.** Mixed-methods research is an attempt by researchers to blend two methods of inquiry, quantitative and qualitative together, with the idea of capitalizing on the strengths of each research approach. It is referred to as the third wave or third research movement (Johnson & Onwuegbuzie, 2004; Tillman et al., 2011). Recently researchers have stated that using quantitative research for educational research is a good start to evaluate proposed causal effects of treatments aimed at improving teaching and learning in the classroom; but quantitative research alone is not sufficient to determine what works (Raudenbush, 2002). When the *No Child Left Behind Act* was enacted by the U.S. Congress in 2001, it was challenged by educational researchers because the definition for “scientifically-based research” was limited to randomized field trials using quantitative methods. For example, Chatterji (2007) suggested that “context” is very important to consider when ascertaining whether an educational intervention worked or did not work. According to Chatterji (as cited in Rudd & Johnson, 2008), “there are too many mediating and moderating variables [in education research] to state that simple or basic experimental designs are the best way to understand complex cause and effect relationships characteristic of programs implemented in educational settings” (p. 180). Mixed methods research may be a better approach to use for education research because of the complexity of today’s school environments. Schools are heterogeneous, socioeconomically, culturally and linguistically diverse, and this diversity is especially critical to acknowledge and investigate when attempting to determine which findings may be generalizable (Raudenbush, 2002). While experimental approaches using quantitative methods are good for providing which instructional methods are the most effective, qualitative methods help unravel what contextual factors may affect the success of such approaches. Mixed methods research may
better inform researchers why a particular approach works for some children but not for others, and makes one question the term “scientifically based” research which was narrowly defined by the NCLB (Chatterji, 2007; Feur, Towne, & Shavelson, 2002; Maxwell, 2012; U.S. Congress, 2001).

**Mixed methods: methodology.** Thomas Kuhn (1962) first coined the term “paradigm” as a specialized research term to mean a worldview and the various philosophical assumptions that are associated with that viewpoint (Teddlie & Tashakkori, 2006). Today “research paradigm” is used to describe a research culture including a set of beliefs, values, and assumptions that are shared by a community of researchers (Johnson & Onwuegbuzie, 2004). These include ontological beliefs and epistemological beliefs. *Ontology* refers to fundamental views about the nature of reality. Quantitative researchers are described as thinking about reality as being objective and singular, measurable. Qualitative researchers are described as thinking that reality is subjective and multiple. *Epistemology* is related to ontology and refers to views of knowledge and where it comes from, how it is acquired, and whether something can be known for certain (Klingner & Boardman, 2011).

Researchers will generally align with one of three research paradigms (Teddlie & Tashakkori, 2006):

- Positivist or post-positivist paradigm (quantitative researchers)
- Constructivist paradigm (qualitative researchers)
- Pragmatist paradigm (mixed methods researcher).

The positivist paradigm, discussed by Gee and Kraayer Von Krauss (2005), assumes that the object to be studied is independent of the researcher. Knowledge is discovered and verified through direct observation and measurement of phenomena and facts. Things are taken apart, unpackaged and studied. “Knowing” is related to statistics, probability, and confidence levels.
For example, a treatment result that is significant at the .05 alpha level means that the probability that the results of a treatment are caused by something other than the treatment is less than or equal to a 5% chance. We would be confident that the results obtained have a 95% chance of being due to the treatment. Constructivists on the other hand believe that knowledge is established through meanings attached to the phenomena studied, and the researchers are intimately involved with the phenomena being studied (i.e. the participants.) They take part in the acquisition of the data and interpret its meaning. Inquiry into why things happen affects both the researcher and the participants; and “knowledge” is time and context dependent.

Pragmatists are not really interested in an “either/or” paradigm; instead they are interested in using both methods in research to yield useful results (Klingner & Boardman, 2011). A pragmatist or mixed methods researcher thinks of different “ways of knowing” as different ways of “valuing” (Greene, 2005). In mixed methods research, the researcher actively engages with difference and diversity, and he or she is anchored in values of tolerance, acceptance, and respect, as well as multiple ways of looking at things. Mixed methods research capitalizes on the idea that when one uses only one approach to the study complex phenomena, such as using only quantitative methods, it is like one person analyzing what one part of an elephant is. This is much the same with the study of complex human behavior such as fears in children with autism in an educational setting and family setting that can be very different based upon each individual school and family’s values, culture, knowledge and experience.

The idea that randomized field trials are the gold standard for educational research has been challenged (e.g. Rudd & Johnson, 2008). For example, consider a physician’s comments made during discussions of the National Research Council’s report on educational research: “if knowledge development in polio research had had to depend only on conclusive findings from
experiments, research on polio today would consist mainly of studies of the treatment effects of the iron lung,” (Shavelson & Towne, 2003).

Using both quantitative and qualitative research design and methods concurrently will allow the integration of both quantitative and qualitative data from the child that can then be used to generalize to others similar to the child (quantitative research) as well as investigate deeply issues that are original to each individual child and family, based upon their values and beliefs within their culture (qualitative).

Gallimore and colleagues (1993) suggested that activity settings are embedded within an ecocultural framework, and they are where a child learns to use his or her cognitive and communicative functions in ways that will further nurture and develop him or her. This framework fits well with the modular cognitive behavioral therapy sessions involving a therapist and child/parent to treat anxiety and core autism symptoms developed by Wood and colleagues (2007). O’Donnell and colleagues (1993) emphasized the activity setting as a unit for analysis for community psychology, because it adds a subjective component to analysis, in addition to the objective units usually analyzed in quantitative research. Because children construct meaning in activity settings based upon ecological, cultural, interactional, and psychological features (Gallimore, Goldenberg, & Weisner, 1993), they live their lives in social relationships with their families and are affected by contexts, cultures, and larger societal systems (Bronfenbrenner, 1979). These activities involve people, rules of social engagement, apprenticeship during learning, transfer of skills to other contexts such as school and home life, and the value that participants place upon the particular activity. Thus activity settings such as the child/therapist discussions and child/parent/therapist discussions during cognitive behavioral therapy treatment of anxious children with ASD would be an ideal setting to study change in verbalizations and behaviors in both child and parent.
Lieber and Weisner (2010) suggest that the use of mixed methods research produces the highest quality research for professionals and consumers. The authors have found that the use of mixed methods produces the most effective results when the entire study is integrated across all phases including design, collection of data, analyses, results and discussion. The simultaneous collection of data using the two methods of inquiry, qualitative and quantitative, provides for the best integration of the results. The authors suggested that by using mixed methods to study complex human phenomena, researchers can gain a greater understanding of the phenomenon, triangulate results (verification of results using two or more methods) as well as provide more complete evidence from differing methodological perspectives. Both the researcher and the public can thus have greater confidence in the findings of research in cases where mixed methods are employed.

**Summary of Problem Statement**

To summarize, there are currently no studies investigating the therapeutic process and outcome during implementation of cognitive behavioral therapy (CBT) with children with high-functioning autism using child and parent verbalizations and behaviors using mixed methods research. While preliminary quantitative research has supported the efficacy of using CBT to treat anxiety in children with high-functioning autism (e.g. Chalfant, Rapee, & Carroll, 2006; Fujii, et al., 2012; Sofronoff, et al., 2005; Reaven et al., 2009; White et al., 2009; Wood, Drahota, Sze, Har, et al., 2009), these results were obtained from parent- or therapist-report instruments. To date, the verbalizations and behaviors of children with autism and their parents during CBT therapy have not been investigated to study the therapeutic process as treatment unfolds.
One key advantage of using mixed methods research is that this approach may allow treatment researchers to investigate and determine reasons that, in some families, a child failed to respond to treatment. The failures are important to address in future enhancements to the Wood and colleagues modified CBT (2007) intervention, so that non-responders to treatment may also benefit in the future. Perhaps a longer treatment time is needed or more intensive emphasis on one or more aspects of the treatment would yield better results for some families. Additionally, information provided from the use of mixed methods research may further inform theory with respect to ASD and anxiety (Storch et al., 2012; Wood & Gadow, 2010) and the role that self-awareness, stigma and shame play in a child functioning in the context of autism.

**Research Design**

The proposed dissertation will use a sequential embedded mixed methods research design (Onwuegbuzie & Teddlie, 2002; Zhang, 2012), in which the data for the qualitative portion was collected first from transcripts of audiotaped therapy sessions using thematic analysis (Braun & Clark, 2009), and the quantitative portion was conducted subsequently using a behavioral observation coding system developed by the authors based on the initial qualitative work (Van Dyke & Wood, 2011). The interpretation of the qualitative results will be used to further elaborate and contrast findings obtained from the quantitative data from the observational coding system. (See Figure 1). This design may provide convergent and divergent results to be used for comparison to results obtained and previously published from the randomized controlled trial (e.g. Wood, Drahota, Sze, Har, et al., 2009; Wood, Drahota, Sze, Van Dyke, et al., 2009; Drahota et al., 2011) that used parent-report instruments.
Figure 1 Methodological Steps of the Sequential Embedded Design (e.g. Zhang, 2012)

Phase 1
QUAN Intervention Trial -
Tx sessions recorded on audiotapes
Randomized controlled trial (Wood et al., 2009)
BIACA 16-week CBT Intervention

Phase 2
Gather data
QUAL - Read through transcripts from SSNs 2, 4, 10, 15.
Develop Themes Transcription of Audiotapes
Qualitative Research: Conduct Thematic Analysis

Phase 3
Quantitative Statistical Analyses
Repeated Measures ANOVAs
Simple Regressions

Phase 4
QUAL Results
Results: PASTOS QUAN
QUAN findings

Phase 5
BLENDING
INTERRUPT
Mix
Interpret and Inference

Qualitative and Quantitative Results Blending
Interpretation
**Research Questions**

1. Can an observational rating system of therapy process and outcome during CBT with families of children with ASD meet criteria for face validity, content validity, and inter-rater reliably?

2. Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

3. Did parent-child dyads in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

4. What indicators from the qualitative and quantitative assessments of therapy sessions in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial differed among the CBT treatment responders versus non-responders in terms of child anxiety, social-communication, and self-perception outcomes?

**Method**

**Participants**

The sample includes twenty-two elementary school-aged children who were in the immediate treatment group ($M = 9.0$ years, $SD = 2$ years) diagnosed with high functioning autism spectrum disorder (IQ above 70) and anxiety disorders living in a major metropolitan area of the Western United States. At least one primary parent responsible for overseeing the daily
activities of the child also participated. The participants were taken from the original randomized controlled trial of cognitive behavioral therapy by Wood, Drahota, Sze, Har, and colleagues (2009). The children were drawn from local hospitals and diagnostic centers for autism, parent support groups, state regional centers, community-based and private practices.

**Table 1** Demographics for immediate treatment condition group

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>77</td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td><strong>Child Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 years</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>8 years</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>9 years</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>10 years</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td>11 years</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Parent sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td><strong>Family gross annual income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 40,000</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>40,001 - 50,000</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>60,001 - 70,000</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>70,001 - 80,000</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>80,001 - 90,000</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>90,000+</td>
<td>14</td>
<td>61</td>
</tr>
<tr>
<td><strong>Child Ethnic background</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>13</td>
<td>57</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Multiracial</td>
<td>4</td>
<td>18</td>
</tr>
</tbody>
</table>

**Participant inclusion.** Participant inclusion was determined by a team consisting of the principal investigator, J.J. Wood, postdoctoral fellow, K. M. Sze, and doctoral students under supervision from the departments of Psychology and Psychological Studies in Education at
UCLA. Standardized diagnostic interviews were used with both the child and the parent, separately, to verify the presence of DSM-IV criteria for an anxiety disorder and an autism spectrum disorder. Children with intellectual disability (IQ below 70) were excluded from the study.

**Measures**

**Anxiety measures.** The anxiety disorders interview schedule for children, DSM-IV edition-child and parent versions; (ADIS IV-C/P; Silverman & Albano, 1996) is a clinician-administered semi-structured interviews used to assess the presence of anxiety and mood disorders in children and youth ages 6-18 years of age, as well as screen for disruptive behavior disorders, psychotic, and eating disorders. It is used to screen for other disorders such as dysthymia and depression. It has demonstrated good to excellent test-retest reliability (Silverman, Saavedra, & Pina, 2001) and validity (Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). The ADIS-IV-C/P is administered to both parent and child, separately, to determine the presence of an anxiety disorder. Either reporter can be used alone to determine the results.

**Clinical global impressions - improvement (CGI-I; Guy, 1976).** The CGI-I (Guy, 1976) is an improvement scale which provides a global rating of improvement in anxiety ranging from a score of 1 (completely recovered) to a 5 (no change) to an 8 (very much worse). This scale served as one of the primary outcomes for the Wood, Drahota, Sze, Har, and colleagues (2009) randomized controlled trial. Doctoral students used the CGI-I improvement scale (Guy, 1976) to ascertain improvements in severity of anxiety disorders by comparing pretreatment and post-treatment ADIS-C/P severity scores after assessment using the ADIS-IV-C/P (Silverman & Albano, 1996). The ratings were made by using a ‘feelings thermometer’ with numbers from 1 to 8 (‘1’ meaning ‘none’, ‘4’ meaning ‘some’ to ‘8’ meaning ‘severe’. The ratings were
made by parent and child reports to an independent evaluator at pre and post-treatment on the ADIS-IV-C/P. The level of improvement from pre- to post-treatment was determined using cut-off scores. Treatment responders using the CGI-I scores were as follows: CGI-I of 1, 2, or 3 (completely recovered, very much better, or much better). Those participants (child or parent) who reported CGI-I of 4 or higher were considered to be non-responders. The non-responders still qualified as having one or more anxiety disorders if they had an ADIS-C/P score of 4 and above for any of the anxiety disorders.

For the purposes of this dissertation, the immediate treatment group of participants of n = 22 were split into two groups; responders and non-responders. The responders were those participants whose CGI-I score was 1 or 2, and the non-responders were those participants who had a CGI-I score of 3 or 4. The immediate treatment group for this study was almost evenly split with twelve participants being categorized as a responder and eleven being categorized as non-responders.

Multidimensional Anxiety Scale for Children. (MASC; March, Parker, Sullivan, Stallings, & Connors, 1997(a)) is a 39-item, 4-point Likert self-report scale that demonstrates robust psychometric properties. It measures anxiety in a number of domains: (1) physical symptoms (tense/ restless and somatic/ autonomic), (2) social anxiety (humiliation, rejection, and public performance fears); (3) harm avoidance (anxious coping and perfectionism); and (4) separation anxiety. In this dissertation, parent-report data was used.

Autism measures. After consultation with Dr. Ami Klin, the randomized controlled trial by Wood, Drahota, Sze, Har, and colleagues (2009) used a published diagnostic algorithm incorporating scores from both the Autism Diagnosis Interview-Revised (ADI-R; Le Couteur, Lord & Rutter, 2003), a semi-structured interview administered to parents; and the Autism Diagnostic Observation Schedule-Module 3 (ADOS; Lord, Rutter, DiLavore & Risi, 1999), a
behavioral observation assessment administered to the child by doctoral students and doctoral-level psychologists who received appropriate training and certification in its administration. To participate in this study, children needed to surpass, at minimum, the clinical cut-score for the Social area on the ADI-R.

**Social skills measure.** The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) is an objective measure that was normed on over four thousand children. In this study the Parent form was used. Social skills are rated on a 3-point Likert scale, 0 = Never, 2 = Sometimes, 3 = Very Often. Five subdomains make up the SSRS: (1) Cooperation, (2) Assertion, (3) Responsibility, (4) Empathy, and (5) Self-Control. The SSRS has good psychometric properties.

**Self-efficacy measures.** The Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001) contains 24 items that represent three domains of self-efficacy (1) social self-efficacy which measures perceived capability for peer relationships and assertiveness; (2) academic self-efficacy which measures perceived capability to manage one own’s learning behavior, mastery of academic subjects, fulfillment of academic subjects; and (3) emotional self-efficacy that measures perceived capability of coping with negative emotions. Each item is scored on a five point scale with 1 = not at all and 5 = very well. The SEQ-C has shown good psychometric properties, and the parent-report version was used.

**Quantitative Coding system (PASTOS measure).** The Pediatric Autism Spectrum Therapy Observation System (PASTOS; Van Dyke & Wood, 2011) is a 29-item behavioral observation instrument with five subscales developed by the authors to use for coding child and parent discourse that took place over sixteen weeks of CBT treatment in the original randomized controlled trial (Wood, Drahota, Sze, Har, et al., 2009). It was developed in reference to previous therapy process instruments (e.g. McLeod, 2004; Patterson and Chamberlain, 1994) but with a focus on items pertaining to five domains: 1) anxiety and related emotional states, 2) self-
help skill mastery, 3) social communication, 4) child self-perception (child coping strategies and confidence), and 5) parent-child interactions. The scoring strategy that is used in the PASTOS (Van Dyke & Wood, 2011) was adopted from treatment integrity research (Elkin, Parloff, Hadley & Autry, 1995; Elkin, Pilkonis, Docherty & Sotsky, 1988; Hill, O’Grady & Elkin, 1992; Hogue, Liddle & Rowe, 1996; McLeod, 2004; Shapiro & Startup, 1992; Waltz, Koerner & Jacobson, 1993), and is designed to yield quantitative data that is non-subjective and specific as to how therapists carry out their therapy using manualized treatments across time. It involves extensiveness ratings from 1 to 7 with 1 = not at all, 3 = some, 5 = considerably, and 7 = extensively. In the case of the PASTOS, the extensiveness rating scale was used to measure the extent a particular child behavior or parent behavior was displayed during a therapy session. For example, if a child was particularly adept at recognizing feelings of anxiety (emotion) in self and in others during a session, an extensiveness rating of 6 or 7 was given to the items emotion and awareness of others using the PASTOS if sophisticated emotion recognition was displayed throughout the treatment session or extensively in a portion of the session.

**Therapist Participants**

There were six therapists involved with the study consisting of the principal investigator, who is a licensed clinical psychologist, a postdoctoral fellow, and four doctoral students under supervision from the departments of Psychology and Psychological Studies in Education from UCLA. Ethnicities were as follows: 3 Asian, 3 white; 2 males, and 4 females; ages ranging from 22 to 35, mean age 27. Years of experience ranged from 1 to 7 years, with the average being 3.5 years.
Coders

The coding team for the Pediatric Autism Spectrum Therapy Observation System (PASTOS; Van Dyke & Wood, 2011) consisted of one doctoral student in Psychological Studies in Education UCLA, who is also a licensed speech and language pathologist, one student with a Bachelor of Science degree in Psychology from UCLA, one student with a Master’s degree in Psychology from California State University, Northridge, two undergraduate students in Psychology from UCLA, and one undergraduate student in Psychology from Whittier College. The coders underwent extensive training with the author (described below) and met regularly to discuss findings, reach consensus and prevent coder drift.

Coder training. The coders trained over a 9-month period to reach adequate pre-study reliability (ICC > .59; Cicchetti & Sparrow, 1981). Training consisted of reading the PASTOS training manual developed by the authors (Van Dyke & Wood, 2011), listening to audiotapes, reviewing, and scoring specific sessions that had been previously scored by the author. Once adequate reliability on the PASTOS (Van Dyke & Wood, 2011) had been achieved with the author, the scoring began, with tapes being randomly assigned to the five coders with regular reliability assessments being performed every week. Percent agreement was maintained at .70. If a coder fell below .70, he or she was re-trained by the author. The results were discussed in weekly meetings to prevent rater drift (Margolin et al., 1998).

Description of the Wood and Colleagues (2007) CBT Treatment Intervention

The Wood and colleagues (2007) BIACA project used a manualized treatment based upon modular therapy (Chorpita et al., 2004; Wood et al., 2007). In modular therapy a therapist is free to address a child’s most pressing needs during treatment for as long as necessary and not necessarily in the order that a module is presented in the manual. The therapist is free to address the order in which he or she feels is most pressing and conducive to obtaining optimal results. In
choosing extensiveness ratings over a simple frequency count, researchers have found that the
exclusive use of frequency counts can misrepresent the therapeutic process and the change
process by giving a higher weight to behaviors that occurred more frequently as opposed to those
that are more meaningful to the child’s progress (Greenburg, 1986). For example, a child and
therapist may talk many times about recognizing the emotion of anxiety and using a frequency
count would capture this; however, unless the child is actually aware of this feeling in self and
employs strategies to cope which may be only mentioned one time in a therapy session, it may
not matter how many times they talk about it together.

The treatment model developed by Wood and colleagues (2007) for children with anxiety
and autism, Behavioral Interventions for Anxiety in Children with Autism (BIACA), is based
upon the Building Confidence manual originally developed for typically developing children who
suffered from childhood anxiety disorders by Wood and McLeod (2005) at UCLA. This
model of treatment is based upon Brewin’s (2006) theory of a “retrieval competition account”
which describes cognitive behavioral therapy (CBT) as the introduction of new, positive,
confident memories to compete with old memories of negative affect and fear in anxiety-
provoking situations. There is a behavioral component of gradually facing fears combined with
rewards to motivate the child to complete the small exposure to fear. Immediately after the
fearful situation, cognitive questions are asked of the child to lead them to conclude that the
feared situation was not as bad as they had originally imagined (cognitive restructuring). Facing
fears slowly, one step at a time, performing personal self-help skills independently, initiating
calls to peers for a playdate / get together, implementation of a rewards chart to encourage
motivation to complete tasks at UCLA, school, and home, are all part of the Wood and
colleagues (2007) CBT program. The acronym for teaching coping skills to a child for anxiety
prior to graduated exposures to fearful stimuli in the Wood and colleagues intervention program (2007) for children with autism is called the “K.I.C.K” plan.

The K.I.C.K. plan begins with “Knowing I’m Nervous or Scared”; teaching a child recognition of basic feelings in the child’s own words of the physical symptoms of anxiety or fear such as pounding heart, shortness of breath, nausea, etc. Next a child is taught to self-monitor the negative or “icky” thoughts that accompany the anxiety such as “I’m going to fail”, “they will laugh at me”, “my mom will die in a car crash”, etc. The “C” stands for “calm thoughts” which are positive statements used to cope with the feeling of anxiety and the negative or “icky” thoughts that occur, such as “if they laugh, so what? No one will remember this a year from now.” Or “my mother is an excellent driver and always wears her safety belt. The chances of her dying in a car crash are very small.” The calm thoughts are used to restructure the negative thoughts present in an anxiety disorder. By repeated gradual exposures to the feared situation combined with stating the positive, new calm thought over and over, the brain will develop these new responses to a previously feared situation. The new thought and behavior will be more potent than the previous negative thought and behavior, thereby replacing them in the feared situation. The final letter of the K.I.C.K. plan is “keep practicing” and this refers to the behavioral part of the treatment in which the child repeatedly goes through an anxiety-provoking experience to prove to themselves that it is not as bad an experience as they previously thought (cognitive restructuring). The children are led through the components of the CBT manual using their special interests in various characters such as Batman or Spiderman. Therapists model the negative thoughts that the character might be feeling in a situation that is portrayed as a cartoon drawing of a typical anxiety-provoking event like giving a speech in front of class. The therapists use Socratic questioning to model for the child using first person “I am feeling this and I am thinking this, I wonder if….” Given the research that suggests children with autism have an
easier time recalling the memories of another person or action figure performing tasks, than recalling him- or herself performing the same task (Millward et al., 2000), this is a notable example of modifications to the Building Confidence treatment manual (Wood & McLeod, 2005) created specifically for this population of children. Having the child insert him or herself into the story using the pronoun “I” may allow a deeper semantic processing of the material in the episodic memory of the child, thus competing with the former negative, fearful memory.

In addition to in-vivo sessions involving the anxiety-provoking situations, the child and parent are assigned home assignments combined with an extensive reward system to encourage adherence to the daily practice of facing fears, improving the use of social-communication skills, and learning to do self-help tasks by self. Gradually control of the program is transferred from the therapist to the parent to keep the behavioral momentum going in the home, provide a way for the parent to continue to implement newly learned parenting skills, and to provide an enhanced sense of self-efficacy for the parent. The development of friendships module of the CBT program is especially important for children with autism and requires parent involvement and supervision. Research has suggested in the typically developing population of children with social anxiety, if a child has at least one friend, this will act as a buffer against further development of psychopathology (e.g. La Greca & Harrison, 2005).

**Assessment Procedure**

Children and their parents underwent two days of assessments, the first day being the administration of the ADI-R and the ADOS. The second day the ADIS-IV-C/P was administered to both parent and child before treatment sessions began, and again at the end after the 16-week CBT treatment intervention was completed. Each autism and anxiety assessment lasted approximately 3 hours. Families received $15 for their participation in assessments at pretreatment and post-treatment. At the first assessment parents and children provided written
consent/assent (including consent to have the treatment sessions audiotaped.) As was stated in the “Participant Inclusion” section above, participant inclusion was determined by a team consisting of the principal investigator, J.J. Wood, postdoctoral fellow, K. M. Sze, and doctoral students under supervision from the departments of Psychology and Psychological Studies in Education at UCLA.

Coding Process

**Sampling of the therapy sessions.** There were altogether 92 audiotapes that were transcribed, listened to, and coded. This amounts to four tapes for each of the 23 immediate treatment group participants. The four tapes were chosen across time to represent the beginning of therapy (weeks 2 and 4) and the end of therapy (weeks 10 and 15) in order to assess the therapeutic process across time and to see if there was a significant difference between the beginning therapy and the end. To establish interrater reliability, twenty percent of the 23 immediate treatment group participants (i.e. 5 participants) were randomly chosen to be double-coded by trained research assistants. The research assistants were blind to each other. The trained coders coded four tapes each in successive order for each randomly assigned participant, inclusive of sessions 2, 4, 10 and 15. The procedure used for sampling of the therapy sessions was similar to that used by McLeod (2004) and Patterson and Chamberlain (1994), and provides a range of measurement across time with two sessions towards the beginning and two towards the end of treatment.

**Scoring of the therapy sessions.** Coders scored entire therapy sessions, which ranged in length from 30 to 65 minutes ($M = 45.0, SD = 8.45$). Coders listened to the therapy sessions on audiotape while concurrently reading a written transcript of the session. They took notes on the transcripts as they listened. At the conclusion of an audiotaped session, the coders assigned an extensiveness rating, from 1 to 7, with 1 = not at all, 3 = some of the time, 5 = considerably, and
7 = extensively, to the 29 items that were being measured by the PASTOS. To process the codes, a mean score on each of the items will be used as the final data by the author, because mean scores reduce measurement error by removing differences between coders (Lambert & Hill, 1994).

Quantitative Measure Development: PASTOS Item and Subscale Development

In developing the Pediatric Autism Spectrum Treatment Observation System the authors first identified important domains that the literature had implicated in children with autism. Multiple sources were investigated such as current peer-reviewed published research and commercially available instruments used in research to measure anxiety, communication, and adaptive behavior skills. The commercially available instruments consulted include the following: The Multidimensional Anxiety Scale for Children (MASC; March, 1998); the Social Responsiveness Scale (SRS; Constantino, 2002); the Social Skills Rating System (SSRS; Gresham & Elliott, 1990); the Self-Efficacy Questionnaire-Children (SEQ-C; Muris, 2001); the Children’s Communication Checklist-2 (CCC; D.V.M. Bishop, 2000); the Children’s Yale-Brown Obsessive-Compulsive Scale (CY-BOCS; Scahill et al., 2006) and the Vineland Adaptive Behavior Scales (VABS; Sparrow, Balla & Cicchetti, 1984).

The scoring strategy that is used in the PASTOS (Van Dyke & Wood, 2011) was adopted from treatment integrity research (Elkin, Parloff, Hadley & Autry, 1995; Elkin, Pilkonis, Docherty & Sotsky, 1988; Hill, O’Grady & Elkin, 1992; Hogue, Liddle & Rowe, 1996; McLeod, 2004; Shapiro & Startup, 1992; Waltz, Koerner & Jacobson, 1993), and is designed to yield quantitative data that is non-subjective and specific as to how therapists carry out their therapy using manualized treatments across time.
**Items chosen for the PASTOS.** The authors continued with literature reviews on areas that were deemed to be important for treating anxiety disorders and core symptoms of autism spectrum disorder, and she chose 5 subscales with a total of 29 items for the final PASTOS. Items were added, refined, or deleted according to the literature review. The 5 subscales consist of the following: 1) anxiety and related emotional states, 2) self-help skill mastery, 3) core autism symptoms, 4) child coping strategies, 5) parent-child interactions.

The following is a list of individual items included on the PASTOS (Van Dyke & Wood, 2011) after extensive literature review and consultation of commercially available instruments used in research for children with anxiety, autism, and parental / child communication.

1) Mastery of Self-Help Skills
2) Friendships
3) Obsessive Compulsive Disorder
4) Positive Affect (Voice)
5) Speech Dysfluencies
6) Use of Humor
7) Emotion
8) Awareness of Others
9) Self-Awareness
10) Child Communication: Initiations
11) Child Communication: Expansions
12) Child Communication: Expected Responses
13) Child Communications: Unexpected Responses
14) Repetitive Behavior: Topics of Conversation
15) Child Self Statements-Negative: Fear of Harm
16) Child Self-Statements-Negative: Fear of Negative Evaluation
17) Child Self-Statements-Negative: Self-deprecation
18) Child Self-Statements- Negative- Academic worries
19) Child Self-Statements-Negative-Perfectionism
20) Physical Symptom of Anxiety
21) Child Self-Statements-Positive: Coping
22) Child Self-Statements-Positive: Confidence (Trust in One’s Own Ability)
23) Child Sense of Shame and Stigma
24) Parent Verbal Interactions with Child- Directive: Controlling
26) Parent Verbal Interactions with Child- Directive: Insensitive
27) Parent Verbal Interactions with Child- Directive: Use of Baby Talk
28) Parent Verbal Interactions with Child- Positive: Sensitive
29) Parent Verbal Interactions with Child- Positive: Warm

**PASTOS Subscales.** Listed below are the five subscales of the PASTOS (Van Dyke & Wood, 2011) and individual items that occur within each subscale:

1) **Anxiety and Related Emotional States**
   
   Items # 3, 15, 16, 17, 18, 19, 20, 23

2) **Self-Help Skill Mastery**
   
   Item # 1

3) **Social Communication**
   
   Item # 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

4) **Child Self-Perception**
   
   Item # 21, 22
5) Parental Verbal Interactions with Child

Item # 24, 25, 26, 27, 28, 29

**Descriptions of individual items of the PASTOS.** The following sections provide detailed descriptions of each item of the PASTOS (Van Dyke & Wood, 2011).

**Mastery of self-help skills.** Poor adaptive behavior skills have been reported in the literature for people with autism (Howlin, 2000), thus personal self-help skills become an important domain to investigate. Since many children with autism have trouble with fine motor and gross motor skills, making it more difficult for them to master personal self-help skills such as washing their face, brushing teeth, tying shoes, riding a bike, there may occur a lower sense of mastery and satisfaction that comes with mastering a particularly challenging task.

Drahota and colleagues (2010) found that after completion of the 16-week CBT treatment intervention (Wood et al. 2007), improvements in personal self-help skills led to a decrease in anxiety in children with high-functioning autism. An item measuring Mastery of Personal Self-help Skills was added to the PASTOS scale due to the literature that was reviewed. An example of a child’s comments related to personal self-help skills is: “I used the Daisy shaver. It smelled good.” In this conversation the child indicated pleasure about taking steps towards mastering an age-appropriate self-help skill of shaving her legs. Before this event, the child would avoid the subject entirely. This participant had been afraid of “sharp objects”, such as knives in the sink (she wouldn’t do the dishes if knives were in the sink) and razors. This pre-teen was beginning to be able to be responsible for own personal hygiene skills, though it had to be done one small step at a time. This task would have received a rating of 4 or 5 because the child was beginning to attempt the task, and talked briefly about it during the therapy session.

A child who independently set an alarm clock and got up by herself, or washed hair by herself, or wiped herself, would receive a rating of “6” or “7” for mastery of self-help skills if the
talked in-depth about one or more self-help skills that she had begun to perform independent of her parent(s). A rating of a 1 or 2 would be given to a child who did not attempt to perform such personal self-help skills.

**Friendships.** Friendships are an important component to address in this population because even having one friend can help a child be resilient in the face of adversity and also, leads to a better outcome as an adult (La Greca & Harrison, 2009). Children with ASD really want friends, but they have reported that they are lonely and that they have lower quality friendships than typically developing peers (Bauminger & Kasari, 2000). Friendship was one of the modules in the CBT manual (Wood et al., 2007) developed for the original RCT (Wood, Drahota, Sze, Har et al., 2009), so it was deemed important to measure a child’s extensiveness in talking about his or her friends. An example would be the following: “Leah and I went to the movies, and we had fun.” “The playdate was awesome, and we’re going to have a sleep-over at her house next Friday.” “It’s nice hanging out with friends at school.” “It’s like being part of a gang.” “I’m going to Cindy’s house next week.” “I’m going to invite three friends to go see a movie next week, Lisa, Sarah, and Jessica.” These types of comments, if they were discussed in depth during a therapy session, indicating a continuing and reciprocal relationship, would contribute to a “6” or “7” using the extensiveness rating scale.

A low rating would be given using the extensiveness rating scale, of a 1 or 2, if the therapist introduces the topic of having a playdate or get together, and the child does not respond, or finds many reasons that he or she did not complete the home assignment of calling a peer to have a playdate, or if the parent had too many other commitments and was not able to make the playdates happen.

**Obsessive compulsive behaviors.** This item focuses on rituals performed in a rigid and excessive manner to ward off negative thoughts of a future event occurring such as
contamination by germs (e.g. excessive handwashing), harmful events to self or others, having to perform certain steps of a task such as not stepping on cracks in the sidewalk, hoarding (keeping bits of paper, bags, plastic, metal objects) for fear of not having the objects in the future, fear of losing something, asking the same question repeatedly of a parent such as “Did I do good?” (Scahill, et al., 2006). For example, an extensiveness rating of 6 or 7 would be given if a child would not perform daily tasks that other children the same age would do because she was afraid of personal harm such as not washing the dishes because she was afraid a butter knife would cut her. If the child talked of this obsessive fear in depth during a session, a 7 would be given as a rating.

**Positive affect.** Improving motivation has been suggested to be a particularly important pivotal area to target in the treatment of autism spectrum disorders (Koegel and Engle, 1979). One way that a researcher may be able to roughly assess a child’s level of motivation or enthusiasm from an audiotape during therapy is by focusing on the use of their voice. A child’s voice can reflect positive affect and enthusiasm. These can be indirect signs of increased motivation. In the proposed mixed methods research study, a rating of 6 or 7 would be given to a child whose voice reflected positive enthusiasm and excitement throughout the therapy session. A score of 1 or 2 would be given if the child had a flat, dull or monotone voice that lacked enthusiasm or positive affect, or if a child displayed consistent anger and resistance. For example, in some cases, a child may display anger towards a therapist when being asked to participate in anxiety-provoking exposures. A rating of a 4 or 5 would be given if overall the child had a mostly positive affect, but sometimes became flat and disengaged.

**Speech dysfluencies.** Speech dysfluencies such as false starts, revisions, repetitions, stuttering have been implicated as being particularly affected by anxiety in people who stutter (Blood, Blood, Malone, Meyer, & Qualls, 2007; Davis, Shisca & Howell, 2007), and it has
been found that people who stutter often have comorbid symptoms of social phobia (Kraaimaat, Vanryckeghem & Van Dam-Baggen, 2002). For the PASTOS (Van Dyke & Wood, 2011), a child who exhibited frequent difficulties with producing fluent speech, a rating of 6 or 7 would be made if the dysfluencies occurred throughout the therapy session. The following is an example of this type of speech: “It’s ridisculous, diriculous, redicilus…” “It’s, the, we, I don’t want to um, um, um… Let’s do something, I wanna go home.” A rating of a 1 or 2 would be given if there were only a few pauses (e.g. “ums”) throughout the session. A rating of 4 or 5 would be given if the child was mostly fluent throughout the session, but when presented with an exposure that evoked medium anxiety, the child may encounter some difficulties with producing fluent speech throughout the session such as two or three mild dysfluent moments.

Use of humor. Use of humor has been suggested as one way to ease a person’s feelings of stress or tension and is a higher level skill that some children with ASD have to learn slowly due to difficulties with plays upon language such as idioms (e.g. shake a leg, elevator doesn’t go all the way to the top). Humor can also indicate sharing affect with another such as a parent. By measuring a child’s use of humor during therapy, correlations with lower levels of anxiety, higher levels of positive affect, and higher levels of coping skills may be found using the proposed observational coding system. An example of some sentences that could generate a rating of 6 or 7 if humor was used periodically throughout the session is the following:

Therapist: O.K. Tell me about the playdate.
Child: The playdate went awesome!
Therapist: We went to the mall. We played the game of Life.
Child: My favorite game. That’s perfect!
Therapist: I love that game! It makes me hungry for the cereal.

In this case, this exchange indicated that the child was upbeat, positive, and also confident enough to try her hand at humor. If the child’s affect is upbeat and positive and he or she attempts to make lighthearted jokes, this would be coded as a 6 or 7 on the PASTOS. If a
child made no attempts at humor, a 1 or 2 would be coded for humor. If the child was sometimes attempting to make a joke or displayed some laughter at appropriate times during the therapy session, a rating of 4 or 5 would be given.

**Emotion understanding.** Emotion understanding in self and others has been suggested as being an area of weakness in people with autism spectrum disorders (Capps et al., 1992; Heerey et al., 2003; Sigman et al., 1992; Tager-Flusberg, 1992). The following example would receive a rating of 6 or 7 on the PASTOS:

Child: I was feeling nervous because I was afraid that she wouldn’t want to hang out with me.

A session with remarks like this would be given an extensiveness rating of 6 or 7 on the PASTOS (Van Dyke & Wood, 2011) if these types of comments occurred across the session or were discussed in depth because the child is able to identify the emotion in self and also the thoughts behind it. A rating of 1 or 2 would be given for sessions characterized primarily by interactions in which the understanding and articulation of emotion is characterized by tangential comments or inexact language use such as the following:

Therapist: What bothers you about your little brother?
Child: He cries over spilled milk.

The child is trying to express why she gets upset with her brother; but she uses an idiom that is not truly appropriate to the situation to try to explain her frustration with her brother. Children with autism are known to struggle with higher level language use such as idioms and metaphors such as “crying over spilled milk.” A rating of a 4 or 5 would be given, if throughout the session, a child sometimes identifies the emotion in self, but is not yet able to articulate the irritating or “icky” thought that goes with it.
**Awareness of others.** This will be assessed using the PASTOS (Van Dyke & Wood, 2011) and it is similar to the concept of “theory of mind”. Theory of mind refers to the capacity to imagine what another person might be thinking and feeling and what their intentions might be. Another term for this type of construct is “perspective-taking”. This is a known area of difficulty for people with autism (e.g. Baron-Cohen et al., 1985; Tager-Flusberg, 1992). Usually the words used by a therapist to encourage a child to think what another might be thinking or feeling would be as follows:

Therapist: So what do you think this boy is thinking?
Child: He’s thinking, ‘They’re going to laugh at me.’

This would be coded as a 6 or 7 using the extensiveness rating scale on the PASTOS if the child displayed this type of verbal behavior throughout the therapy session or discussed an example in depth. An example of an extensiveness rating of 1 or 2 would be if these types of comments were primarily observed in a session such as the following:

Therapist: So what do you think this boy is thinking?
Child: He’s happy that he moved to America.

The child was not able to reframe the statement using the first-person, “I” which would suggest deeper semantic processing and the ability to update the self, and his statement did not accurately reflect the visual information given in which the child was shown a picture of a boy smiling holding an ice cream cone. This child tried to explain why another child might be happy, but he was not yet adept at thinking about what another’s intentions might be, or the cause of another’s happiness. This example also displays the limited foregrounding and backgrounding of information for the listener discussed by Baltaxe (1977) during a communicative exchange. A rating of 4 or 5 would be given if the child was able to sometimes identify what another might be thinking, but not always, throughout the therapy session.
**Self-awareness.** Self-awareness refers to the child being able to identify emotions and thoughts in self as well as being able to verbally express this using the first person pronoun, “I”. Research has found that people with autism spectrum disorders have a difficult time with autobiographical memory, particularly self-narratives (Goldman, 2008). It is easier for them to tell a narrative about another person than it is for themselves. As a child becomes more proficient at telling a short personal narrative using personal pronouns like “I” and “my”, he or she will receive a higher rating on the PASTOS if this is displayed throughout a session. The child would be given a 6 or 7 if she is able to state by self that she is feeling a certain way because she has the “icky thoughts” or “calm thoughts” using the first person, “I” during the session. A rating of a 1 or 2 would be given if the child is not able to use the first person “I” when describing what he or she is thinking. A rating of a 4 or 5 would be given if the child sometimes uses the pronoun “I” throughout the session to describe what he or she is thinking in a certain situation.

For example, a child is asked to tell about a time when they were scared of heights at an amusement park. The child might answer, “I was, like, up really high on the ferris wheel, and I was feeling sick. I thought, oh no! I’m going to fall out and get hurt or die!” This level of self-awareness would be given a 6 or 7 on the PASTOS if displayed consistently (Van Dyke & Wood, 2011).

**Child communication – initiations.** Research by Koegel, Koegel and McNerney (2001) found that the initiation of social-communication interactions is a pivotal skill that needs to be taught to children with autism spectrum disorders. When a child has learned to initiate social-communication interactions by self, collateral benefits occur, too, such as expansion of language. A rating of 6 or 7 would be given to a child if he or she demonstrated initiation of new topics of conversations or asking of questions throughout a treatment session. A rating of 1 or 2 would be
given if the child did not initiate social communicative interactions, but merely responded throughout the session. A rating of a 4 or 5 would be given if the child sometimes initiated a new topic of conversation or asked questions spontaneously sometimes during the therapy session.

**Child communication – expansions.** This item refers to a child’s ability to add new information to an utterance that a communication partner had just made (i.e. contingent discourse; Tager-Flusberg & Anderson, 1991). For example, a child may respond in the following manner:

```
Therapist: What movie did you see?
Child: We went to see “The Wild”.
Therapist: Oh?
Child: It was a really good movie.
```

Tager-Flusberg and Anderson (1991) found that children with autism spectrum disorders were more non-contingent (off topic) than typically developing children in conversation, and they were especially so in the category of contingent discourse that added new information. A rating of 1 or 2 would be given if throughout the session, the child did not add any new comments or additional information to the therapist’s utterances. A rating of a 3 or 4 would be given if the child occasionally added more information onto the conversation partner’s utterances or their own utterances throughout the therapy session.

**Child communication – expected responses.** This item refers to responses that one would typically expect from a communication partner such as a comment or question in response to another person in a social exchange (Crooke, Hendrix and Rachman, 2008). For example, the following scenario might take place in therapy:

```
Therapist: What would you like to work towards earning today during our session?
```
Child: The baseball cards.
Therapist: How do you think this girl is feeling?
Child: I think she’s sad.

These types of responses would earn a score of 6 or 7 on the PASTOS if displayed consistently (Van Dyke & Wood, 2011). A rating of 1 or 2 would be given if the child often abruptly changed topics and began to talk about her or his own special interests throughout the session.

**Child communication – unexpected responses.** These are instances of verbal output that involves negative comments about other people, places, or things that were interpreted by a listener as offensive, rude, odd, or inappropriate such as “off-topic” remarks, talking to self, perseverative topics, odd, routinized, scripted speech from movies or television (Capps, Kehres, & Sigman, 1998) or rude comments (Crooke et al., 2008). For example, a therapist might ask the child a question such as the following:

Therapist: Jamie, what does your body feel like when you are nervous?

The child might answer using an unexpected response such as the following answers:

Child: A pancake!

Another example includes the following interaction:

Therapist: Tell me how you were feeling.
Child: I was feeling like Biff was going to steal the Millennium Falcon.

Both of these responses were “off-topic”, inappropriate, odd, scripted, routinized (Capps, Kehres, & Sigman, 1998) and unexpected. They would be coded as a 6 or 7 on the PASTOS (Van Dyke & Wood, 2011) for “Unexpected Response” if they occurred throughout the therapy session. An extensiveness rating of 1 or 2 would be given if the child responded mostly appropriate and expected throughout the therapy session. A 4 or 5 would be coded if the child usually answered appropriately, but occasionally would wander off-topic in response.
**Repetitive behaviors or topics of conversation.** These refer to a child’s conversational topics that are repeated many times, particularly when they are off-topic in a contingent response to a communication partner. For example, one child continuously talked or brought the conversation back to *Star Wars* characters or *Back to the Future* movie characters, and used odd, scripted speech from those movies (Capps et al., 1998). Another child was very worried about academic performance particularly in one subject. She continually brought up the subject of testing, over and over again. ”Repetitive Behaviors” would be coded a 6 or 7 for these repetitive topics of conversation. An extensiveness rating of 1 or 2 would be given to “repetitive behaviors” if the child refrained from talking about special interest topics or repetitive verbalizations of the same comment over and over. An extensiveness rating of 3 or 4 would be given if the child sometimes strayed back to his or her special interests, but was able to be moved back again to another conversation topic by the communication partner.

**Child self-statements (negative and positive).** These self-statements refer to the things that a child is telling him or herself during an anxiety-provoking event. Kendall and Treadwell (2007) found that negative self-statements made by children with anxiety disorders significantly predicted anxiety. The authors reported that few studies had assessed the valence of self-statements as an indicator of treatment outcome (e.g. responders vs. non-responders) or during the process of cognitive change (i.e. cognitive restructuring from negative to positive). Glass, Merluzzi, Biever and Larsen (1982) developed an instrument that measured self-deprecation (i.e. putting oneself down), fear of negative evaluation, and coping (thoughts used to counteract the negative thoughts present in social phobia (social anxiety). There are six types of negative self-statements (*fear of harm, fear of negative evaluation, self-deprecation, academic worries, perfectionism, and physical sensations of anxiety*) that accompany fear. There are two types of
positive self-statements on the PASTOS: 1) Coping and 2) Confidence (Trust in One’s Own Ability). An example of positive self-statements might be the following:

Child: I’m really good at a lot of things!

If these types of comments occur throughout a therapy session, 6 or 7 would be given for “Confidence”.

**Child sense of stigma.** This item refers to the awareness of the child that disability is viewed negatively by others. For example, a child might say the following: *I think autism means you are weird.*

This awareness of stigma would be rated as a 6 or 7 on the PASTOS because the child may sense that their disability is not accepted by society (e.g. Cavelti, Kvrgic, Beck, Rusch & Vauth, 2012). Low ratings, such as a 1 or 2, would be given if stigma was not brought up, or for comments related a more positive view of having a disability.

Child: I know that I have autism and that I have to fight back when I have these moments, but I know how to deal with this now.

In this case, the child appears to have accepted that he/she has a disability and feels confident that he/she knows what to do when negative emotion arises.

**Parental verbal interactions with child.** These items refer to the communication style that a parent has with their child. Research has suggested that a parent communication style that is directive, involving control, criticism, and insensitivity, significantly predicts poorer outcomes during treatment for anxiety disorders (Capps et al., 1996; Chorpita & Barlow, 1998; Lieg et al, 2000; Spokes & Heimberg, 2009; Wood, 2006; Wood, et al., 2007; Wood et al., 2003). Research into positive parental communication styles with children include being sensitive and warm. An example of a more directive parental style would be as follows:

Therapist: Let’s see if Billy can set his own alarm clock
and get up in the morning all by himself.

Parent: I can’t get him out of bed by himself. He will be late for school, and he never does things he is supposed to do.

Exchanges like this would receive a higher extensiveness ratings, particularly if they occurred frequently or with intensity. A lower rating on this scale would look more like this:

Therapist: I think that Billy is growing up. He might want to take on some additional responsibilities at home for his own personal needs that show he is ready to become an independent teenager.

Parent: That’s such a great idea. I hadn’t thought of it before, but I know that Billy is successful in everything that he applies himself to. What do you think, Billy? Would you like to get an alarm clock and be responsible for getting yourself up on time and dressing before breakfast? Or would you prefer to be responsible for making your own lunch in the morning. You decide. I know that you will succeed no matter which one you choose to earn points for.

In this instance of working out a homework assignment, the parent is providing positive comments regarding her son’s abilities, and she gives him choices to decide which self-help personal task he wants to accomplish for the week. This is very empowering for a child, allowing them to tackle more challenging tasks by themselves. This interaction, if representative of the session in general, would receive a rating of 6 or 7 for parental warmth and 1 for directive parental interactions. A rating of 3 or 4 is given for interactions that were mostly warm and positive, but occasionally directive.

When development of the PASTOS (Van Dyke & Wood, 2011) was complete, a pool of 29 items resulted, and they were incorporated within five subscales (anxiety and related emotional states, mastery of self-help skills, core autism symptoms, child coping strategies,
parent and child interactions) that the first author chose to be included in the final version of the PASTOS. The instrument was reviewed by the author and her dissertation chair, Dr. Jeffrey James Wood. It was decided that the coders would simultaneously listen to the audiotaped sessions, and at the same time read along on the transcripts. Coders were free to make notes on the transcript pages while they listened. After the audiotape finished playing, the entire transcript was coded using the extensiveness rating scale.

**Data Analyses**

**Qualitative analysis.** Qualitative analysis has been completed using thematic analysis (Braun & Clark, 2006). The researcher (M. Van Dyke) has read and re-read transcripts of narratives taken from children and children with their parents during sessions of cognitive behavioral therapy based upon a “top-down” analysis (Boyatzis, 1998; Parker, 2004). In using a “top-down” or “deductive” analysis, the development of themes was driven by the researcher’s interest and previous knowledge of the topic. The researcher has extensive experience working with children with autism spectrum disorders within culturally and linguistically diverse populations in Los Angeles County, as well experience in treating childhood anxiety disorders in typically developing and high-functioning children with autism at UCLA. The researcher is familiar with the impact on families of having a child with autism spectrum disorder, both from the extant literature, and from personal experience. Thus this investigation and development of themes is considered to be a “top-down” or “deductive” qualitative analysis.

As the author began to develop her themes, the following steps described in the literature on thematic analysis (Braun and Clarke, 2006) were taken:

1. **Familiarize self with the data.** The author became familiar with the data by producing and reading the transcripts taken from the treatment session audiotapes, from four points of time across the sixteen week treatment. She read and re-read the data, and made initial
notes about possible themes during a qualitative methods course at UCLA, EDUC 222D taught by Dr. Greg Tanaka, an adjunct professor of anthropology and expert in mixed methods and qualitative methods.

2. **Generate initial codes.** The first author read and re-read 92 transcripts made up from 23 immediate treatment children and their parents across four time points each. She chose recurring themes as well as interesting features of the data across the entire data set. She looked to see what stood out as unique as well as what was a common occurrence in the data. The author discussed and revised some of the beginning codes with Dr. Greg Tanaka, a visiting professor at the UCLA Graduate School of Education with extensive experience using and publishing research using qualitative methods in the field of psychological anthropology.

3. **Collate codes into potential themes.** The author collated, by hand, the most common themes by frequency of occurrence, in addition to choosing themes that were very unique and clearly reflected a child’s discordant point of view.

4. **Review themes.** The author reviewed the themes and searched the entire dataset by reading and re-reading the transcripts again to gather any data that was divergent from the zeitgeist of the themes as reflected in most of the transcripts. The resulting themes were then subjected to literature reviews to further define the development of a quantitative coding system, the PASTOS (Van Dyke and Wood, 2011).

5. **Defining and naming themes.** The author named and defined her themes and developed a coding manual to support independent coders' understanding of the themes. The reliable codes were then mixed with the findings from the quantitative coding system.

6. **Produce the report.** The author is producing a scholarly report of her analysis by using a grid, such as the one illustrated below, where each example of quantitative subscales are
supported by a qualitative theme using vivid examples of direct quotations from the data. These results are related back to the research questions and literature. In the quantitative coding system extensiveness ratings were used to indicate the presence of a code for each participant in the transcribed sessions. For the qualitative data analysis, impact of the occurrence of a theme was assessed taking into consideration home, academic, and social domains of the child.

To obtain coder reliability in the qualitative portion of the study, key sentences or phrases were taken from the 22 immediate treatment group participants and randomly assigned to the coders. They matched the sentence to one of the qualitative themes such as 1) shame, 2) fear, 3) loneliness, 4) dependency, 5) parental discouragement, 6) pride, 7) bravery, 8) a sense of belonging, 9) independence, and 10) parental encouragement. The themes were than integrated with the quantitative findings by use of a matrix table. Preliminary interpretations were made. The matrix tables developed using a method by Armand (2011) for the integration of quantitative and qualitative data (using a template from a previous mixed methods research dissertation; Armand, 2011) was completed. The doctoral dissertation by Armand (2011) investigated integrative processes during yogic breathing exercises using a concurrent mixed methods research design. In this dissertation, the author used a sequential embedded mixed design instead of concurrent mixed design, and the author used statements that have a high impact on a child in three domains that are assessed with the gold standard anxiety instrument, the ADIS-C/P, (i.e. home, academic/school, and social) rather than “density” which is similar to a frequency count. This approach was used to allow the capture of statements that may be low in frequency, but high in impact, leading to new insights gleaned from the child narratives. (See Table 2.)
Table 2

Blended results: qualitative methods with quantitative methods

<table>
<thead>
<tr>
<th>Quantitative Analysis</th>
<th>Child or Parent Direct Quotes from audiotape</th>
<th>Qualitative Themes Blended with Quantitative Results via Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASTOS subscales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety and related emotional states (stigma)</td>
<td>Child: &quot;I don't have that anymore!&quot; &quot;I don't need your help!&quot;</td>
<td>Shame, Fear</td>
</tr>
<tr>
<td>Extensiveness rating: 7</td>
<td></td>
<td>Impact: High Domains: Social, Academic</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Interpretation</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative emotions such as anger and anxiety may emerge when a child’s awareness of the stigma of having an autism spectrum disorder begins to develop, and it may be associated with the subsequent negative emotion, ‘shame’, that occurs as a result when a child sees self as less than the ideal image of “normal” or “typical”. The child will eventually work through integrating his or her self-identity with new information of the “hidden identity” of “autism”. Although there were only a few children that verbally reported these types of results in the Wood and colleagues RCT (2009), the occurrence is significant for the parent and professional to recognize so that they may better assist the child to work through realization of having a disability and incorporation into a new self-identity, while maintaining healthy self-esteem. Disclosure rules may become important for the child to address in the future.</td>
</tr>
</tbody>
</table>

As can be seen by the example used in Table 2, the qualitative findings will be used to elaborate or contrast the findings from the quantitative data collected with the PASTOS observational system (Van Dyke & Wood, 2011).
Quantitative Analyses. For the twenty-two participants from the immediate treatment group, across four time points (week 2, 4, 10 and 15), descriptive analyses for distributions and central tendencies will be conducted for each of the 29 variables taken from the PASTOS (Van Dyke & Wood, 2011). Repeated measures ANOVAs will be conducted with the 29 items from the PASTOS being the dependent variables and time (treatment session number) as the independent variable, as well as the five subscales that incorporate the 29 PASTOS items.

Research Questions and Hypotheses

1. Can an observational rating system of therapy process and outcome during CBT with families of children with ASD meet criteria for face validity, content validity, and inter-rater reliability?

   It is hypothesized that the observational rating system for therapy process and outcome during cognitive behavioral therapy conducted with families and children with ASD (i.e. PASTOS, Van Dyke & Wood, 2011) will meet criteria for face validity, content validity and interrater reliability.

   To test for these criteria, the author has strived to first establish face validity by conducting literature reviews related to the individual items on the PASTOS (Van Dyke & Wood, 2011). It is hypothesized that the treatment results using the PASTOS will support the parent-reported results previously published (e.g. Drahota et al., 2011; Wood, Drahota, Sze, Har, et al., 2009; Wood, Drahota, Sze, Van Dyke, et al. 2009). The PASTOS is projected to have good face validity because analysis across time of child and parent discourse are hypothesized to further support the previously published research proving CBT to be efficacious in children and youth with autism (e.g. Fuji et al., 2013; Storch et al., 2013; Wood, Drahota, Sze, Har et al., 2009; Wood, Drahota, Sze, Van Dyke et al., 2009). Instead of using pencil and paper measures
long /after treatment has ended, the PASTOS will document change as it is occurring across time during treatment sessions in the children as well as parents. Evidence of change in a child with ASD of maladaptive emotional responses has been hard to measure with standard paper and pencil tasks in the ASD population. In addition to establishing face validity via previously published research, face validity will be established by review of the doctoral committee chair, Dr. Jeffrey James Wood, an expert in the field of anxiety and autism spectrum. Additional expert review will occur with Dr. Connie Kasari, an expert in autism spectrum disorders treatment, Dr. Jennifer Symon, an expert in autism spectrum disorders, Dr. Lois Weinberg, an expert in Special Education Law and foster children, and Dr. Tom Weisner, an expert in family, brain development, culture, child development, and mixed methods research. Suggestions to address flaws in the instrument will be incorporated following review.

Content validity will be established by completion of literature reviews on each PASTOS variable, as well as by comparing the individual items on the PASTOS with individual items taken from the MASC, SSRS, and SEQ-C used in the original 2009 RCT by Wood and colleagues, the BIACA-1 study.

Interrater reliability will be established using intraclass correlation coefficients (ICC)s from all coded treatment sessions by trained coders, and will be achieved at acceptable levels (i.e. greater than .39; Cichetti & Sparrow, 1981).

2. Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to quantitative and qualitative assessments of their therapy sessions?

It is hypothesized that anxiety will improve, social-communication will increase, and self-perceptions will improve over the course of therapy. To test for the hypothesis, repeated measures ANOVAs for each of the twenty-nine PASTOS items (Van Dyke & Wood, 2011) will
be conducted with session number as the independent variable, and each of the twenty-nine items of the PASTOS as the dependent variables. A significant negative slope for anxiety, significant positive slope for improvements in social communication, and significant positive slope for self-perception-related codes is predicted to occur. Thematic analysis will then be used to elaborate on the findings, providing explanations as to how and why these results occurred as well as providing vivid examples of the discourse supporting the quantitative results of decreased anxiety, increased social communication, and self-esteem/self-confidence.

3. Did parent-child dyads in the Wood, Drahota, Sze, Har and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

It is hypothesized that due to the many challenges and additional time that it takes to parent a child with autism spectrum disorder, parents may have inadvertently developed a more directive-type of communication style that more tightly controls a child thus limiting choices and independence. Parents may have sometimes performed self-help tasks for the child that the child may have been capable of performing by self in order to accomplish daily activities that the family needed to get done. However, after parent psychoeducation regarding the communication style that allows choice and the importance of independently attempting self-help tasks, parents will change their communication style to be more autonomy-granting and authoritarian, as opposed to the former more directive, authoritative, and restrictive style of parental communication with child.

To test this hypothesis, the author will use repeated measures ANOVAs to determine change from beginning of treatment to the end with session number as the independent variable and communication style by parent as dependent variables. A significant negative slope for
directive communication and a positive slope for positive communication code is predicted. Thematic analysis will elaborate on the quantitative findings, providing the causal explanations as well as provide vivid examples of participant discourse that characterize the codes.

4. What indicators from the quantitative and qualitative assessments of therapy sessions in the Wood, Drahota, Sze, Har, and colleagues (2009) treatment study predicted the CBT treatment outcomes in terms of child anxiety, social-communication and self-perception using the CGI-I?

It is hypothesized that improvements in positive parent-child communication will predict improvement in anxiety symptoms, social communication, self-help skills, and child self-perception as rated by independent evaluators using the CGI-I. To test for the hypothesis, repeated measures ANOVAs for each of the 29 PASTOS (Van Dyke & Wood, 2011) items will be conducted with session number as the independent variables and each of the twenty-nine items of the PASTOS as the dependent variables, as well as the five subscales of the PASTOS, self-help skills, anxiety and related emotional states, social communication, child self-perception, and parental-child interactions.

Results

Quantitative Results

To answer Research Questions # 1, “Can an observational rating system of therapy process and outcome during CBT with families of children with ASD meet criteria for face validity, content validity, and inter-rater reliability?” the psychometric properties of the PASTOS were examined through the collection and analysis of reliability data.

Quantitative Reliability. Two measures of reliability were computed: (a) interrater reliability across all pairs of coders for each PASTOS item and (b) internal consistency for each
PASTOS subscale (anxiety and related emotional states, mastery of self-help skills, social communication, child self-perception, and parent-child interactions.)

**Interrater reliability.** Interrater reliability was calculated across all coders for each of the PASTOS items using intraclass correlation coefficients (ICC; Shrout & Fleiss, 1979). The reliability coefficients represent the model ICC (1, 3), based on a two-way mixed effects model where people effects are random and measure effects are fixed. The ICC provides an estimate of the ratio of the true score variance to total variance. A reliability estimate of the mean scores of all the coders is considered as a whole, and provides for generalizability of results to other samples. Based upon Cicchetti and Sparrow (1981), ICC values that fall below .40 reflect “poor” agreement, ICCs that equal .40 to .59 reflect “fair” agreement, ICCs that equal .60 to .74 reflect “good” agreement, and ICCs that equal .75 and above are considered “excellent” agreement. All 29 items of the PASTOS were used in the ICC calculations.

Interrater reliability of the PASTOS items was assessed using data from five participants, which is approximately 20% of the participants, four sessions each, T1, T2, T3, and T4, randomly chosen and assigned to blind coders. Four sessions for each of the five participants were coded for the total of 20 sessions out of a possible total of 88 total audiotaped sessions (n = 22 participants from the immediate treatment group with 4 sessions being taken from each participant across time (e.g. sessions 2, 4, 10, and 15)). This amounts to 23% of the total number of sessions that were double-coded by coders who were blind to each other. Interrater reliability was found to be acceptable. The calculated ICCs were completed for each individual item (ICCs ranged from .08 to .96; See Table 9); as well as for each of the 5 subscales: (a) Anxiety and related emotional states subscale (ICCs ranged from .57 to .93); (b) Mastery of self-help skills subscale (ICCs ranged from .89 to .98); (c) Social Communication subscale (ICCs ranged from .59 to .94); (d) Child Self-Perceptions subscale (ICCs ranged from .69 to .95); (e) Positive
Parental Verbal Interactions with Child (ICCs ranged from .85 to .98); and Directive Parental Verbal Interactions with Child (ICCs ranged from .64 to .87).

**Internal consistency.** Internal consistency of the five PASTOS subscales was acceptable. (See Table 10): (a) Self-help skill mastery subscale ($\alpha = .51$); (b) Anxiety and related emotional states subscale ($\alpha = .65$); (c) Social communication subscale ($\alpha = .84$); (d) Child Self-Perception subscale ($\alpha = .78$); (e) Positive Parent Verbal Interactions subscale ($\alpha = .79$); and Directive Parent Verbal Interactions subscale ($\alpha = .81$).

To summarize, the interrater reliability data gathered for the PASTOS items showed results that were within the acceptable range. Additionally, the internal consistency of the five PASTOS subscales was found to be acceptable. This indicates that the items comprising the subscales of the PASTOS are associated with each other in conceptually appropriate ways.

**Validity.** The PASTOS was assessed for validity by (a) measuring construct validity or the degree to which the individual scores and subscale scores were sensitive to known differences within the immediate treatment group participants ($n = 22$); (b) determining the degree of overlap or shared variance among the PASTOS subscales (i.e. divergent validity), and (c) the degree of overlap between the PASTOS subscales and other scales that measure similar constructs such as the Multidimensional Anxiety Scale for Children (MASC; March, 1998); the Social Skills Rating System-Parent (SSRS; Gresham & Elliott, 1990); and the Self-Efficacy Questionnaire for Children (SEQ-C, Muris, 2001). As can be seen in Tables 11, 12, 13, and 14, the PASTOS (Van Dyke & Wood, 2011) demonstrates significant correlations as a whole and also by the five subscales (i.e. anxiety and related emotional states, social communication, self-help skills mastery, child self-perception, parental verbal interactions) with the MASC, SSRS, and SEQ-C. It should be noted that parent reported versions of the MASC, SSRS, and SEQ-C were used, as it was found that the children in the original RCT (Wood et al., 2009) were not
always accurate reporters of their feelings. Results obtained from the PASTOS suggest that it may become an additional tool for researchers to use to directly measure child progress in therapy across time.

**Convergent and discriminant validity.** In continuing the investigation of the validity of the PASTOS subscales, the degree of overlap among the subscales was assessed. (See Table 11.) The intercorrelations suggest that each subscale measures a distinct construct as can be seen by diagonal values which are larger than the off-diagonal values. This means that the internal consistencies of the PASTOS subscales, the diagonal values in Table 11, are greater than the PASTOS subscale intercorrelations, the off-diagonal values.

**Treatment outcome from repeated measures ANOVAs.** To answer Research Question # 2, “Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to quantitative and qualitative assessments of their therapy sessions?”, many repeated measures ANOVAs were calculated. On tables 15 and 16, the weeks 2, 4, 10, and 15 treatment scores on the twenty-nine individual PASTOS item outcome measures, and also weeks 2, 4, 10, and 15 treatment scores for the five PASTOS subscales outcome measures: self-help skills, anxiety and related emotional states, social communication, child self-perception, and parental verbal interactions with child, are displayed. Results show that after fifteen weeks of CBT, within the PASTOS subscales, the children’s narratives reflected significant increases in self-help skills, \( F (2.171, 45.592) = 6.891, \ p < .002 \); significant reductions in anxiety and related emotional states, \( F (2.405, 50.497) = 8.856, \ p < .000 \); significant increases in social communication, \( F (1.973, 41.435) = 18.982, \ p < .000 \); significant increases in child self-perception, \( F (1.946, 40.866) = 26.818, \ p < .000 \); and significant increases in positive parental verbal interactions, \( F (2.242, 47.081) = 18.312, \ p < .000 \). Although there were decreases in
directive parental verbal interactions, results were not statistically significant, $F(3, 63) = 2.066$, $p < .114$.

**Predicting Treatment Outcome.** The relationship between the change from beginning of treatment, week 2, session 2, to the end of treatment, week 15, session 15, as measured by the PASTOS subscales and an independent examiner’s observations of Clinical Global Impressions – Improvements (CGI-I; Guy, 1976) was performed next. Simple regressions were used to test the presence of significant predictors. (See Table 17).

**Self-Help Skills.** The change in self-help skills between Time 4, session 15, and Time 1, session 2, did not predict the independent evaluator’s impressions of symptom improvement, CGI-I, taken from the ADIS-C/P at week 16, post-treatment assessment. ($\beta = -.101, p < .340$).

**Anxiety and Related Emotional States.** The change in anxiety and related emotional states between Time 4, session 15, and Time 1, session 2, did not predict the independent evaluator’s CGI-I at week 16, post-treatment assessment ($\beta = -.030, p < .211$).

**Social Communication Skills.** The change in social communication skills between Time 4, session 15 and Time 1, session 2, significantly predicted the independent evaluator’s impressions of symptom improvement, CGI-I, taken from the ADIS-C/P at week 16, post-treatment assessment ($\beta = -.047, p < .003$).

**Child Self-Perception (Coping Skills and Confidence).** The change in child self-perceptions between Time 4, week 15, and Time 1, week 2, significantly predicted the independent evaluator’s CGI-I from the ADIS-C/P at week 16, post-treatment assessment ($\beta = -.103, p < .003$).

**Positive Parent-Child Verbal Interactions.** The change in positive parent-child verbal interactions between Time 4, week 15, and Time 1, week 2, significantly predicted the independent evaluator’s CGI-I at week 16, post-treatment ($\beta = -.134, p < .023$).
**Additional Regressions.** Further regression analyses were conducted.

**Change in Anxiety.** Change in anxiety was used as the predictor variable with changes in all of the PASTOS subscales, social communication, self-help skills, child self-perceptions (child coping skills and confidence), and positive parental verbal interactions between Time 4, week 15, and Time 1, week 2 (See Table 18). Changes in anxiety between Time 1 and Time 4 significantly predicted the changes in social communication, changes in positive parental verbal interactions with child, and self-perceptions (child coping and confidence), at week 15 (β = .829, p < .003; β = .195, p < .020; β = .432, p < .000). Changes in anxiety did not significantly predict changes in self-help skills or one item on the PASTOS, friendship.

**Change in Positive Parental Verbal Interactions with Child.** Change in positive parental verbal interactions with their child from Time 1, week 2 to Time 4, week 15, significantly predicted changes (See Table 19) in self-help skills, changes in anxiety, changes in social communication, changes in one item on the PASTOS, child initiation of conversations, and change in child self-perception (coping skills and confidence) at the end of treatment, week 15, (see Table 13; β = .274, p < .029; β = 1.248, p < .0020; β = 2.067, p < .004; β = .185, p < .017; β = .000)

**Change in Child Initiation of Conversation.** One last regression was run to determine the effect of change in child initiation of conversations, an item included in the Social Communication subscale of the PASTOS on friendship (another single item included in the Social Communication subscale of the PASTOS; See Table 20). Change in child initiations of conversation significantly predicted friendship at the end of treatment (β = .871, p < .023).

**Qualitative Results**

To answer Research Questions # 1, “Can an observational rating system of therapy process and outcome during CBT with families of children with ASD meet criteria for face
validity, content validity, and inter-rater reliability?” reliability data was collected from blind coders on five participants (twenty audiotapes) trained to code by the researcher using the developed manual.

**Qualitative Reliability**

Reliability for the qualitative portion of the dissertation was assessed using percent agreement between three trained observers who have completed their undergraduate degrees in Psychology at UCLA, and two groups of trained observers who are in process of earning their doctoral degrees in Educational Psychology at UCLA. The observers were given direct quotations taken from the five randomly chosen child and parent narratives that were used for the quantitative reliability and asked to sort them into the appropriate themes provided by the author (who had previously identified the themes using thematic analysis). The observers were blind to each other. The percent agreement data was then subjected to calculations to determine a kappa statistic which provides a quantitative measure of precision or magnitude of agreement between two observers (Viera & Garrett, 2005). The kappa calculation is based upon the difference between how much agreement is actually present (“observed agreement”) and how much agreement would be expected to be present by chance alone (“expected agreement”). The calculation of the kappa statistic is discussed thoroughly in an article by Viera and Garrett (2005) which demonstrated the use of kappa for medical research studies. Using information provided by Viera and Garret (2005), “kappa” is commonly interpreted as follows: < 0 is less than change agreement between two observers; 0.01 to 0.20 is “slight agreement”; .21 to .40 is “fair agreement”; .41 to .60 is “moderate agreement”; .61 to .80 is “substantial agreement”; and .81 to 0.99 is “almost perfect agreement”. As can be seen in Table 21 located in the Appendix,
agreement between observers for the qualitative themes ranged from 60% to 100%, with kappa coefficients ranging from .40 to .99 (fair agreement to almost perfect agreement.)

The themes were then integrated with results from the quantitative portion of this dissertation by use of a table and interpretations were made based upon theories from Disability Studies, Wood’s Intrusiveness Theory, Wood and Gadow’s Theory of Anxiety in Children with ASD, and Brewin’s Memory Retrieval Competition theory (See Tables 3, 4, 5, 6, 7, and 8 located in the Appendix).

**Summary of Qualitative Results**

**Research Question #2.** Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

**Beginning of Treatment.** In the beginning of treatment, weeks two and four, children expressed a variety of fears, such as worries about being accepted by peers, worries about being rejected by family, stress from academic performance pressure; feelings of low self-esteem; poor social communication skills; and greater than normal dependence on caregivers to perform daily tasks that other children their same age do independently. For example, one child worried about peer pressure and being rejected by her family.

Child: I’m going to talk about peer pressure.
What if I’m offered a cigarette?
Will they trust me? I might be kicked off the family tree!

A child was afraid of being embarrassed in front of a group, rejected by parent and rejected by his only friend:

Child: I’m afraid that I will mess up in front of people,
and my parent will call me stupid.

Child: I was wondering why I was shy, and because, what if my friend doesn’t want to play with me?

A seven year-old already displayed symptoms of low self-esteem. He put it simply when answering the following question: “What are you good at?”

Child: I’m not really good at anything.

Another child also displayed worries about keeping a friend during his first two weeks of treatment. The child did not know how to join a group at play such as with his friend and another child.

Child: My friend has been hanging out with his friend all week and ignoring me, and I don’t want him to get mad at me.

The child was also unsure about how to solve his worries about spending the night at a friend’s house, so he suggested sleeping with his mother. The therapist had asked what he thought kids could do if they were afraid to spend the night at a friend’s house:

Therapist: How about kids who are afraid to go to sleepovers? How do we keep practicing that?
Child: They could sleep in their mom’s room or something.

Another child, an eight year-old, spoke of having no friends, and that children at school had other friends to play with, but not him. He displayed both social anxiety during treatment and loneliness:

Child: I don’t have any friends. They have other friends.

One child worried that her friend might not hear her on the phone when she called her. It ended up that both children struggled with low vocal volume and they were able to share this with each other, giving a feeling of a sense of belonging.
End of Treatment. At the end of treatment, weeks ten and fifteen, children displayed greater social communication skills with their therapists during the treatment sessions. Some had developed groups of friends to hang out with at school and do things with. Some had become more independent in their personal self-help skills. Most of the children developed a greater sense of confidence and pride in their ability to master the difficult tasks that they had learned such as approaching a group of children to join in, or inviting a friend to come over to play.

A ten year-old boy talked of the group of children that he was part of at the end of treatment:

Child: It’s like being in a gang. Not the things, but the friends!

Therapist: I'm so happy about your friends, because, do you want to know why? Being one of the gang means that, you know, you have a lot of friends, and friends make us happy."

Child: I think…it's just that...I really like music, and all of my friends do it, so it makes me feel like ...feel like…feel like I'm in with my friends, and not the odd man out. I'm just really proud of myself.

Some children improved in their ability to do things for themselves similar to other typically developing children their own age. For example, a seven year-old boy excitedly told his therapist that he was going to be going to summer camp with his peers:

Child: Do you know what? I’m going to summer camp this year!

An eleven year-old girl discussed her improved ability to try new tasks around the house, even if she felt some residual anxiety, including personal self-help skills at the end of treatment, week 15:
Child: I did (washed) the knives <in the sink>, but I was like shaking.
Therapist: So tell me about shaving.
Child: Went excellent! We talked about how razors used to be back then and girls got a lot of um, … We used a Daisy one.

Some children developed deeper quality friendships with their friends. For example, this girl discusses her recent camping trip with her friends:

Therapist: So tell me about your camping trip!
Child: It was good, and on Saturday and Sunday, we went to the beach.
Therapist: Did you make better friends with Lillian and Amanda? Did you get to know stuff about each other?
Child: Yes, and I also played in their tent!

There were some children, however, who displayed minimal improvement in anxiety symptoms, social communication skills, and self-perception at week sixteen, the end of treatment when diagnostic measures were completed by an independent evaluator using the Clinical Global Impressions-Improvement (CGI-I, Guy, 1976) scale. For example, one nine year-old girl continued to display fears of making mistakes in front of others:

Therapist: How would you feel if I asked you to read in front of a few people, not everybody, right now?
Child: What if I make a few mistakes?
Therapist: Let’s say what if they do laugh? Is it terrible if they laugh?
Child: No.
Therapist: Why not?
Child: Because they are laughing because I messed up.

This particular child was still having difficulty with self-blame and self-perception, particularly about performances at school in front of peers.

There were other children whose family focus during treatment centered more on improving academics, and not peer relationships, a core area of the social communication deficits of ASD. For example, a twelve year-old boy was asked about his school homework
every week in therapy because the family's values centered on his academic success. The child was very stressed about the school homework:

Therapist: What would happen if you didn’t do your math homework?”
Child: Nothing really, but my teacher wouldn’t be so happy.”
Therapist: I’m going to write that down. And then what?
Child: She gets angry.
Therapist: And then what?
Child: And then, nothing really.
Therapist: Nothing? Does your grade go down?
Child: Your grade goes down.
Therapist: What would happen then?
Child: Nothing really.
Therapist: What would your mom do?
Child: Mom would get angry. I would get grounded. I would be sad.

One child, a nine year-old boy, displayed an interesting phenomenon; awareness of the stigma that is associated with the diagnosis of ASD. As he became more aware of his difficulties and worked to improve upon his social communication and confidence, he became angry at his therapist:

Child: I’m normal now! I don’t need your help!

It is interesting to consider this growth in a child with ASD. At this point, should therapists, educators and parents begin to guide the child into how to deal with a “hidden identity”? Should a child always disclose or never disclose that he has ASD? What are the implications of disclosing? Will educators be willing to treat the child as a typically developing child allowing more opportunity for growth?

Results were therefore mixed for response to treatment as measured by the qualitative data. Fifty percent of the children responded, which is defined as a CGI-I rating of 1 or 2 at the end of treatment. The other fifty percent were not considered as strong responders as they
received either a 3 or 4 on the CGI-I by an outside independent evaluator. The reasons why this occurred will be further investigated with the qualitative data when research question #3 is addressed.

**Research Question #3.** Did parent-child dyads in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

Qualitative results indicated that fifty percent of the participants improved in communication style and parent–child relations between the beginning of treatment and the end of treatment. For example, the parent of one child improved in her communication style over the course of treatment.

**Beginning of Treatment.** In the beginning, the parent used a more directive, authoritative communication style with her child:

Parent: Take your purse with you.
That's O.K. Take it with you.

This type of style in which the parent uses more verbal control is considered to be an authoritarian style (Baumrind, 1966), and it may be more prevalent in the beginning of therapy for many of these children. The way that language is taught is simplified because the children cannot process more than two to three words at a time. Directives are often given to the children, and parents are trained in these methods. Examples are as follows: Following directions: “Sit down,” “stand up.” Requesting a desired object: Say, “I want , please”. Perhaps parents have merely forgotten to adjust their style now that their children have advanced so far, and all that is needed is coaching and modeling by therapists using CBT.
End of Treatment. At the end of treatment, the same parent looks much more positive and grants autonomy using an authoritative / democratic style of parenting (Baumrind, 1966):

Parent: I know, she’s doing great, isn’t she?

Beginning of Treatment. Another parent of a young boy had the same type of transformation from a more authoritarian communication style to a more positive, authoritative / democratic style that grants autonomy (Baumrind, 1966; Ginsburg & Schlossberg, 2002). Below is an authoritarian-style of parental communication:

Parent: You know what? It’s not right! It’s not yours! You can’t draw on the paper unless Dr. Smith says you can.

The parental communication involved verbal control of the child's behavior

End of Treatment. The parent shows much more positive verbal communication with her child, a change to an authoritative / democratic style of communication, a positive communication style with her child:

Parent: He’s doing really well this year!

Similar to the response to CBT treatment by the children, parental communication style did not change in some cases; about fifty percent of the cases. For example, in one parent participant, the style of communication used by the parent, authoritarian, did not change, and it affected the potential of the child to learn and practice using age-appropriate social communication skills with his peers.

Beginning of Treatment. The therapist is trying to coach the parent into making time for the child to have one on one playdates with another child in order to develop better social communication skills and possibly develop friendship.

Therapist: Do you think that you might have time to have a friend over to your house?
Parent: I guess it will depend on how our schedule goes and stuff.

Parent: Your homework? You usually start at 3:30? And then take a 15-minute break in between. Do two assignments and then take a break. O.K.?

Child: O.K.

Therapist: What do you think you want as your reward for doing all these things next weekend, because this weekend you get to go to the driving range?

Child: Playing a three power ball?

Therapist: Yeah? What do you think about that one, mom?

Parent: Well, that will be up to dad. I guess it will depend on how, how, you know, how our schedule goes and stuff. That's a possibility.

This particular family's values may have been more centered on financial gain and academic success, and they worked very hard towards reaching these goals. The family had difficulty setting time aside to work with their child, however, and it may have affected the child's final response to treatment score at week sixteen as judged by an independent evaluator using the ADIS-C/P and CGI-I ratings at the end of treatment. This particular participant received a CGI-I of 4 which translates as "some improvement in core symptoms."

**Research Question #4.** What indicators from the qualitative and quantitative assessments of therapy sessions from weeks 2 and 4 in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial differed among the CBT treatment responders versus non-responders in terms of child anxiety, social-communication, and self-perception outcomes?

**Beginning of Treatment.** Most of the children in the study had fears about many things such as social interactions, keeping up their grades, whether friends would like them and continue to be their friend, fears about being accepted by others including family, and fears related to tasks around the home. It was found that children whose parents used more encouraging communication, and an authoritative / democratic style (Baumrind, 1966; Ginsburg & Schlossberg, 2002) with them towards the end of treatment, in which goals and rewards were
developed together, were the ones who made the most gains. They were the ones whose CGI-I ratings were 1 or 2 (completely recovered, very much improved). For example, one child had fears about making mistakes and children laughing at him at the beginning of treatment, weeks 2 and 4:

Child: Everyone is going to be mad at me because I didn’t say everything right.

Child: Someone might laugh at me, and I’ll be embarrassed for saying something wrong.

In contrast, another child, who did not do as well, with a CGI-I rating of 3 (much improved, but still considered to be a non-responder), had fears about making mistakes in front of others, keeping a friend, and making mistakes on homework. Additionally, this child was dependent on a parent for performing self-help skills such as washing own hair and doing homework independently. The therapist worked with the parent to motivate and reward child to do homework independently and to arrange playdates so that the child could develop a wider circle of friends. The parent had a difficult time changing an old style of communication with the child, the authoritarian style which involves control, criticism, insensitivity.

Parent: And also, she’s doing her homework. And, although it’s taking her a long time to do it still, she independently knows how to do it.

In this short excerpt taken from the end of the session where the therapist, parent, and child work together briefly for five to ten minutes to go over the previous week's assignments and plan for the upcoming week's homework assignments, a parent is still using a more directive, authoritarian (Baumrind, 1966; Ginsburg & Schlossberg, 2002) communication style. The communication style does not change substantially by the end of treatment, and there were not
that many positive communication exchanges between parent and child as there were in the responder group.

**End of Treatment.** At the end of treatment, the child who was afraid of saying anything in front of peers for fear of saying the wrong thing or being laughed at, showed a great response to treatment with a CGI-I of 2 (very much improved). The CBT treatment developed by Wood and colleagues (2007) involves a lot of work on the part of the parents and the child in the home setting. The families work with their therapist to develop playdates that are successful, and therapists work with the child and teacher at the school site to ensure that the playdates carry over into positive social interactions at school. This requires a lot of coordinating on the part of the parent, and goals that are mutually agreed upon using positive communication with the child. An example of the results that can be obtained when the family values align with the treatment goals in a mutually agreed upon manner between parent and child is as follows for a ten year-old boy with ASD:

Therapist: Tell me what kinds of things you did for your UCLA homework.”
Child: Playdates.
Therapist: Who did you play with?
Child: Kate and Jack.
Therapist: Well you have a good friend. How is it having a good friend?
Child: It's nice. He can help me in some way.
Therapist: I also heard that Adam is inviting you over. I was telling mom that…if you keep inviting kids over and they never invite you back, then...
but these kids actually like you. They call you back and they invite you back. Do you think that's a good thing?
Child: Yes.
Child: It’s like being in a gang. Not the things, but the friends!

Clearly this child had a very good outcome. His parents worked with their schedule and a rewards system for their child in collaboration with the child to ensure that he was successful
with the most difficult part of an autism spectrum disorder, the social communication and friendships. This child developed reciprocal friendships.

Another child, a nine year-old girl, displayed some gains, but not as good as could have been achieved. Parental encouragement did not appear as strong as would be hoped. An example of parental communication style is as follows during a session devoted to increasing the child's opportunities to make additional friends:

Therapist: O.K. I want you to call 3 different people this time.O.K.?
Just to say, “Hi.” Who might you want to call and say, “Hi,” to?
Child: Call who?
Therapist: Someone that you know.
Parent: Don’t talk with your mouth full!
Child: Cathy?
Therapist: O.K. you can call Cathy. Do you want to call Cathy?
Child: I don’t know what’s the number <sic>.
Parent: What about Jennifer? We know her number.
You know what? And call Wendy.
Ask her if she wants to play with you at home.”

At the end of treatment, week 15, in this short narrative, the parent communication style used was authoritarian (Baumrind, 1966) and was not as encouraging as it could be. The parent inadvertently made decisions for the child as to who she was to invite over for a playdate, thereby limiting the child’s ability to master the self-help task and independence by herself.

Discussion

This dissertation focused on using mixed methods to describe the therapeutic process and outcomes of elementary school-aged children with high-functioning autism who were treated with a cognitive behavioral therapy program, developed by Wood and colleagues (2007) designed to improve anxiety symptoms, social communication, independent living skills, and parent-child communication. Data was collected from transcriptions taken from child and parent narratives that were audiotaped across time. The results of both the quantitative coding system
developed by the author and the qualitative data showed a significant reduction in anxiety, a significant increase in social communication with therapists at the end of treatment, a significant improvement in encouraging, positive parental communication with child, significant improvement in child coping ability and confidence which led to improved child self-perception, and significant improvement in ability to perform daily living skills, including personal hygiene, independently by the children.

The mixed methods results from child and parent narratives from Wood and colleagues RCT (2009) supported previous research collected from parent-report instruments, that cognitive behavioral therapy is an efficacious treatment for children with high-functioning autism and anxiety disorders (e.g. Fujii et al., 2013; Storch, Arnold et al., 2013; Storch, Larson et al., 2013). Additionally, results from this mixed methods dissertation using child and parent narratives, supports Wood and colleagues (2009b) results of increases in social responsiveness, in addition to increases in on-topic, contingent utterances of the children with their therapists at the end of treatment, week fifteen, increases in initiations of conversation, and increased reciprocal friendships in the children as reported by them to their therapists at the end of treatment. The mixed methods results also provided additional support to results reported by Drahota and colleagues (2011) in which the children improved in their ability to independently perform daily living skills such as bathing, toileting, making lunch, doing homework independently, getting up by self, picking out own clothes, getting dressed, making calls to friends to arrange playdates, and check homework assignments with friends. This is an important area to continue to develop in children with ASD as research has shown that many, as adults, are not living up to their potential of having employment, living by self, and having a significant other in their life (e.g. Howlin et al., 2004). The answers to the specific research questions are as follows:
2.) Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

Statistically significant improvement was obtained at the end of treatment for reduction in child anxiety, improvement in independent performance of age-appropriate self-help skills, improvement in social communication, including initiations of conversation with their therapists at the end of treatment, as well as longer, on-topic conversations, and improved child self-perception reflecting pride, a sense of belonging at school with new friends, and participating in activities with friends out in the community such as camping trips, going to movies, going to the mall, and having multiple reciprocal get-togethers at friends’ houses. Children were found to have improved coping abilities and improvement in self-confidence.

One example of reciprocal friendships can be found in the conversation of a ten-year old boy with his therapist:

Therapist: How was your play with your friends? With RJ?
Child: It was really good.
Therapist: Did you enjoy it?
Child: Yeah in fact I get to go to my best friend's house today.

These are the types of outcomes for friendship building inherent in the BIACA (Wood et al., 2007) program that are very meaningful for the child and for his family.

In another example, in one participant, a child who was seven years-old, the child began treatment feeling that he was not good at anything. He had low self-esteem, low self-perception:

Therapist: What are you good at?
Child: I’m not really good at anything.

This child did not see anything good in his own abilities. Symptoms of many childhood disorders such as ASD and attention deficit hyperactivity disorder (ADHD) single them out from
their peers and cause problems in encounters with adults, which leads to loneliness and isolation (e.g. Hinshaw and Cicchetti, 2000; Lefly, 1989). This was also found to similarly affect their families as well. Furthermore, though helpful for attempting to access services, the medical-model of labeling disability and mental illness singles out a child, and does not always encourage compassion. The individual may be viewed as flawed or become particularly vulnerable to self-blame for the disorders (Corrigan & Miller, 2004; Goffman, 1963).

A ten year-old was afraid of doing something wrong that might lead to peer rejection. He also worried about losing his one friend. Examples from the beginning of treatment are as follows:

Child: Everyone is going to be mad at me, because I didn’t say everything right. Someone might laugh at me, and I'll be embarrassed for saying something wrong.

The child was so concerned that he most likely would not raise his hand in class, particularly in group assignments. This most definitely would affect not only his friendships, but also his academics. The following documents his worries about losing his only friend at the beginning of treatment:

Therapist: O.K….my friend has been hanging out with his friend all week and ignoring me…
Child: With his friend…
Therapist: All week. And I don't want him to get mad at me. So let's help…I am going to write this one. Can you help me think of calm thoughts for this guy over here?
Child: He's my friend. He has been my friend for about two years. I thought <sic> he still likes me."
Therapist: So he's been my friend…
Child: For a long time.
Therapist: What else?
Child: He still likes me.
Therapist: He still likes me. So how likely do you think it for him to approach his friend and his friend would ignore him? Do you think it's very likely?
Child: No.
In this example, the therapist coaches a child with ASD to develop more positive coping thoughts. By developing better coping skills that involve cognitive restructuring of previous negative thoughts, a child with ASD may not fear rejection from his friend and develop maladaptive coping responses such as withdrawal or anger towards his friend.

Anxious children’s self-statements reflect themes of preoccupation (of the supposed potential threat), anticipation of the future negative outcome from the perceived threat, and negative self-evaluation after failure to handle or cope with the perceived threat (Fox, Houston, & Pitner, 1983; Kendall & Treadwell, 2007; Prins & Hanewald, 1997). It is important to help the child be able to develop new, positive thoughts through restructuring of the negative thoughts. According to Brewin (2000), this will result in a competing schema in the child’s thought patterns that, with practice and repeated exposures to the imagined fearful event, will become the preferred thought processes, like well-worn groove marks in a frequently used off-road motorcycle track. The old negative tracks will still remain, but new, positive ones will be deeper and more easily accessed.

Another child had many fears in the beginning of treatment, and the child also displayed social communication difficulties by repeatedly talking of favorite movie characters using scripted language (Capps et al., 1998). The child was afraid of parent and family disapproval, as well, as can be seen in some of her conversations with her therapist:

Therapist: O.K. How about these funky people?
Child: There’s four of them. Which one do you want to start with?
Therapist: That one.
Child: That one. Now…
<interrupting therapist> That reminds me of BIFF!
Therapist: Of who?
Child: BIFF.
Therapist: O.K. so…
Child: Have you seen the movie, ‘Back to the Future’?
    You will do my homework for me! (using a movie voice of BIFF)

Clearly, this type of communication exchange would not be well-tolerated by a peer for very long. The child interrupted, switched the topic to one of her favorite movie characters using scripted speech (Capps, et al., 1998) from a movie (i.e. "Back to the Future"), and it was very difficult for the listener to follow, because the child did not provide the proper “foregrounding” to enable the listener to follow him in conversation. Baltaxe (1977) discusses these types of communication errors in her research of the conversations of high-functioning autistic children. Capps and colleagues (1998) also found in their research on the conversations of children with high-functioning autism that the children used odd, non-contingent, routinized, scripted speech in conversation to try to keep a conversation going, and they also talked of the children's difficulty in producing a narrative of personal experience. This child had a difficult time talking about emotions, and it was evident by her use of the scripted speech. These types of difficulties are also indicative of poor perspective taking, and delayed development of theory of mind (Baron-Cohen, 1985). This same child feared rejection by the family:

Child: I’m going to talk about peer pressure.  
    What if I’m offered a cigarette? Will they trust me?
    I might be kicked off the family tree!

According to Meyers and colleagues (2006) these types of children know that they are different and, they begin to become anxious trying to fit in. Wood and Gadow (2010) have described the avoidant behavior that develops after a child with ASD has unsuccessful peer interactions.

By the end of treatment, at week fifteen, the seven year-old child became confident of his own abilities to cope better, and he was excited to share with his therapist all of the new things he was going to be able to do:
Therapist: And you know what?
     It’s O.K. for kids to feel anxious.”
Child: Yeah.
Therapist: And you know what? When you’re having anxiety, when you’re
telling a story, what can you tell yourself to make it seem better?
Child: Just think about other stories…And like
     I have a way to get bad thoughts out of my head.
     I have lots of ways.
Child: Wow! See all this nice work I did?
Child: Do you know what? I’m going to summer camp this year!

The ten year-old child who worried about losing his friend developed many more friends
at the end of treatment, and his friendships were reciprocal. Research by La Greca and Harrison
(2005) has shown that friendship provides a buffer against child psychopathology in typically
developing children with social anxiety, and the current research is suggesting the same effect in
children with ASD. This boy also developed feelings of pride about his accomplishments, and a
nice, healthy view of his challenges with ASD without blaming himself for things he could not
change.

Therapist: Tell me what kinds of things you did for your
     UCLA homework.
Child: Playdates.
Therapist: Who did you play with?
Child: Kate and Jack.
Therapist: Well you have a good friend. How is it having a good friend?
Child: It's nice. He can help me in some way.
Therapist: I also heard that Adam is inviting you over.
     I was telling mom that…if you keep inviting kids over
and they never invite you back, then…but these kids
actually like you. They call you back and they invite
you back. Do you think that's a good thing?
Child: Yes. It’s like being in a gang. Not the things, but the friends!
Therapist: I'm so happy about your friends, because,
     do you want to know why? Being one of the gang means that,
you know, you have a lot of friends, and friends make us happy.
Child: I think…it's just that…I really like music,
     and all of my friends do it, so it makes me feel like…
     feel like…feel like I'm in with my friends,
     and not the odd man out.
     I'm just really proud of myself.
Therapist: You know what? What is happening to you?
Let me give you an illustration right here.
Say that this Star Wars in here is your Asperger's.
What do you think is happening to it now?
Do you think this Star Wars has grown bigger or has it become smaller?
Child: It's gotten smaller.
Therapist: Yay! That's very good. So what we're trying to do is, we're going to keep shrinking your Asperger's.
Child: Yeah, I think...I think most of the guys think that I'm normal now.
Therapist: You're excited to hear that?
Child: Yeah. And being smart.
Therapist: Just by saying your Asperger's went from this to this.... What happens to kids with Asperger's? Do they have friends? It's hard for them to make friends because if they do things that are different....right?
Child: I don't know exactly how much good comes with Asperger's, but if it went down to here, we would all be good friends!
Therapist: Yeah. I agree. Because we talked about how we don't want to get rid of everything with Asperger's, but just the bad things.
Child: The bad things.

Here the child is seen developing a healthy perspective of having ASD, and this will help him when he forges a new identity incorporating ASD within. He is able to see that working to develop behaviors and coping skills that help him to fit in with his peers and develop reciprocal friendships is worth the hard work that he has had to endure. In addition, he knows that he cannot completely eradicate his Asperger syndrome, nor would he want to, because that is not the treatment’s nor the therapist’s intent. He knows and so do the therapists, that there are many good strengths that come with having ASD. This child has worked through a new sense of identity blending two persons into one: one with Asperger syndrome (high-functioning ASD) and the other, a typically developing ten year-old boy.

Another child developed closer friendships with her two friends after treatment:

Therapist: Did you make better friends with Lillian and Amanda?
Child: Yes, and I also played in their tent!
Therapist: Did you guys stick together?
Child: Yeah. And we got a caterpillar! And went on an egg hunt.
Therapist: What kinds of things did you say to people to greet them or to say goodbye?
Child: Um, what’s your name? And I said goodbye to my two friends, and “I’ll see you tomorrow!

This child exudes happiness at having two new friends who like to do the same things that she does. She feels a sense of belonging and looks forward to the next day when she can see her friends again. Since underdeveloped friendships with peers is one of the core deficits of the social communication difficulties in ASD, this finding was encouraging.

An additional child talked of his reciprocal friendship that was developing with his best friend at the end of the CBT treatment:

Therapist: Well let's start off with your get-together with Fernando. Was that fun?
Child: Oh yeah, it was fun.
Therapist: What did you guys do?
Child: We played Legos. He made a six wheel car! Like three on this side and three on that side. I feel more mature.
Therapist: Yeah? Being such a good host?
Child: Yeah. Some of it, too. Like having a visitor come. And like being in charge.
Mother: I think it went very well. You know we kept each others' phone numbers.
Child: Mm-hmm. And this week I think he's going to invite me!

In this short vignette taken from week 15, the beginnings of a reciprocal friendship was forming. Especially noteworthy was the parental encouragement and willingness to make time to encourage and nurture the developing friendship.

At the end of treatment for a previously mentioned child who used odd, scripted, routinized speech (Capps, et al., 1998) from the movie, "Back to the Future," the outcome for
communication and friendship development after the BIACA CBT (Wood et al., 2007) was much improved.

Therapist: Do you think your friends would want to watch the Lindsay Lohan movie with you?
Child: Yeah!
Therapist: Who do you think would want to do that?
Child: Kiley. Well, actually, there's a new movie called ‘Lady in the Water’ that my friend, Kiley wants to see.

Therapist: Tell me the cool things you did for UCLA Homework. You and Lily went to the movies?
Child: Yeah.
Therapist: What movie did you see?
Child: The Wild.
Therapist: Oh?

Child: Very cute movie.
Therapist: Cute movie, huh?
Child: I thought it was better than Madagascar, myself.
Parent: And then her other friend, Kiley, was over, and we have two extra buildings in the back of our house, and she looks at it and asks me whose building it was. I said, "It's ours." Then she said, "Oh, I gotta go get Alice. We're going to move into that place."

In this vignette at the end of treatment, week 15, the young girl had developed several friends, and one of the friendships was becoming closer at this point in time. The girl had been taught specific ways to ask a friend to come over and specific ways to act during get-togethers with potential friends in order to be considered a "good host", and it appeared that the strategies used were paying off and generalizing to other days and other friends.

These findings add support to previously published studies on the use of CBT with children with ASD (e.g. Drahota et al., 2011; Wood et al., 2009(a); Wood et al., 2009(b); Fujii et al., 2013; Storch et al., 2013) to improve social communication, adaptive behavior, and reduce anxiety and maladaptive behavior. The findings of this dissertation are very important because,
once again, the results are showing CBT to be an efficacious, evidence-based treatment for children with ASD and anxiety, and it also can be used to improve core deficits of ASD such as social-communication and delayed daily living skills, especially personal daily living skills (Drahota et al., 2011). Improvement in the initiation of conversation, appropriate responses to peers, development of positive peer interactions and friendships, and improvement in independent performance of personal self-help skills such as bathing, brushing teeth, making own lunch, calling a friend on the phone to set up a get together, doing own homework by self, and doing presentations at school are all examples of the types of improvements that were made, particularly by the responders.

In addition, this dissertation resulted in the development of an instrument that is valid and reliable and can be used to measure treatment progress across time in important core areas affected by ASD, the PASTOS (Van Dyke & Wood, 2011).

3.) Did parent-child dyads in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions?

Statistically significant improvement in positive parental verbal interaction with their child was found in this study, and this is the first study in the ASD treatment literature that links improved parenting practices with improved treatment outcome in core ASD symptoms. Part of the reason for the success of the parent training component of Wood and colleagues (2007) CBT treatment is because the child and parent work collaboratively on goals to achieve for points earned towards privileges and rewards. The child and the parent discuss and agree upon goals through negotiation. This allows the child to feel that they have some autonomy and control over
their actions, and helps them to develop a sense of mastery and self-efficacy. In her research, Baumrind (1966) discussed parenting patterns that she had found after completing large studies of parenting patterns. She found three types of parents: authoritarian, authoritative / democratic, and permissive. An authoritarian parent is one who believes that a parent must shape children to keep control over them, restricting autonomy. This type of parent does not encourage verbal give and take, and respects that there is a higher authority that the child must be accountable to. The child's inclination to being self-willed was not to be tolerated, and discipline was important.

An authoritative parent is one who directs their child's behavior in a rational, issue-oriented manner. The parent encourages verbal give and take, and shares with the child, the reasoning behind the parent's actions. Both autonomous self-will and disciplined conformity are valued by the authoritative parent. This parent sets limits, but discusses the rationale with their child, and is open for discussion.

The permissive parent attempts to behave in a non-punitive, acceptant and affirmative manner with their child. They explain their rationale for every rule, and allow their child to regulate their own activities.

Past research has found that the best outcomes in rearing a child have come from the authoritative type of parenting. Limits are set, and they are open to discussion. Rationales are explained, and in this way the child is helped to regulate some of their activities, but also allowed to have some autonomy. The results from this dissertation are pointing towards the authoritative-type of parenting as having a positive outcome on children with ASD, just as with typically developing children.

Previous research has shown that a significant predictor of anxiety reduction in typically developing children is an increase in parental verbal encouragement (Silk, Sheeber, Tan, Ladouceur, Forbes, et al., 2013). Additionally, research from the family therapy field found that
an increase in positive communication between spouses is the result of cognitive structuring that focused on mutual goals rather than individual goals (Margolin & Weiss, 1978). The mutual goal setting allowed each spouse to feel some control in the exercise of changing behavior. In the BIACA CBT treatment developed by Wood and colleagues (2007), parents and child worked out mutually agreeable rewards that the child could earn during the week for performing personal self-help tasks, friendship making tasks, social-communication tasks at school with peers in order to continue the behavioral momentum of improving peer relations. This system of rewards that was mutually agreed upon by parent and child was a key component to changing parent communication style and also of the positive outcome of the treatment. Indeed, mutually shared goals increased the feelings of empowerment and control in the children, which in turn appeared to encourage the child to attempt more challenging assignments.

An interesting finding in this dissertation is that there were still some authoritarian parent-child verbal interactions that remained at the end of treatment; however these were not statistically significant. Results suggest that increasing positive parental verbal behaviors with a child can have a statistically positive effect on a child’s social communication, friendships, independent performance of self-help skills, and child’s self-perception. Margolin and Weiss (1978) were the first to use cognitive restructuring to work on the negative emotions that can occur during distressing communication between spouses. The results from this dissertation suggest that cognitive restructuring to make mutually agreed upon goals between parent and child has a very strong impact on child's learning and social behavior. It may be that Brewin’s model of Retrieval Competition (Brewin, 2002) may fit with learning new positive parenting behaviors to compete with previously learned negative behaviors in which the old behaviors are never completely eradicated, but the new positive behaviors are so embedded that the parent will
automatically resort to a more positive, choice granting, authoritative / democratic style of communication which will encourage autonomy and self-confidence in a child.

The parent of the seven year-old boy began the treatment using a more critical and controlling style of communication with the child:

Parent: You know what? It’s not right! It’s not yours!
You can’t draw on the paper unless
Dr. Smith says you can.

Research has suggested that a parent communication style involving control, criticism, and insensitivity significantly predicts poorer outcomes during treatment for anxiety disorders (Capps, Sigman, Sena, Henkar, & Whalen, 1996; Lieb, et al., 2000; Spokas & Heimberg, 2009; Whaley, Pinto, & Sigman, 1999; Wood, 2006); Wood, Kiff, Jacobs, Ifekwunigwe & Piacentini, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In a study that assessed parent-child communication interactions, Whaley et al., (1999) found that maternal behaviors that were exhibited during interactions with their anxious children predicted child anxiety. Mothers who were less warm and positive in their interactions with their children granted less autonomy, were more critical, and more catastrophizing than mothers of typically developing control children. The parent of one young girl meant well and tried to follow therapist instructions for working with her child at home throughout the week, however the parent did not always place a high priority on achieving personal self-help skills. This may be because different families have different cultural values that may not be in alignment with what treatment providers are trying to accomplish. For example here is the parent of a girl discussing her assigned homework for the week in which she was assigned the task of purchasing various supplies to help her daughter become independent in her personal daily living skills:

Therapist: Did you get the ….<shower head>?
Parent: No. We’re still….I can’t find it.
Therapist: Really?
Parent: I went to Target and they only have the shower head. They don't have the complete set.

Therapist: Oh.

Parent: For the body. But I'm going to Sears.

Therapist: Excellent. So keep making progress with that.

Parent: Yeah.

In this example, the parent did not seem to be especially committed to follow-through at home for personal self-help skills that would ensure that the child learn to take care of her personal grooming by self. This may lead to the perpetuation of anxiety in the child, because she will begin to believe that she cannot do the tasks by self, and instead develop a learned helplessness. In turn this leads to feelings of lower self-efficacy, and lower child perception of self.

In another example of parent-child communication that did not involve encouragement, the parent of an older boy wanted her child to spend his time on homework completion, not playdates with potential friends:

Therapist: Do you think that you might have time to have a friend over to your house?

Parent: I guess it will depend on how our schedule goes and stuff.

Parent: Your homework? You usually start at 3:30? And then take a 15-minute break in between. Do two assignments and then take a break. O.K.?

Child: O.K.

Therapist: What do you think you want as your reward for doing all these things next weekend, because this weekend you get to go to the driving range?

Child: Playing a three power ball?

Therapist: Yeah? What do you think about that one, mom?

Parent: Well, that will be up to dad. I guess it will depend on how, how, you know, how our schedule goes and stuff. That's a possibility.
This family’s values appeared to emphasize financial and academic success. Friendships and autonomy may not have been valued as highly, and the independent completion of age-appropriate tasks was not emphasized. Parents did not often follow-through with playdates for the child or provide the agreed upon rewards to the child when he completed his UCLA homework tasks, thereby inadvertently sabotaging potential success of the child.

Another parent demonstrated an authoritarian style of verbal interaction with her child in the beginning of treatment:

Parent: Take your purse with you!
That's O.K. Take it with you.

Parental over-involvement with children’s basic self-care tasks has been implicated in the maintenance of anxiety disorders in typically developing children (Wood, 2006; Drahota, Sterling, Hwang & Wood, 2013). According to Wood’s parental intrusiveness model, when a parent takes over and completes a self-care task that a child is capable of performing, such as keeping track of own belongings, and that same-age peers are performing independently, they inadvertently prevent a child from struggling to learn the task and from feeling the sense of mastery that comes with completing the task themselves. This then perpetuates anxiety in the child because he or she is dependent upon the parent for tasks that they could be doing themselves. The child may develop a “learned helplessness” about a variety of novel tasks.

Another parent displayed authoritarian communication style with her child because the parent may have been embarrassed by the child's high activity level:

Parent: If you want to take part, you can listen, honey!
Parent: Jack, you're not listening!

Research suggests that parental criticism plays a part in the perpetuation of generalized anxiety and social anxiety / social phobia. Children who are criticized more frequently have
unrealistic expectations of self and more social anxiety or social phobia (Antony, Purdon, Huta, & Swinson, 1998). They tend to be perfectionists. When these expectations are not met, they tend to develop low self-esteem. This in turn can affect motivation and mental health.

At the end of treatment, participants had varying results. The parent of the seven year-old boy improved her verbal communication style to that of authoritative (Baumrind, 1966; Ginsburg & Schlossberg, 2002) with her child and displayed this in front of the therapist:

   Parent: He’s doing really well this year!

The embarrassed parent of the active child had the same type of results at the end of treatment when discussing and praising her child in front of the therapist:

   Parent: Really, really proud of you. Been having a lot of great days. On the papers that they <school> send home. A lot of papers, they say ‘great days.’

The same results occurred for the child who previously talked non-stop about movie characters. The parent displayed improved positive parental verbal interactions with her child and improved parental encouragement:

   Parent: “I know. Isn’t she doing good? She’s doing awesome!”

There were some parents, however, who did not adjust their communication style from an authoritarian to authoritative / democratic style with their children with ASD at week fifteen, the end of treatment. They appeared comfortable using an authoritarian communication style. This finding may have been due to cultural beliefs and values that may not have been in alignment with the purposes and goals of the CBT treatment developed by Wood and colleagues (2007). For example, one caregiver continued to display the use of an authoritarian parenting style:

   Parent: We don’t have all day, Babe.
   Parent: Don’t talk with your mouth full.
Parent: Throw this away for me, Babe.
Therapist: There’s a trashcan here. I can throw it in here.
Parent: <directed towards the therapist> She can do it.
Child: <screaming at parent> I’m not your babe!

The child was feeling very uncomfortable with the use of the word, “babe” and with being directed by the parent in front of therapist, when the therapist had offered to throw away the trash.

Past research has suggested that a parental emotion-regulatory response to shame increases the likelihood of psychological control of a child; over-protection and critical and rejecting behavior (Mills, Freeman, Clara, Elgar, Walling, & Mak, 2007). Researchers found that parents whom reacted with anger and hostility towards their child, used critical and rejecting behavior towards typically developing preschoolers. When social support is provided to the parents or other caregivers, however, past research has suggested it helps to mitigate negative effects of stress on parents, and when parents perceive they have high levels of social support, they are less likely to appraise their environment as threatening or stressful (e.g. Lazarus & Folkman, 1984; Matthews, Booth, Taylor & Martin, 2011).

Parents of children diagnosed with ASD have also been described as having “courtesy stigma” or “affiliate stigma” (Goffman, 1963; Werner & Shulman, 2013) in which they must manage their “spoiled” identity due to the stigmatizing nature of their child’s diagnosis (e.g. Farrugia, 2009). Studies have shown that stigmatization is linked to a lower level of quality of life, and subjective well-being was recently researched in caregivers of children with disabilities including those whose children had ASD, intellectual disabilities, and physical disabilities (Werner & Shulman, 2013). The authors found that subjective well-being was below normal in caregivers of children with disabilities, and it was the lowest in caregivers of children with autism. The authors suggested that it is important to provide support for caregivers of those with
disabilities, particularly ASD, across the lifespan, in order to decrease stigma, improve social support, improve self-esteem, and improve subjective well-being. Farrugia (2009) found that a child’s diagnosis of ASD is critical for parents so that they may be able to resist stigmatization. In his study, Farrugia (2009) found that parents experienced a large amount of enacted stigma, but resisted felt stigma by using their medical knowledge in order to express that they still had an “unspoiled” identity. Resistance to stigma was successful to the degree that medical construction of deviance by parents was accepted by people in power in the culture’s institutions such as schools, hospitals, universities. It is suggested that additional social supports for parents is needed, particularly if they display hostility and anger towards their child. The psycho-education provided to the parent in Wood and colleagues’ CBT treatment for ASD children is therefore very important for the resistance to stigma felt by the parents. This in turn may decrease feelings of shame, anger and hostility, and thereby increase positive communication between the parent and child.

4.) What indicators from the qualitative and quantitative assessments of therapy sessions from the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial differed among the CBT treatment responders versus non-responders in terms of child anxiety, social-communication, and self-perception outcomes?

The participants who were considered treatment responders in this study had a CGI-I (Clinical Global Improvement- Impressions; Guy, 1976) score of 1 or 2 (completely recovered or very much improved) at the end of the study, week sixteen, when evaluations were completed by independent evaluators, indicating that they no longer had symptoms of anxiety or only a very small amount left. Participants who received a CGI-I score of 3 or 4 (“much improved” or “some improvement”) were considered to be non-responders for this dissertation study. The indicator that separated the two groups was parental communication style. Those parents who
communicated encouragement and used a positive, choice-granting, style of communication (i.e. authoritative / democratic style) had the most improved children. These parents also followed through with weekly UCLA homework assignments from therapists and consistently supplied the rewards that were mutually agreed upon by the parent and child when the child earned them. The responder parents arranged their schedule and priorities to incorporate weekly playdates for their child and another child to allow time to learn and practice social communication skills live with a friend. These parents also made time to spend time with the child, one on one, just parent and child, as one of the rewards. Research has shown that changes in positive parenting skills significantly mediates change in problem child behavior in children with conduct disorder (Gardner, Burton, & Klimes, 2006), and the results of that study suggested that parent skill change was the most salient ingredient in an effective parenting program. The program used in Gardner and colleagues' study (2006) was based on a collaborative model between parent and therapist that built on the parent's strengths and expertise. The components that made up the program included parent-child play, praise, incentives and rewards, problem-solving with child, limit setting, and discipline. Many of these components of building parenting skills was used in the BIACA program developed by Wood and colleagues (2007). In the BIACA program, follow-through at home was especially important to the success achieved by the children. The parenting style modeled for the families was an authoritative / democratic style. Some families that did not respond as well to the treatment may have held different beliefs and values that they felt were the most important factors for their children to learn. For example, some families may have felt that it was the most important thing to achieve was academic success.

Previous research has suggested that parental communication style with a child that involves a more directive, authoritarian style of parenting such as more frequent use of control, criticism, and insensitivity significantly predicts poorer outcomes during treatment for anxiety
disorders in typically developing children (Capps, Sigman, Sena, Henkar, & Whalen, 1996; Lieb, et al., 2000; Spokas & Heimberg, 2009; Whaley, Pinto, & Sigman, 1999; Wood, 2006; Wood, Kiff, Jacobs, Ifekwunigwe & Piacentini, 2007; Wood, McLeod, Sigman, Hwang, & Chu, 2003). In a study that assessed parent-child communication interactions, Whaley and colleagues (1999) found that maternal behaviors exhibited during interactions with their anxious children predicted child anxiety. Mothers of anxious children were less warm and positive in their interactions with their children, granted less autonomy, were more critical, and more catastrophizing than mothers of control children. In a review of factors that affect treatment outcome in childhood anxiety disorders in typically developing children, it has been found that an authoritative/democratic parenting style, in which parents direct behavior but encourage a child’s verbal give and take, share reasons for rules, and encourage independence, is associated with lower anxiety. There is also research that suggests that variations in parenting behavior may effect child development (Baumrind, 1966; Ginsburg & Schlossberg, 2002) and also the development of children with ASD (e.g. Siller & Sigman, 2002). Observational studies have found that parents that engage in or reinforce coercive behavior with their child, such as when the child is involved in attention-seeking behaviors or escape and avoidance behaviors, unwittingly reinforce these behaviors (Lucyshyn et al., 2007; Maljaars, Boonen, Lambrechts, Ven Leeuwen, Noens, 2014)). It is therefore important for the parents and families of ASD children to be taught evidence-based interventions that are based upon behavioral principles such as reinforcement of desired behaviors and extinction of undesired behaviors, and these are the types of strategies that are used in the Wood and colleagues (2007) BIACA CBT intervention for children with ASD.

Kuhn and Carter (2006) studied parental self-efficacy in families with ASD, and they suggested that mothers who had high autism knowledge and played active roles in their child’s
development had a higher sense of agency and persisted in strategies that minimized maladaptive behaviors in their child and maximized their child’s adaptive behaviors. They also had lower feelings of guilt and depression. In another study of parental self-efficacy in adolescents with eating disorders, it was found that family-based therapy improved parental self-efficacy over time, and predicted reductions in anxiety and depression in the youth (Robinson, Strahan, Girz, Wilson, & Boachie, 2012). It may well be that the non-responders to the CBT treatment developed by Wood and colleagues (2007) were distinguishable by parental cognitions that were not fully measured in the study. Future studies might investigate the effect on child development in children with ASD when there is psychopathology present in the parents. Improvement in parenting self-efficacy and subsequent decrease in parental psychopathology may be what happened to the participant responders in this treatment study, and thus this lead to improved child outcomes. Positive parent-child verbal interactions and parental encouragement significantly predicted a number of treatment outcomes such as improved anxiety, social communication, including friendships and initiations of conversation, independent performance of self-help skills, and child’s self-perception.

From a policy perspective, it is suggested that practitioners might wish to consider counseling parents who appear to be having difficulty with the ASD diagnosis and suffer from guilt and depression, particularly those who do not have other means of social support. Maternal communication style and self-efficacy appear to be important to child treatment outcome in this research study, and it is why psycho-education is an important component of the CBT treatment for children with ASD and anxiety developed by Wood and colleagues (2007).
Summary and Concluding Remarks

In this dissertation, the author set out to investigate the therapeutic process across sixteen weeks of modified CBT treatment for children with high-functioning autism, anxiety disorders, maladaptive social and adaptive behavior by the use of child and parent narratives in a mixed methods design. The author first developed a quantitative coding system that is both reliable and valid, and she found results that support previous research treatment studies of the use of CBT to treat children with ASD and comorbid anxiety, social maladaptive behavior, and maladaptive self-help skills (e.g. Drahota et al., 2011; Wood et al., 2009(a); Wood et al., 2009(b); Fujii et al., 2013; Storch et al., 2013). Results suggest improvement in social communication in the children when anxiety decreased. This provides additional support to Wood and Gadow's theory of anxiety development in children with ASD where avoidance and withdrawal by ASD children from social situations occurs because, due to social skill deficits or awkwardness in using them, the children have previously experienced aversive social interactions with peers. They may have received peer rejection or ridicule. By teaching coping strategies and practicing newly learned communication skills right before the time they will use them in the environment that they will use them in with children who are more caring and nurturing, the children can become more successful and generalization will occur. The CBT treatment developed by Wood and colleagues (2007) was designed to be used not only in the therapy session, but also to be transferred to the parent in the home as well as to the school environment through a teacher or aide. Parents are trained in the implementation of effective parenting practices including developing mutually shared goals and rewards with their children to encourage a more authoritative / democratic parenting style. The goal of the parent training is to learn how to best improve motivation and independence in the children. Parent training and counseling is in the reauthorized IDEA 2004 federal law and should be an important component of a child's Individualized Education Plan.
Additionally, in this dissertation study, the author used thematic analysis to find further support for her quantitative findings. Since the CBT therapy process each week is an activity in and of itself that has its own unique ecocultural context when one considers the different families, home settings, even therapists that bring their own unique style to the setting (e.g. Weisner, 2002), it provides a unique developmental pathway for children with special needs such as ASD and their families to grow in. The author felt that thematic analysis would provide additional insight into the CBT program by Wood et al., (2007). She found that improvement in positive parental verbal interactions with a child and higher levels of parental encouragement led to better outcomes. This is in line with parental self-efficacy research in which it has been found that parents who have high parental self-efficacy, or the belief that they can influence their children and their environments in ways that lead to positive development, have higher positive parenting practices (Bandura, 1997; Dumka, Gonzales, Wheeler, & Millsap, 2010).

One area of future research that may prove fruitful for next steps would be to investigate parental psychopathology and its effects on treatment outcomes, as well as treatment outcomes when additional psycho-education is provided to caregivers through a social supportive system such as a support group. An additional area to investigate would be identity in children with ASD. How do children navigate their new dual identity with the diagnosis of ASD? Is it helpful for them to have friends with similar needs and struggles as well as with typically developing peers? Playground observations would be another study that could be done to investigate generalizability of the treatment gains. And finally, studies could be done to add to the developing literature of effects of having a child with ASD on families who are working. It has long been known that having a child with special needs provides additional stressors on a family as a whole. Qualitative research by Matthews, Booth, Taylor and Martin (2011) found that the family domain can greatly impact experiences and decisions made with regards to employment.
for families with special needs, including those with ASD. Many families have to take time off work and accept lower paying positions for the flexibility in schedule that is provided. This in turn affects the services available for the child, because the family might not be able to afford the Cadillac treatments, instead only those services deemed to be “free and appropriate” in special education law.

A final note concerns the need for parental support while they raise a child with ASD. Mixed methods research by O’ Brien (2007) found that parents, especially mothers, experience “ambiguous loss” when their child is diagnosed with ASD. Their identities blur into their child’s, and parents’ feelings can change every day, going up and down like a roller coaster, as a function of how the child is functioning on any given day. It was reported that mothers who experienced higher levels of identity ambiguity were more likely to have higher levels of depression and perceived stress regardless of the severity of their child’s ASD. It may be important for professionals to recognize the presence in parents of “ambiguous identity” based upon ambiguous loss theory and provide additional supports as well as effective parent training to help maximize child outcomes.
Appendix – Qualitative Tables

Table 3

Integration of Quantitative Results and Qualitative Results
Corresponding to the Research Question 2 for weeks 2 and 4

2.) Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions for weeks 2 and 4?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Phrase</th>
<th>Beginning of Treatment Weeks 2 and 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 002 CGI-I: 2</td>
<td>Child: “I’m not really good at anything.”</td>
<td>Shame – Child fears failure in all domains, feels like he should not even try</td>
</tr>
<tr>
<td>RESPONDER</td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td>Child Self-Perception</td>
<td></td>
<td>Domains affected: Home, academic, social</td>
</tr>
<tr>
<td>Extensiveness rating: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 004 CGI-I: 3</td>
<td>Child: “I was scared of presenting.” “I was the second one up there, and I didn’t know what to say.” “I didn’t feel ready.”</td>
<td>Fear: Child is afraid of making mistakes in front of peers.</td>
</tr>
<tr>
<td>NON-RESPONDER</td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td>Anxiety and related emotional states</td>
<td></td>
<td>Domain(s): Academic, social, home</td>
</tr>
<tr>
<td>Extensiveness rating: 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 067  CGI-I: 2</td>
<td>RESPONDER</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Anxiety and related emotional states</td>
<td>Child: “Everyone is going to be mad at me because I didn’t say everything right.”</td>
<td></td>
</tr>
<tr>
<td>Extensiveness rating: 7</td>
<td>Child: &quot;Someone might laugh at me, and I'll be embarrassed for saying something wrong.&quot;</td>
<td></td>
</tr>
<tr>
<td>Fear – child is so sensitive to previous failures in the group situations at school that he is afraid to speak. This affects his chances of making friends and his academics because he will be hesitant to ask and answer questions in class. Impact: High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domains: social, academic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td></td>
</tr>
</tbody>
</table>
| Anxiety and related emotional states | Therapist: "O.K….my friend has been hanging out with his friend all week and ignoring me…"
Child: "with his friend…” |
| Social communication - friendship | Therapist: "…all week. And I don't want him to get mad at me." So let's help…I am going to write this one. Can you help me think of calm thoughts for this guy over here? |
| Extensiveness rating: 7 | Child: "He's my friend. He has been my friend for about two years. I thought <sic> he still likes me." |
| Fear: Child is afraid that his friend will no longer play or hang out with him. Possessive and jealous of friend's friendship with another child. |
| Impact: High |
| Domain: Social |
| Loneliness: Child is feeling lonely. Feels like he is left out. Not sure how to handle the situation. Withdraws. |
| Impact: High |
| Domain: Social |
Therapist: "He still likes me. So how likely do you think it is for him to approach his friend and his friend would ignore him? Do you think it's very likely?"

Child: "No."

Therapist: "No. He is not going to…"

Child: "…ignore me because he is a good friend."

<table>
<thead>
<tr>
<th>ID 063</th>
<th>CGI-I: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-RESPOIDER</td>
<td></td>
</tr>
</tbody>
</table>

Anxiety and related emotional states

Extensiveness rating: 7

Child: “My God! I’m about to spill my milk, and my mom is going to kill me. My mom will ground me.”

Fear- child is trying to do what is expected in the home. Afraid of parental over-reaction to child’s difficulties with gross and fine motor skills.

Impact: High
Domain: home
<table>
<thead>
<tr>
<th>ID 101</th>
<th>CGI-I: 4</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Child Self-Perception</td>
<td>Extensiveness rating: 1</td>
<td></td>
</tr>
</tbody>
</table>

Child: “Because I sound like a three year-old nerd.”

Shame: Child is ashamed that he has autism spectrum disorder. He is very self-conscious.
Impact: High
Domain(s): Social, academic, home

Loneliness: Child is lonely.
Impact: High
Domain(s): Social, academic, home

<table>
<thead>
<tr>
<th>ID 063</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Social Communication-Friendship</td>
<td>Extensive rating: 4</td>
<td></td>
</tr>
<tr>
<td>Child Self-Perception</td>
<td>Extensiveness rating: 2</td>
<td></td>
</tr>
</tbody>
</table>

Child: “My best friend was coming over and I was thinking about why I was shy, and I had the feeling because, “What if she doesn’t want to play with me?”

Fear - Child is afraid her friend may not want to play with her. Child may withdraw in an attempt to prevent failure in a social situation. Friend may not interact with her because she has withdrawn from her.
Impact: High
Domain(s): social

Loneliness - Child is lonely and worried.
Impact: High
Domain(s): Social

<table>
<thead>
<tr>
<th>ID 024</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Social Communication-Initiations, Friendships</td>
<td>Extensiveness rating: 1</td>
<td></td>
</tr>
</tbody>
</table>

Parent: “What about talking to kids when you line up in the morning in front of school?”

Child: “If I had to do that at school, I’d be very, very scared. Really, really, really, really, really, really, really scared.” “It’s super

Fear - Child is afraid to approach other children and talk to them while in line at school.
Impact: High
Domain(s): social, academic

Loneliness – Child is
<table>
<thead>
<tr>
<th>ID</th>
<th>CGI-I:</th>
<th>Type</th>
<th>Anxiety and related emotional states</th>
<th>Extensiveness rating: 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>063</td>
<td>3</td>
<td>NON-RESPONDER</td>
<td>Positive Parental Verbal:</td>
<td>Extensiveness rating: 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child: “I think I’m going to mess up in front of class, and then my mom will call me stupid.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fear: Child fears making mistakes in front of others, fears parent disapproval.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Impact: High</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domain(s): Home, academic.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parental discouragement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Parent uses more authoritative, impatient, communication style.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Impact: High</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domain(s): Home, social, academic</td>
<td></td>
</tr>
<tr>
<td>036</td>
<td>2</td>
<td>RESPONDER</td>
<td>Child: “Maybe they’ll kick me off the family tree.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fear: Child fears failing in front of others, fears being rejected by family.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Impact: High</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domain(s): Home, academic, social.</td>
<td></td>
</tr>
<tr>
<td>004</td>
<td>3</td>
<td>NON-RESPONDER</td>
<td>Child: “She is scared because the phone is ringing and she does not want to answer it because nobody is home and …” “I’m not going to answer the phone</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fear: Child is afraid of harm coming to self. Afraid that she will be separated from her family. She is afraid that she may be replaced in the family.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Impact: High</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domain(s):</td>
<td></td>
</tr>
<tr>
<td>ID 001  CGI-I: 4</td>
<td>Child: “I’m scared of another tournament... because, because I was scared that I was going to lose.”</td>
<td>Fear: Child is afraid of failing in front of others, so he avoids the situation. Avoids even trying something he loves to do. Impact: High Domains: Academic, social, home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 067  CGI-I: 2</td>
<td>Therapist: How about kids who are afraid to go to sleepovers? How do we keep practicing that? Child: “They could sleep in their mom’s room or something.”</td>
<td>Dependency: Child is dependent on parent to sleep, most likely has hard time separating from parent and struggles doing things independently. Impact: High Domains: Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 001</td>
<td>CGI-I: 4</td>
<td>NON-RESPONDER</td>
<td>Self-help skills</td>
<td>Extensiveness rating: 1</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>---------------</td>
<td>------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“No! Doing homework on my own is almost frightening to do.”</td>
<td>Dependency: Child is dependent on parent to do his / her homework. Impact: High Domains: Home, Academic</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 024</th>
<th>CGI-I: 1</th>
<th>RESPONDER</th>
<th>Social Communication- (Friendships)</th>
<th>Extensiveness rating: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child: “I don’t have any friends.”</td>
<td>Loneliness: Child is lonely. Impact: High Domains: Social</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 024</th>
<th>CGI-I: 1</th>
<th>RESPONDER</th>
<th>Social Communication- (Friendships)</th>
<th>Extensiveness rating: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child: “They have other friends.”</td>
<td>Loneliness: Child is lonely. Impact: High Domains: Social</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 049</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
<th>Anxiety and related emotional states</th>
<th>Extensiveness rating: 7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Therapist: “How do you think she’s feeling, by looking at her face?”</td>
<td>Fear: Child is afraid of making a mistake in front of others and also afraid that kids will laugh at him. Impact: High Domains: Academic, social, home</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child: “Sad.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Therapist: “And what else?”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child: “Scared.” She’s about to solve a problem, and she’s scared to draw the answer.” “Well she doesn’t know the answer.”</td>
<td></td>
</tr>
<tr>
<td>ID 081</td>
<td>CGI-I: 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESPONDER</td>
<td>Anxiety and related emotional states</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensiveness rating: 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Communication-Friendship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensiveness rating: 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping / Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensiveness rating: 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Therapist: “O.K. I don’t know the answer. Do you think there’s a whole bunch of kids sitting right in front of her? So what are they going to do to her?”

Child: “They’re going to laugh at her!”

Therapist: “Right! I’m worried, or I’m scared that the kids will what?”

Child: “Will laugh at me!”

Therapist: “So tell me what you wrote? What was going on when you were feeling nervous?”

Child: “I was on the phone with my friend, Lillian.”

Therapist: What were your “icky thoughts?” That Lillian might not hear you? Is that because you are afraid that you were talking too low?”

Child: “I called her, and she heard me.”

Fear – The child is afraid that her friend won’t talk to her because she doesn’t hear her.

Impact: Moderate
Domain: Social

Sense of Belonging – The child feels a sense of belong with her friend, because they both have the same difficulties that they are working through.

Impact: High
Domain: Social

Bravery – The child makes the call, even though she has fear.

Impact: Moderate
Domain: Social
Table 4

Integration of Quantitative and Qualitative Results
Research Question #2, Ending sessions of treatment, weeks 10 and 15

Themes Corresponding to Research Questions

2.) Did children in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in anxiety, social-communication, and self-perceptions over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions at weeks 10 and 15?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Phrase</th>
<th>Qualitative Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 036 CGI-I: 2 RESPONDER</td>
<td>&quot;I just used the K.I.C.K. plan.&quot;</td>
<td>Pride: Child is confident that he can handle difficult situations and he knows how to cope with these situations. Impact: High Domains: Home, Academic, Social</td>
</tr>
<tr>
<td>ID 036 CGI-I: 2 RESPONDER</td>
<td>&quot;I just used the K.I.C.K. plan.&quot;</td>
<td>Fear: Child is no longer clinically fearful in activities at home, at school, and with friends. Impact: High Domains: Academic, home, social</td>
</tr>
</tbody>
</table>

Coping / Confidence
Extensiveness rating: 7

Anxiety and related emotional states
Extensiveness rating: 1
<table>
<thead>
<tr>
<th>ID 067</th>
<th>CGI-I: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPONDER</td>
<td></td>
</tr>
</tbody>
</table>

**Anxiety and related emotional states**
Extensiveness rating: 1

**Social Communication-Friendship**
Extensiveness rating: 7

**Coping / Confidence**
Extensiveness rating: 7

Therapist: "I'm so happy about your friends, because, do you want to know why? Being one of the gang means that, you know, you have a lot of friends, and friends make us happy."

Child: "I think…it's just that…I really like music, and all of my friends do it, so it makes me feel like…feel like…feel like I'm in with my friends, and not the odd man out." "I'm just really proud of myself."

**Fear:** Child no longer has fear about social situations.

Impact: High

Domains: Social, academic, home

**Sense of Belonging:** Child has many friends. Feels like he is part of the gang, part of the group. He does not feel like an outsider.

Impact: High

Domains: Social, academic, home

**Bravery:** Child can face any situation now and cope with it. He feels confident that he can handle anything. He feels confident in his own ability to figure out solutions to problems in life.

Impact: High

Domains: Social, academic, home

<table>
<thead>
<tr>
<th>ID 101</th>
<th>CGI-I: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>NON-RESPONDER</td>
<td></td>
</tr>
</tbody>
</table>

**Anxiety and related emotional states**
Extensiveness rating: 7

Child: “I have a lot of homework to do tonight.”

Therapist: “I actually going to talk to your mom tonight about the homework situation. I think that we need to make it a little bit easier for you and

**Fear:** Child is afraid of consequences of not getting his homework done. So stressed that he has begun to have disturbing thoughts in his mind.
<table>
<thead>
<tr>
<th>ID 063</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
</tbody>
</table>

Therapist: How would you feel if I asked you to read in front of a few people, not everybody, right now?"

Child: "What if I make a few mistakes?"

Therapist: "Let's say what if they do laugh? Is it terrible if they laugh?"

Child: "no."

Therapist: "Why not?"

Child: "Because they are laughing because I messed up."

**Fear:** Child is afraid of making mistakes in class, in front of peers. Child does not understand the concept of “it's no big deal” if I make a mistake.

**Impact:** High

**Domains:** Academic, social
<table>
<thead>
<tr>
<th>ID 067</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
<th>Coping / Confidence</th>
<th>Extensiveness rating: 7</th>
<th>Child: “I did well.”</th>
<th>Pride: Child is proud of himself and is able to evaluate self in a positive manner after his performance. Impact: High Domains: Home, academic, social</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 001</td>
<td>CGI-I: 4</td>
<td>NON-RESPONDER</td>
<td>Self-Help Skills</td>
<td>Extensiveness rating: 1</td>
<td>Therapist: “What happened to my guitarist?”</td>
<td>Dependence: Child is dependent on parent to stand there prompting him to finish homework Impact: High Domains: Home, academic</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coping / Confidence</td>
<td>Extensiveness rating: 1</td>
<td>Child: “My mom had to stand over me because I might get held up.” (i.e. distracted, off-task) Therapist: “She was just standing behind you?” Child: “mmhmm. Yes.”</td>
<td></td>
</tr>
<tr>
<td>ID 036</td>
<td>CGI-I: 2</td>
<td>RESPONDER</td>
<td>Anxiety and related disorders</td>
<td>Extensiveness rating: 1</td>
<td>Child: “And I didn’t feel any anxiety without my Luke stuff!”</td>
<td>Brave: Child is no longer afraid. Child is confident in her abilities to handle difficult emotions such as fear. Increased self-awareness. Impact: High Domains: home, academic, friends</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Confidence / coping</td>
<td>Extensiveness rating: 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

125
<table>
<thead>
<tr>
<th>ID 049</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Therapist: “Do you want to tell me something that bothers you about mom picking you up late?”</td>
<td>Fear: Child is afraid that something bad will happen to his mother when they are separated so that he will never see her again. Child most likely has a difficult time with separation. Most likely will not be able to separate to go to another child’s home for a playdate. Most likely has separation difficulty when going to school.</td>
</tr>
<tr>
<td>Extensiveness rating: 7</td>
<td>Child: “I’m worried about her. She’s going to get lost.”</td>
<td>Impact: High</td>
</tr>
<tr>
<td>Domain(s): Home, academic, social</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 036</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Child: “I did the knives &lt;in the sink&gt;, but I was like shaking.”</td>
<td>Brave: Child made good progress in her treatment. Although she still had some residual fear about washing knives, she was able to do the task.</td>
</tr>
<tr>
<td>Extensiveness rating: 3</td>
<td></td>
<td>Impact: Medium-High</td>
</tr>
<tr>
<td>Domain(s): Home</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 001</th>
<th>CGI-I: 4</th>
<th>NONRESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety and related emotional states</td>
<td>Therapist: “What would happen if you didn’t do your math homework?”</td>
<td>Fear: Child reflects on what happens if he forgets to do his homework and the stress of producing high grades.</td>
</tr>
<tr>
<td>Extensiveness rating: 7</td>
<td>Child: “Nothing really, but my teacher wouldn’t be so happy.”</td>
<td>Impact: High.</td>
</tr>
<tr>
<td>Therapist: “I’m going to write that down. And then what?”</td>
<td>Domain(s): Home, School, Social</td>
<td></td>
</tr>
<tr>
<td>Child: “She gets angry.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapist: “And then what?”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child: “and then, nothing really.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Therapist: “Nothing? Does your grade go down?”

Child: “Your grade goes down.”
Therapist: “What would happen then?”

Child: “Nothing really.”
Therapist: “What would your mom do?”

Child: “Mom would get angry.” “I would get grounded.” “I would be sad.”

<table>
<thead>
<tr>
<th>ID 036</th>
<th>CGI-I</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coping/ Confidence</td>
</tr>
<tr>
<td>Child: “I can handle it.”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Brave: Child is confident and brave. Feels she can face any fear, any situation.
Impact: High
Domain(s): Home, Social, Academic

<table>
<thead>
<tr>
<th>ID 004</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety and related emotional states</td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td>Therapist: “So how nervous do you think you are going to before you ask them a question?”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child: “Really. Just take deep breaths, though.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapist: “So what I want you to try to do is take a deep breath. What’s the worst thing that you think is going to happen?”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child: “I don’t know….they might say, “Sally’s a loser!”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fear: Child is very nervous about initiating conversation, particularly with boys.
Impact: High
Domain(s): Social, academic
<table>
<thead>
<tr>
<th>ID 067</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Communication</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td><strong>Therapist:</strong> Tell me what kinds of things you did for your UCLA homework.</td>
<td></td>
<td><strong>Sense of belonging:</strong> Child has multiple, reciprocal friendships.</td>
</tr>
<tr>
<td>Child: Playdates.</td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td><strong>Therapist:</strong> Who did you play with?</td>
<td></td>
<td>Domain(s): Social, academic, home</td>
</tr>
<tr>
<td>Child: Kate and Jack.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Therapist:</strong> well you have a good friend. How is it having a good friend?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child: It's nice. He can help me in some way.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Therapist:</strong> I also heard that Adam is inviting you over. I was telling mom that...if you keep inviting kids over and they never invite you back, then...but these kids actually like you. They call you back and they invite you back. Do you think that's a good thing?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child: yes.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 036</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping/ Confidence</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td><strong>Therapist:</strong> “So tell me about the sleep mask.” Child: “I didn’t sleep with it. I couldn’t find it. I just used the K.I.C.K. plan.”</td>
<td></td>
<td><strong>Brave:</strong> Child is confident and brave. Feels she can face any fear.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domain(s): Home</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 024</th>
<th>CGI-I: 1</th>
<th>RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping/ Confidence</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Child: “Yeah, that’s it. I will be brave like a dog.”</td>
<td></td>
<td><strong>Brave:</strong> Child is confident and brave. He has a plan on how he will face a scary situation, how he will handle it.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domain(s): Home, School,</td>
</tr>
<tr>
<td>ID</td>
<td>CGI-I:</td>
<td>RESPONDER</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>036</td>
<td>2</td>
<td>Self-help skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td>002</td>
<td>2</td>
<td>Self-help skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td>002</td>
<td>2</td>
<td>Coping/confidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td>067</td>
<td>2</td>
<td>Social Communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Friendships</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td>067</td>
<td>2</td>
<td>Anxiety and related</td>
</tr>
<tr>
<td></td>
<td></td>
<td>emotional states</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Therapist: “So tell me about shaving.”
Child: “Went excellent! We talked about how razors used to be back then and girls got a lot of um, we used a Daisy one.”
Child: “Like I take a bath, and then spike my hair up like this!”
Child: “Do you know what? I’m going to summer camp this year!”
Child: “It’s like being in a gang. Not the things, but the friends!”
Therapist: "You know what? What is happening to you? Let me give you an illustration right here. Say that this Star
### Extensiveness rating: 1

**Cope/Confidence**

**Extensiveness rating: 7**

<table>
<thead>
<tr>
<th>Wars in here is your Asperger's. What do you think is happening to it now? Do you think this Star Wars has grown bigger or has it become smaller?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child: &quot;It's gotten smaller.&quot;</td>
</tr>
<tr>
<td>Therapist: &quot;Yay! That's very good. So what we're trying to do is, we're going to keep shrinking your Asperger's.&quot;</td>
</tr>
<tr>
<td>Child: &quot;yeah, I think...I think most of the guys think that I'm normal now.&quot;</td>
</tr>
<tr>
<td>Therapist: &quot;you're excited to hear that?&quot;</td>
</tr>
<tr>
<td>Child: &quot;yeah. And being smart.&quot;</td>
</tr>
<tr>
<td>Therapist: &quot;Just by saying your Asperger's went from this to this....What happens to kids with Asperger's? Do they have friends? It's hard for them to make friends because if they do things that are different....right?&quot;</td>
</tr>
<tr>
<td>Child: &quot;I don't know exactly how much good comes with Asperger's, but if it went down to here, we would all be good friends!&quot;</td>
</tr>
<tr>
<td>Therapist: &quot;Yeah. I agree. Because we talked about how we don't want to get rid of everything with Asperger's, but just the bad things.&quot;</td>
</tr>
<tr>
<td>Child: &quot;The bad things.&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>disorder). Talks about the good and the bad of having ASD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact: High</td>
</tr>
<tr>
<td>Domains: Social, academic, home</td>
</tr>
</tbody>
</table>

### Extensiveness rating: 7

**Social Communication-Friendship**

**Extensiveness rating: 7**

<table>
<thead>
<tr>
<th>Sense of belonging: Child is accepted by his group of peers. Child has made friends.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact: High</td>
</tr>
<tr>
<td>Domain: Social</td>
</tr>
<tr>
<td>Pride: Child is proud of his accomplishments of being accepted by his peers and not being ostracized for undesirable behaviors. Child is aware of stigma associated with ASD but is confident that he can cope with the symptoms now. He also understands why he needs to continue to work to keep the symptoms under control: in order to make and keep friends.</td>
</tr>
<tr>
<td>Impact: High</td>
</tr>
<tr>
<td>Domains: Social, academic</td>
</tr>
<tr>
<td>ID 024</td>
</tr>
<tr>
<td>--------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID 081</th>
<th>CGI-I: 2</th>
<th>RESPONDER</th>
<th>Anxiety and related emotional states  Extensiveness rating: 1  Social Communication-Friendship  Extensiveness rating: 7  Social Communication-Initiations  Extensiveness rating: 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Therapist: So tell me about your camping trip!  Child: It was good, and on Saturday and Sunday, we went to the beach.  Therapist: Did you make better friends with Lillian and Amanda? Did you get to know stuff about each other?  Child: Yes, and I also played in their tent!  Therapist: Was it your mom and dad and Lillian and Amanda’s mom and dad?  Child: My mom and dad were on the trip, too!  Therapist: Did you guys stick together?  Child: yeah. And we got a caterpillar! And went on an egg hunt.</td>
<td>Sense of Belonging – Child clearly feels a strong sense of belonging with her two new friends. So do the parents. They went on camping trips together. Impact: High Domain: Social</td>
</tr>
</tbody>
</table>
Therapist: Awesome! So it looks like you got all these stickers for what two things?

Child: Getting people to say stuff, like when I went to the neighbors.

Therapist: yeah, so greeting people… what kinds of things did you say to people to greet them or to say goodbye?

Child: um, what’s your name and I said goodbye to my two friends and “I'll see you tomorrow!”
3.) Did parent-child dyads in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions at weeks 2 and 4?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Quote</th>
<th>Beginning of Treatment Weeks 2 and 4 Qualitative Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 036</td>
<td></td>
<td>Parental discouragement: Parent communication towards the child is more directive, authoritative.</td>
</tr>
<tr>
<td>CGl-I: 2</td>
<td></td>
<td>Impact: Medium</td>
</tr>
<tr>
<td>RESPONDER</td>
<td></td>
<td>Domain(s): Home, academic</td>
</tr>
<tr>
<td>Negative Parental Verbal Behavior with Child</td>
<td>Parent: &quot;Take your purse with you! That's O.K. Take it with you.&quot;</td>
<td>Dependence: Child is dependent on parent to remind her to take care of her own personal items.</td>
</tr>
<tr>
<td>Extensiveness rating: 5</td>
<td></td>
<td>Impact: Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domain(s): Home, academic</td>
</tr>
<tr>
<td>ID 063</td>
<td></td>
<td>Parental discouragement: Parent inadvertently sabotages attempts to get child to develop independent personal self-help skills by not supplying the items needed. Has not really bought into the idea of the importance of child independently performing personal self-help skills.</td>
</tr>
<tr>
<td>CGl-I: 3</td>
<td></td>
<td>Impact: High</td>
</tr>
<tr>
<td>NON-RESPONDER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-help skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extensiveness rating: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 024</td>
<td>CGI-I: 1</td>
<td>RESPONSE</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>ID 001</td>
<td>CGI-I: 4</td>
<td>NON-RESPONDER</td>
</tr>
<tr>
<td>ID 055</td>
<td>CGI-I: 4</td>
<td>NON-RESPONDER</td>
</tr>
<tr>
<td>ID</td>
<td>CGI-I:</td>
<td>Non-Responder</td>
</tr>
<tr>
<td>----</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td>O63</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>001</td>
<td>4</td>
<td>NON-RESPONDER</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ID 002</td>
<td>CGI-I: 2</td>
<td>RESPONDER</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>ID 108</td>
<td>CGI-I: 3</td>
<td>NON-RESPONDER</td>
</tr>
</tbody>
</table>

### NON-RESPONDER

**Social communication-friendships**

- Extensiveness rating: 1

Therapist: “Do you think that you might have time to have a friend over to your house?”

Parent: I guess it will depend on how our schedule goes and stuff.”

**Parental discouragement:**

- Parents too busy to plan and execute get-togethers with child’s friend at the house.
- Parents very focused on child’s academics instead.

**Impact:** High

**Domains:** Social, home, academics

### ID 002 CGI-I: 2

**Negative parent-child verbal interactions**

- Extensiveness rating: 7

Parent: “You know what? It’s not right! It’s not yours! You can’t draw on the paper unless Dr. Smith says you can. “

**Parental discouragement:**

- Parent tries to verbally control child

**Impact:** High

**Domains:** academic, home

### ID 108 CGI-I: 3

**Positive verbal interactions with child**

- Extensiveness rating: 3

Parent: "If you do everything, if you're good, then you can go and stay in Tony's home and stay a week with him and stay in his home."

Parent: "Because the older you are, you can do everything for yourself."

**Parental encouragement:**

- Parent is trying to encourage child, but using vague words like "if you're good" does not convey to child what it is that makes it "good". Parent tries to encourage child to take more responsibility for his own personal self-help skills.

**Impact:** Medium

**Domain:** Home
Table 6

Integration of Quantitative Results and Qualitative Results
Corresponding to the Research Question #3, Weeks 10 and 15

3.) Did parent-child dyads in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial improve in communication style and parent-child relations over the course of the CBT treatment according to qualitative and quantitative assessments of their therapy sessions from weeks 10 and 15?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Phrase</th>
<th>End of Treatment Weeks 10 and 15 Qualitative Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID 108 CGI-I: 3 NON-RESPONDER</td>
<td>Therapist: &quot;And we have completed your &quot;Super Star&quot; chart. So that means you have earned &quot;Going to a movie with Mom.&quot; Child: &quot;Wait. When would you...When would you have time?&quot; Parent: &quot;Well we can't go to the movie. We can't.&quot; Child: &quot;When can we do? Which day?&quot; Parent: &quot;Saturday. And I think you should go to the Internet and search for the movie you want to get.&quot; Parent: “If there's a movie that you want to see, then we can go right away. If the movies are not interesting, maybe next month we can.”</td>
<td>Parental discouragement: Parent is not following through immediately with child’s mutually agreed-upon reward for child’s hard work at home towards improving social communication and independent personal self-help skills. Impact: High Domain: Home, social, academic</td>
</tr>
<tr>
<td>ID 036 CGI-I: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID 055  CGI-I: 4</td>
<td>NON-RESPONDER</td>
<td>Positive parent-child verbal interactions</td>
</tr>
<tr>
<td>ID 002  CGI-I: 2</td>
<td>RESPONDER</td>
<td>Positive parent-child verbal interactions</td>
</tr>
<tr>
<td>ID 063  CGI-I: 3</td>
<td>NON-RESPONDER</td>
<td>Negative parent-child verbal interactions</td>
</tr>
</tbody>
</table>
| ID 024  CGI-I: 1 | RESPONDER | Parent: “Really, really proud of you. Been having a lot of great days. On the papers that they <school> send home. A lot of papers, they say “great days.” | Parental encouragement
Parent is positive, talks warmly about child in front of child with therapist.
Impact: High
Domain: home |
|---|---|---|---|
| ID 063  CGI-I: 3 | NON-RESPONDER | Parent: “Don’t be selfish.” | Parental discouragement
Parental communication with child is critical.
Impact: High
Domain: Home |
| ID 101  CGI-I: 4 | NON-RESPONDER | Child: "Huh?"
Parent: "Your homework? You usually start at 3:30? And then take a 15-minute break in between. Do two assignments and then take a break. O.K.?"
Child: O.K.
Therapist: "What do you think you want as your reward for doing all these things next weekend, because this weekend you get to go to the driving range?"
Child: "Playing a three power ball?"
Therapist: "Yeah? What do | Parental discouragement: Parents not understanding the importance of following through on agreed upon rewards for child when he has completed his weekly UCLA assignments.
Impact: High
Domain(s): academic, home, social |
you think about that one, mom?"

Parent: "Well, that will be up to dad. I guess it will depend on how, you know, how our schedule goes and stuff. That's a possibility."

| ID 001 CGI-I: 4 | Therapist: "Music?"
Parent: "No. Wait, wait, wait, wait, wait, the math."
Child: "Oh yeah, I did that."
Parent: "You're totally done?"
Because it's only…
Child: "Oh no, no. It's done later."
Parent: "It's supposed to be done sooner."
Child: "I know. I just need to find…"
Therapist: "What happened to my guitarist?"
Child: "My mom had to stand over me because I might get held up." (i.e. distracted).
Therapist: "She was standing behind you?"
Child: mm-hmmm.
Parent: "But you have to be able to retake the test because you didn't study the words, right?"

Parental discouragement:
Parent focuses on achieving academic success. Does not implement social communication, friendship training with consistency.

Impact: High Domain(s): social, home, academic

Negative Parent Verbal Interactions with Child
Extensiveness rating: 7
### Table 7

**Integration of Quantitative Results and Qualitative Results**  
*Corresponding to the Research Question #4, Weeks 2 and 4*

4.) What indicators from the qualitative and quantitative assessments of therapy sessions from weeks 2 and 4 in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial differed among the CBT treatment responders versus non-responders in terms of child anxiety, social-communication, and self-perception outcomes during weeks 2 and 4?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Phrase</th>
<th>Qualitative Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent: “Don’t scream! When you scream, I get scared.”</td>
<td><strong>Parental Discouragement:</strong> Parent insensitive to child’s feelings.</td>
</tr>
<tr>
<td></td>
<td>Parent: “Don’t scream! When you scream, I get scared.”</td>
<td>Impact: High</td>
</tr>
<tr>
<td></td>
<td>ID 036 CGI-I: 2 RESPONDER</td>
<td>Parent: “Take your purse with you. That’s o.k. Take it with you.”</td>
</tr>
<tr>
<td></td>
<td>Parent: “Take your purse with you. That’s o.k. Take it with you.”</td>
<td>Impact: Medium</td>
</tr>
<tr>
<td></td>
<td>Child: (inhales big deep breath) “O.K.”</td>
<td>Domain(s): Home, Social, Academic</td>
</tr>
<tr>
<td></td>
<td>ID 063 CGI-I: 3 NON-RESPONDER</td>
<td>Therapist: so mom’s going to buy that for you and you’re going to shampoo your hair.</td>
</tr>
<tr>
<td></td>
<td>Therapist: so mom’s going to buy that for you and you’re going to shampoo your hair.</td>
<td>Child is dependent on parent for self-help skills that other typically developing children perform by themselves independently.</td>
</tr>
<tr>
<td></td>
<td>Parent: And then you’re going to brush your hair by yourself</td>
<td>Impact: High</td>
</tr>
<tr>
<td></td>
<td>Parent: And then you’re going to brush your hair by yourself</td>
<td>Impact: High</td>
</tr>
<tr>
<td>ID 063</td>
<td>CGI-I: 3</td>
<td>NON-RESPONDER</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td><strong>Positive parental verbal</strong></td>
<td>Extensiveness rating: 2</td>
<td></td>
</tr>
<tr>
<td><strong>Anxiety and related disorders</strong></td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td><strong>Child Self-Perception</strong></td>
<td>Extensiveness rating: 1</td>
<td></td>
</tr>
</tbody>
</table>

in the morning.

Child: I know how to do that.

Parent: And the night before, pick out your own clothes.

Child: I know how to do that.

Therapist: what were the three things that we talked about?

Child: hair?, teeth,

Therapist: you’re going to get your clothes out and choose them the night before. When you come back next week, you’ll get more stickers.

Parent: When we drive, at that time, maybe I’ll get the, stuff for the teacher.

Child: Then how come this is autistic?

Therapist: Hmmm?

Child: How come this is autistic help?

Therapist: Where does it say autistic help?

Child: Outside.

Parental discouragement
Parent is not really sure they will stop to pick up the things they need to implement independent performance of personal self-help skills. Doesn’t understand the importance yet.
Impact: High
Domain: Home

Fear
Child is beginning to become aware that she has autism.
Afraid. Afraid of the stigma.
Impact: High
Domains: Social, Home, Academic

Shame
Child is afraid of the diagnosis of autism. Afraid of the stigma associated with it.
Impact: High
<table>
<thead>
<tr>
<th>ID 063</th>
<th>CGI-I: 3</th>
<th>NON-RESPONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxiety and related disorders</td>
<td>Extensiveness rating: 7</td>
</tr>
<tr>
<td></td>
<td>Child Self-perceptions</td>
<td>Extensiveness rating: 1</td>
</tr>
</tbody>
</table>

**Therapist:** He is scared. Have you been to the dentist?
**Child:** mmhmm. And I got anesthesia so I couldn’t feel anything.

**Therapist:** You didn’t feel anything. How about this boy?
**Child:** He feels sad because his mommy hates him.

**Domains:** Home, school, social

**Shame**
Child is ashamed to be going to therapy for autism. Ashamed of her differences.

**Impact:** High
Domains: Home, school, social
4.) What indicators from the qualitative and quantitative assessments of therapy sessions from weeks 10 and 15 in the Wood, Drahota, Sze, Har, and colleagues (2009) clinical trial differed among the CBT treatment responders versus non-responders in terms of child anxiety, social-communication, and self-perception outcomes during weeks 10 and 15?

<table>
<thead>
<tr>
<th>Quantitative code</th>
<th>Child or Parent Phrase</th>
<th>End of Treatment Weeks 10 and 15 Qualitative Theme</th>
</tr>
</thead>
</table>
| ID 108 CGI-I: 3 NON-RESPONDER Parental positive verbal Extensiveness rating: 1 | Therapist: “And we have completed your super star chart. So that means that you have earned “going to a movie with mom.”
Child: “Wait, when would you, when you have time?” <addressed to parent>
Parent: “Well we can’t go to the movie. We can’t.”
Child: “When can we go? Which day?”
Parent: “Maybe next month we can.” | Parental Discouragement
Parent did not understand the importance of providing the agreed-upon reward to the child right when the child earned it. By neglecting this very important principle, parent inadvertently kills motivation in the child to face fearful situations.
Impact: High Domains: Home, Social, Academic |
Three weeks later, parent is still discussing seeing the movie and has not taken child yet, which was their negotiated reward.

<table>
<thead>
<tr>
<th>ID 036</th>
<th>CGI-I: 2</th>
<th>RESONDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Parental Verbal</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Anxiety and related disorders</td>
<td>Extensiveness rating: 1</td>
<td></td>
</tr>
<tr>
<td>Confidence/ coping</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
<tr>
<td>Self-help skills</td>
<td>Extensiveness rating: 7</td>
<td></td>
</tr>
</tbody>
</table>

Parent: “I know. Isn’t she doing good? She’s doing awesome!”

Parent: “Tell her about the blankets.”
Child: “Slept without the blankets one night.”
Parent: “Lots of nights, though.”
Child: “Lots of nights.”

Parental Encouragement
Impact: High
Domains: Home, Social, Academic

Fear
Child no longer has fears about something bad happening if she did not follow a ritual in organizing her bed before sleep.
Impact: Low
Domains: Home, school, social

Brave: Child can face her fears now with minimal anxiety.

Independence:
Child no longer has to sleep with a pile of stuffed animals and go through a ritual of stacking them every night so she can go to sleep.
Impact: High
Domains: Home
| Child Self-perception  
Extensiveness rating: 7 | Child: I didn’t sleep with it. I couldn’t find it. I just used the KICK plan. | Brave: Child faces previously feared tasks or activities such as sleeping without her sleep mask using good coping skills and positive self-statements to cope. 
Impact: High 
Domains: Home, school, social |
|---|---|---|
| ID 063  
CGI-I: 3  
NON-RESPONDER | Therapist: O.K. I want you to call 3 different people this time. O.K.? Just to say, “Hi.” Who might you want to call and say, “Hi,” too? | Parental discouragement 
Parent inadvertently controlling child’s actions and speech. Affects child’s independent choice of friends. Parent also critical of child. 
Impact: High 
Domains: Social, Home |
| Positive Parental Verbal  
Extensiveness rating: 1 | Child: Call who? Therapist: Someone that you know. Parent: “Don’t talk with your mouth full!” | Parental discouragement |
| Social Communication 
Friendship  
Extensiveness rating: 2 | Child: Cathy? Therapist: O.K. you can call Cathy. Do you want to call Cathy? 
Child: I don’t know what’s the number. Parent: What about Jennifer? We know her number. You know what? And call Wendy. Ask her if she wants to play with you at home. | Sense of Belonging 
Child is not really independently deciding who she would like to play with. 
Impact: High 
Domain(s): Social |
Appendix – Quantitative Methods Tables

QUANTITATIVE RESULTS TABLES

Table 9

*Interrater Reliability for the Individual PASTOS Items*

<table>
<thead>
<tr>
<th>PASTOS items, n = 29</th>
<th>ICC</th>
<th>AGREEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery of self-help skills</td>
<td>.96</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Friendships</td>
<td>.93</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Obsessive compulsive behavior</td>
<td>.58</td>
<td>FAIR</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.82</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Speech Dysfluencies</td>
<td>.61</td>
<td>GOOD</td>
</tr>
<tr>
<td>Humor</td>
<td>.69</td>
<td>GOOD</td>
</tr>
<tr>
<td>Emotion</td>
<td>.62</td>
<td>GOOD</td>
</tr>
<tr>
<td>Theory of Mind (perspective-taking)</td>
<td>.76</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Self-Awareness</td>
<td>.29</td>
<td>POOR</td>
</tr>
<tr>
<td>Initiations</td>
<td>.56</td>
<td>FAIR</td>
</tr>
<tr>
<td>Expansions</td>
<td>.08</td>
<td>POOR</td>
</tr>
<tr>
<td>Expected Responses</td>
<td>.75</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Unexpected responses</td>
<td>.90</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Repetitive Behaviors</td>
<td>.60</td>
<td>GOOD</td>
</tr>
<tr>
<td>Fear of Harm</td>
<td>.90</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Fear of Negative Evaluation</td>
<td>.75</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td></td>
<td>ICC</td>
<td>Rating</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>Self-depreciation</td>
<td>.91</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Academic worries</td>
<td>.79</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>.74</td>
<td>GOOD</td>
</tr>
<tr>
<td>Physical symptoms of anxiety</td>
<td>.86</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Child coping skills</td>
<td>.91</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Confidence</td>
<td>.62</td>
<td>GOOD</td>
</tr>
<tr>
<td>Stigma</td>
<td>.89</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parental controlling behavior</td>
<td>.87</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parental critical behavior</td>
<td>.94</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parental insensitive behavior</td>
<td>.96</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parental baby talk</td>
<td>.98</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parent sensitive behavior</td>
<td>.91</td>
<td>EXCELLENT</td>
</tr>
<tr>
<td>Parental warmth</td>
<td>.93</td>
<td>EXCELLENT</td>
</tr>
</tbody>
</table>

*Note. PASTOS = The Pediatric Autism Spectrum Therapy Observation System.

ICC= intraclass correlation coefficient.
Table 10

*PASTOS Internal Consistency of PASTOS Subscales*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Number of Items</th>
<th>Cronbach’s α</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>PASTOS</td>
<td>26</td>
<td>.78</td>
<td>Excellent</td>
</tr>
<tr>
<td>Subscales:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-help skills mastery subscale</td>
<td>1</td>
<td>.51</td>
<td>Fair</td>
</tr>
<tr>
<td>Anxiety subscale</td>
<td>6</td>
<td>.65</td>
<td>Good</td>
</tr>
<tr>
<td>Social communication subscale</td>
<td>12</td>
<td>.84</td>
<td>Excellent</td>
</tr>
<tr>
<td>Child coping / confidence subscale</td>
<td>2</td>
<td>.78</td>
<td>Excellent</td>
</tr>
<tr>
<td>Positive parental verbal interactions</td>
<td>2</td>
<td>.79</td>
<td>Excellent</td>
</tr>
<tr>
<td>Directive parental verbal interactions</td>
<td>3</td>
<td>.81</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

*Note.* PASTOS = Pediatric Autism Spectrum Therapy Observation System.

ICC = Intraclass correlation coefficient.
Table 11

*Correlations Among the PASTOS Subscales*

<table>
<thead>
<tr>
<th>PASTOS subscales</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-help Skills</td>
<td>1.000</td>
<td>.460*</td>
<td>.423*</td>
<td>.436*</td>
</tr>
<tr>
<td>2. Anxiety and Related Emotional States</td>
<td>.460*</td>
<td>1.000</td>
<td>.718**</td>
<td>.616**</td>
</tr>
<tr>
<td>3. Social Communication</td>
<td>.423*</td>
<td>.718**</td>
<td>1.000</td>
<td>.896**</td>
</tr>
<tr>
<td>4. Child Coping / Confidence</td>
<td>.436*</td>
<td>.616**</td>
<td>.896**</td>
<td>1.000</td>
</tr>
<tr>
<td>5. Positive Parent Verbal Interactions</td>
<td>.497*</td>
<td>.699**</td>
<td>.812**</td>
<td>.802**</td>
</tr>
</tbody>
</table>

* p < .05

** p < .01
Table 12

**Correlations Between the MASC and the PASTOS**

<table>
<thead>
<tr>
<th></th>
<th>Total MASC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PASTOS</td>
<td>-.536 *</td>
</tr>
</tbody>
</table>


MASC = Multidimensional Anxiety Scale for Children-Parent version

* p < .05  Correlation is significant at the .05 level (2-tailed.)
Table 13

*Correlations Between the SSRS and the PASTOS*

<table>
<thead>
<tr>
<th></th>
<th>Total PASTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SSRS-Parent</td>
<td>.229</td>
</tr>
</tbody>
</table>

SSRS-Parent Subscales:

<table>
<thead>
<tr>
<th>Subscale</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation</td>
<td>.396</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>.275</td>
</tr>
<tr>
<td>Self-Control</td>
<td>.542*</td>
</tr>
<tr>
<td>Responsibility</td>
<td>.190</td>
</tr>
</tbody>
</table>

PASTOS Subscales:

<table>
<thead>
<tr>
<th>PASTOS Subscales</th>
<th>Self-Help</th>
<th>Anxiety</th>
<th>Social Communication</th>
<th>Child Coping</th>
<th>Positive Parent Verbal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation Subscale</td>
<td>.461*</td>
<td>.236</td>
<td>.389</td>
<td>.377</td>
<td>.251</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>.192</td>
<td>.170</td>
<td>.328</td>
<td>.142</td>
<td>.281</td>
</tr>
<tr>
<td>Self-Control</td>
<td>.501*</td>
<td>.391</td>
<td>.519*</td>
<td>.513*</td>
<td>.440*</td>
</tr>
<tr>
<td>Responsibility</td>
<td>.036</td>
<td>.006</td>
<td>.260</td>
<td>.252</td>
<td>.190</td>
</tr>
</tbody>
</table>


SSRS-P = Social Skills Rating System -Parent

* p < .05 Correlation is significant at the .05 level (2-tailed.)
Table 14

*Correlations Between the SEQ-C and the PASTOS*

<table>
<thead>
<tr>
<th>PASTOS Subscales:</th>
<th>Social Communication</th>
<th>Self-Help Skills</th>
<th>Child Coping</th>
<th>Positive Parent</th>
<th>Anxiety</th>
<th>Total PASTOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total SEQ-C</td>
<td>.611* *</td>
<td>.212</td>
<td>.572*</td>
<td>.518*</td>
<td>.336</td>
<td>.559*</td>
</tr>
</tbody>
</table>

SEQ-C = Self-Efficacy Questionnaire -Parent

* p < .05 Correlation is significant at the .05 level (2-tailed).
* * p < .01 Correlation is significant at the .01 level (2-tailed).
Table 15

*Means and Standard Deviations for Outcome Measures*

<table>
<thead>
<tr>
<th>Outcome Domain</th>
<th>Time 1 mean (SD)</th>
<th>Time 2 mean (SD)</th>
<th>Time 3 mean (SD)</th>
<th>Time 4 mean (SD)</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-help skills</td>
<td>1.61 (0.75)</td>
<td>2.89 (1.41)</td>
<td>2.75 (1.70)</td>
<td>3.39 (1.89)</td>
<td>.002</td>
</tr>
<tr>
<td>Friendships</td>
<td>1.86 (1.18)</td>
<td>1.93 (1.28)</td>
<td>3.00 (1.79)</td>
<td>4.05 (1.99)</td>
<td>.000</td>
</tr>
<tr>
<td>Obsessive-compulsive</td>
<td>6.25 (1.62)</td>
<td>5.84 (1.56)</td>
<td>5.55 (2.02)</td>
<td>5.57 (1.97)</td>
<td>.292</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.39 (0.89)</td>
<td>3.84 (1.22)</td>
<td>4.02 (1.38)</td>
<td>4.39 (1.24)</td>
<td>.006</td>
</tr>
<tr>
<td>Speech dysfluencies</td>
<td>2.18 (1.63)</td>
<td>1.90 (1.05)</td>
<td>1.43 (0.99)</td>
<td>1.39 (0.77)</td>
<td>.035</td>
</tr>
<tr>
<td>Humour</td>
<td>1.98 (1.23)</td>
<td>2.34 (1.56)</td>
<td>1.95 (1.60)</td>
<td>2.50 (1.86)</td>
<td>.348</td>
</tr>
<tr>
<td>Emotion</td>
<td>4.02 (1.06)</td>
<td>4.70 (0.84)</td>
<td>4.64 (0.97)</td>
<td>4.64 (1.26)</td>
<td>.060</td>
</tr>
<tr>
<td>Awareness of Others</td>
<td>3.50 (1.00)</td>
<td>4.14 (1.49)</td>
<td>4.07 (1.26)</td>
<td>4.25 (1.33)</td>
<td>.082</td>
</tr>
<tr>
<td>Awareness of Self</td>
<td>3.73 (1.11)</td>
<td>4.23 (1.40)</td>
<td>4.61 (1.21)</td>
<td>4.66 (1.41)</td>
<td>.010</td>
</tr>
<tr>
<td>Initiations</td>
<td>3.48 (0.99)</td>
<td>4.57 (1.21)</td>
<td>4.50 (1.44)</td>
<td>5.16 (1.36)</td>
<td>.000</td>
</tr>
<tr>
<td>Expansions</td>
<td>3.41 (1.22)</td>
<td>4.18 (1.39)</td>
<td>4.07 (1.67)</td>
<td>5.18 (1.69)</td>
<td>.000</td>
</tr>
<tr>
<td>Expected responses</td>
<td>4.18 (1.23)</td>
<td>4.75 (1.15)</td>
<td>4.98 (1.30)</td>
<td>5.59 (1.02)</td>
<td>.000</td>
</tr>
<tr>
<td>Unexpected responses</td>
<td>2.89 (1.83)</td>
<td>2.45 (1.34)</td>
<td>1.84 (1.17)</td>
<td>1.36 (0.60)</td>
<td>.000</td>
</tr>
<tr>
<td>Repetitive Behaviors</td>
<td>2.70 (2.02)</td>
<td>2.43 (1.73)</td>
<td>2.11 (1.41)</td>
<td>1.70 (1.24)</td>
<td>.111</td>
</tr>
<tr>
<td>Fear of Harm</td>
<td>5.16 (1.36)</td>
<td>5.05 (1.91)</td>
<td>3.57 (1.76)</td>
<td>2.77 (1.94)</td>
<td>.000</td>
</tr>
<tr>
<td>Fear of Negative Evaluation</td>
<td>4.34 (1.88)</td>
<td>4.41 (2.07)</td>
<td>2.80 (1.65)</td>
<td>2.02 (1.33)</td>
<td>.000</td>
</tr>
<tr>
<td>Self Depreciation</td>
<td>2.55 (2.17)</td>
<td>2.52 (2.16)</td>
<td>2.30 (2.06)</td>
<td>2.32 (1.81)</td>
<td>.884</td>
</tr>
<tr>
<td>Category</td>
<td>Mean 1</td>
<td>Mean 2</td>
<td>Mean 3</td>
<td>Mean 4</td>
<td>p-Value</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
</tr>
<tr>
<td>Academic Worries</td>
<td>3.36 (2.19)</td>
<td>2.84 (2.24)</td>
<td>1.98 (1.64)</td>
<td>1.70 (1.52)</td>
<td>.003</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>3.34 (2.24)</td>
<td>3.32 (2.21)</td>
<td>2.66 (1.87)</td>
<td>2.16 (1.58)</td>
<td>.056</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>6.32 (8.75)</td>
<td>4.09 (1.72)</td>
<td>2.70 (2.15)</td>
<td>1.14 (0.35)</td>
<td>.031</td>
</tr>
<tr>
<td>Child Coping Skills</td>
<td>2.23 (0.92)</td>
<td>4.25 (1.16)</td>
<td>4.25 (1.38)</td>
<td>4.59 (1.94)</td>
<td>.000</td>
</tr>
<tr>
<td>Confidence</td>
<td>1.98 (0.88)</td>
<td>3.16 (1.49)</td>
<td>4.02 (1.53)</td>
<td>4.61 (1.88)</td>
<td>.000</td>
</tr>
<tr>
<td>Awareness of Stigma</td>
<td>2.52 (1.60)</td>
<td>2.89 (2.13)</td>
<td>2.32 (2.08)</td>
<td>1.95 (1.70)</td>
<td>.164</td>
</tr>
<tr>
<td>Parental Verbal Control</td>
<td>3.09 (1.68)</td>
<td>3.48 (1.91)</td>
<td>3.89 (2.27)</td>
<td>3.25 (1.99)</td>
<td>.343</td>
</tr>
<tr>
<td>Parental Verbal Critical</td>
<td>2.55 (1.70)</td>
<td>3.39 (2.07)</td>
<td>3.07 (2.06)</td>
<td>2.70 (2.04)</td>
<td>.185</td>
</tr>
<tr>
<td>Parental Verbal Insensitive</td>
<td>2.68 (1.82)</td>
<td>3.77 (2.07)</td>
<td>3.61 (2.12)</td>
<td>2.86 (2.05)</td>
<td>.041</td>
</tr>
<tr>
<td>Parental Use Baby Talk</td>
<td>1.30 (1.03)</td>
<td>1.45 (1.34)</td>
<td>1.89 (1.62)</td>
<td>1.61 (1.51)</td>
<td>.207</td>
</tr>
<tr>
<td>Parental Verbal Sensitive</td>
<td>1.86 (0.79)</td>
<td>2.50 (1.46)</td>
<td>2.86 (1.54)</td>
<td>4.02 (1.80)</td>
<td>.000</td>
</tr>
<tr>
<td>Parental Verbal Warm</td>
<td>1.91 (0.83)</td>
<td>2.59 (1.52)</td>
<td>3.23 (1.70)</td>
<td>4.27 (1.78)</td>
<td>.000</td>
</tr>
</tbody>
</table>
### Table 16

*Means and Standard Deviations for Outcome Measures - Subscales*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Outcome Domain</th>
<th>Time 1 mean (SD)</th>
<th>Time 2 mean (SD)</th>
<th>Time 3 mean (SD)</th>
<th>Time 4 mean (SD)</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Help Skills</td>
<td></td>
<td>1.61 (0.75)</td>
<td>2.89 (1.41)</td>
<td>2.75 (1.70)</td>
<td>3.39 (1.89)</td>
<td>.002</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td>26.59 (7.10)</td>
<td>26.98 (9.30)</td>
<td>32.39 (7.18)</td>
<td>34.98 (6.31)</td>
<td>.000</td>
</tr>
<tr>
<td>Social Communication</td>
<td></td>
<td>45.75 (7.67)</td>
<td>51.84 (8.87)</td>
<td>54.50 (10.56)</td>
<td>59.91 (10.90)</td>
<td>.000</td>
</tr>
<tr>
<td>Child Self Perception</td>
<td></td>
<td>4.20 (1.44)</td>
<td>7.41 (2.44)</td>
<td>8.27 (2.78)</td>
<td>9.20 (3.64)</td>
<td>.000</td>
</tr>
<tr>
<td>Directive Parent Verbal</td>
<td></td>
<td>15.68 (4.82)</td>
<td>13.36 (5.68)</td>
<td>13.43 (6.12)</td>
<td>15.18 (5.80)</td>
<td>.114</td>
</tr>
<tr>
<td>Positive Parent Verbal</td>
<td></td>
<td>3.77 (1.61)</td>
<td>5.09 (2.94)</td>
<td>6.09 (3.19)</td>
<td>8.30 (3.53)</td>
<td>.000</td>
</tr>
</tbody>
</table>
Table 17

*Regression Analysis of PASTOS Subscales as Predictors of Treatment Outcome*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Sd. Error</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in PASTOS Subscales:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Self-Help Skills</td>
<td>.046</td>
<td>-.101</td>
<td>.103</td>
<td>-.214</td>
<td>-.978</td>
<td>.340</td>
</tr>
<tr>
<td>Change in Anxiety Symptoms</td>
<td>.077</td>
<td>-.030</td>
<td>.024</td>
<td>-.278</td>
<td>-1.293</td>
<td>.211</td>
</tr>
<tr>
<td>Change in Social Communication</td>
<td>.355</td>
<td>-.047</td>
<td>.014</td>
<td>-.596</td>
<td>-3.321</td>
<td>.003</td>
</tr>
<tr>
<td>Change in Child Self Perception</td>
<td>.354</td>
<td>-.103</td>
<td>.031</td>
<td>-.595</td>
<td>-3.313</td>
<td>.003</td>
</tr>
<tr>
<td>Change in Positive Parent Verbal</td>
<td>.232</td>
<td>-.134</td>
<td>.054</td>
<td>-.482</td>
<td>-2.461</td>
<td>.023</td>
</tr>
</tbody>
</table>

Clinical Global Improvement – Impressions (CGI-I)
Table 18

*Regression Analysis of Change in Anxiety as Predictor of Change in PASTOS Subscales*

<table>
<thead>
<tr>
<th>Outcome Variables</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Sd. Error</th>
<th>Beta</th>
<th>t</th>
<th>p&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Self-Help Skills</td>
<td>.054</td>
<td>.054</td>
<td>.050</td>
<td>.232</td>
<td>1.065</td>
<td>.300</td>
</tr>
<tr>
<td>Change in Friendships</td>
<td>.113</td>
<td>.088</td>
<td>.055</td>
<td>.336</td>
<td>1.593</td>
<td>.127</td>
</tr>
<tr>
<td>Change in Social Communication</td>
<td>.363</td>
<td>.829</td>
<td>.245</td>
<td>.603</td>
<td>3.378</td>
<td>.003</td>
</tr>
<tr>
<td>Change in Positive Parent/Child</td>
<td>.243</td>
<td>.195</td>
<td>.077</td>
<td>.493</td>
<td>2.536</td>
<td>.020</td>
</tr>
<tr>
<td>Change in Child Self Perception</td>
<td>.464</td>
<td>.432</td>
<td>.104</td>
<td>.681</td>
<td>4.162</td>
<td>.000</td>
</tr>
</tbody>
</table>
Table 19

*Regression Analysis of Change in Positive Parental Verbal Interactions as Predictor of Change in PASTOS Subscales*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Outcome Variables</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Std. Error</th>
<th>Beta</th>
<th>$t$</th>
<th>p&lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Self-Help Skills</td>
<td>.217</td>
<td>.274</td>
<td>.116</td>
<td>.466</td>
<td>2.356</td>
<td>.029</td>
<td></td>
</tr>
<tr>
<td>Change in Anxiety</td>
<td>.243</td>
<td>1.248</td>
<td>.492</td>
<td>.493</td>
<td>2.536</td>
<td>.020</td>
<td></td>
</tr>
<tr>
<td>Change in Social Communication</td>
<td>.353</td>
<td>2.067</td>
<td>.626</td>
<td>.594</td>
<td>3.302</td>
<td>.004</td>
<td></td>
</tr>
<tr>
<td>Chg. Child Initiation -Conversation</td>
<td>.253</td>
<td>.185</td>
<td>.071</td>
<td>.503</td>
<td>2.601</td>
<td>.017</td>
<td></td>
</tr>
<tr>
<td>Change in Child Self-Perception</td>
<td>.570</td>
<td>1.212</td>
<td>.235</td>
<td>.755</td>
<td>5.153</td>
<td>.000</td>
<td></td>
</tr>
</tbody>
</table>
Table 20

*Regression Analysis of Change in Child Initiations as Predictor of Change in Friendships*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Outcome Variable</th>
<th>$R^2$</th>
<th>$\beta$</th>
<th>Std. Error</th>
<th>Beta</th>
<th>$t$</th>
<th>$p &lt;$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Child Initiation of Conversation (T4 – T1)</td>
<td>Change in Friendships</td>
<td>.232</td>
<td>.871</td>
<td>.354</td>
<td>.482</td>
<td>2.457</td>
<td>.023</td>
</tr>
</tbody>
</table>
### Table 21

**Qualitative Reliability**

*Per Cent Agreement and Kappa Coefficients for Qualitative Themes by Blind Observers*

<table>
<thead>
<tr>
<th>Per Cent Agreement</th>
<th>Observer 1 / Group 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Observer 2 / Group 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

\[
\text{Calculation of Expected Observation:}
\]

\[
\text{Expected Observation (pe)} = \left( \frac{n^1}{n} \right) \cdot \left( \frac{m^1}{n} \right) + \left( \frac{n^0}{n} \right) \cdot \left( \frac{m^0}{n} \right)
\]

\[
= \left( \frac{10}{20} \right) \cdot \left( \frac{10}{20} \right) + \left( \frac{10}{20} \right) \cdot \left( \frac{10}{20} \right)
\]

\[
= \left[ .50 \right] \cdot \left[ .50 \right] + \left[ .50 \right] \cdot \left[ .50 \right]
\]

\[
= \left[ .25 + .25 \right] = .50 \quad \text{expected observation (pe)}
\]

\[
\text{Calculation of Kappa (k):}
\]

\[
\text{(observed obs. – expected obs.)} / (1 – \text{expected obs.}) = (p_o - p_e) / (1 - p_e)
\]

\[
= (.80 - .50) / (1 - .50)
\]

\[
= (.30 / .50)
\]

\[
= .60 \quad \text{moderate agreement}
\]
Per Cent Agreement  

<table>
<thead>
<tr>
<th></th>
<th>Observer 3/ Group 1</th>
<th>Observer 4 / Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Observer 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observer 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Calculation of Expected Observation:

Expected Observation (pe) = \([(n^1/n) * (m^1/n)] + [(n^0/n) * (m^0/n)]\)

= \([(10/20) * (10/20)] + [(10/20) * (10/20)]\)

= \[.50 * .50\] + \[.50 * .50\]

= \[.25 + .25\]

= .50 expected observation (pe)

Calculation of Kappa (k):

\[(\text{observed obs.} – \text{expected obs.}) / (1 – \text{expected obs.})\]

= (po-pe) / (1-pe)

= (.70 - .50) / (1 - .50)

= (.20 / .50)

= .40 fair agreement
### Per Cent Agreement

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Calculations:

**Expected Observation (pe):**

\[
\text{Expected Observation (pe)} = \left[ \frac{n^1}{n} \times \frac{m^1}{n} \right] + \left[ \frac{n^0}{n} \times \frac{m^0}{n} \right]
\]

\[
= \left[ \frac{10}{20} \times \frac{10}{20} \right] + \left[ \frac{10}{20} \times \frac{10}{20} \right]
\]

\[
= \left[ \frac{1}{4} \times \frac{1}{4} \right] + \left[ \frac{1}{4} \times \frac{1}{4} \right]
\]

\[
= \left[ \frac{1}{16} + \frac{1}{16} \right]
\]

\[
= \frac{1}{8}
\]

Expected observation (pe) = .125

**Kappa (k):**

\[
\text{Kappa (k)} = \frac{(\text{observed obs.} - \text{expected obs.})}{(1 - \text{expected obs.})}
\]

\[
= \frac{(1.00 - .125)}{(1 - .125)}
\]

\[
= \frac{.875}{.875}
\]

Kappa (k) = .99 almost perfect agreement
References


D'Amico, P. J. *Children's coping with peer-related stressors: Social competence and its relationship to affective, cognitive, and situational factors. Dissertation Abstracts*


176


Lord, C., Wagner, A., Rogers, S., Szatmari, P., Aman, M., Charman, T., Dawson, G., Durand, V. M., Grossman, L., Guthrie, D., Harris, S., Kasari, C., Marcus, L., Murphy, S., Odom, S., Pickles, A., Scaghill, L., Shaw, E., Siegel, B., Sigman, M., Stone, W., Smith, T., & Yoder,


Shavelson, R. J., & Towne, L. (Eds.). (2003). *Scientific research in education*. 189


Watson, N. (2002). Well, I know this is going to sound very strange to you, but I don’t see myself as a disabled person: Identity and disability. *Disability & Society*, 17 (5), 509-527.


psychology, advances in mixed methods in family psychology: Integrative and applied solutions for family science. *Journal of Family Psychology*, 25(6), 795-798.


validity of the anxiety disorders section of the anxiety disorders interview schedule for
DSM-IV: Child and parent versions. *Journal of Clinical Child and Adolescent
Psychology, 31*(3), 335-342.

different process research methodologies. *American Journal of Family Therapy, 28* (4),
311-327.


Zhang, W. (2012). *Mixed methods embedded design in medical education, mental health, and
health services research: A methodological analysis.* (Order No. 3487306 The University
of Nebraska-Lincoln). ProQuest Dissertations and Theses, 195. Retrieved from