Cognitive factors in childhood social anxiety: the role of hostile intent and fear of social evaluation

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COGNITIVE FACTORS IN CHILDHOOD SOCIAL ANXIETY:
THE ROLE OF HOSTILE INTENT AND FEAR OF SOCIAL EVALUATION

by

Julie L. Ryan

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Abstract

The current study sought to expand the literature on the cognitive process of interpretation bias associated with social anxiety in youth. The interpretation bias in social anxiety includes an assumption that others are inherently hostile and critical therefore the child perceives or anticipates social evaluation of the self by others. Despite the studies examining interpretation bias and self-evaluation, no studies examine whether individuals with social anxiety evaluate others critically and hostilely. Additionally, hostile intent has been conceptualized as a single construct. However, we propose that hostile intent is a two-dimensional construct involving hostile thoughts about others and perceiving that others have hostile intentions toward the self. The construct of hostile intent has traditionally been associated with externalizing disorders in children, rather than social anxiety. We predict that children with social anxiety also experience more thoughts related to hostile intent than non-socially anxious children. However, children who are socially anxious are not typically more aggressive than non-socially anxious children. To explain this difference, it was hypothesized that fear of social evaluation mediates the relationship between hostile intent and social anxiety.

Participants were fourth and fifth grade students (N = 191) from five suburban elementary schools. Data was collected via child self-report measures administered during the school day by advanced graduate students. Results of the exploratory factor analysis largely supported a two factor model of hostile intent. The regression analyses revealed that social evaluation mediated the relationship between hostile intent and social anxiety. Mediation was supported when hostile intent was represented as one construct and when analyzed separately as hostility toward others and perceived hostility from others. Results did not support a model in which fear of social evaluation mediates the
relationship between hostile intent and aggression. Potential ways in which cognitive processes may impact the treatment of social anxiety are discussed.
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Table of Contents

CHAPTER I. Literature Review ................................................................. 1
  Introduction ..................................................................................... 2
  Cognitive Processes in Social Anxiety............................................. 5
  Cognitive Models of Social Anxiety in Adults ................................. 6
  Cognitive Factors Contributing to Social Anxiety in Children ........ 8
  Cognitive Factors Contributing to Social Anxiety in Children ..........18
  Interpretation Bias and the Social Information-Processing Model..... 22
  The Present Study and Hypothesis...................................................26

CHAPTER II. Methods ............................................................................. 32
  Participants......................................................................................33
  Procedures .....................................................................................33
  Measures ........................................................................................34
  Data analytic strategies .................................................................42

CHAPTER III. Results ............................................................................ 45
  Preliminary Statistical Analyses......................................................46
  Descriptive Statistics and Correlations ..........................................47
  Factor Analysis of Revised Hostile Intent Subscale ......................50
  Testing Mediation ...........................................................................53

CHAPTER IV. Discussion ........................................................................ 59
  Goals of the Study ..........................................................................61
  Limitations of Study .......................................................................70
  Future Directions ............................................................................72
REFERENCES.................................................................................................................. 75

TABLES AND FIGURES.............................................................................................. 91

CHAPTER V. Appendices...............................................................................................105

Appendix A. Original CATS Hostile Intent Subscale and Additional
Items for Revised CATS Hostile Intent Subscale.................................. 106

Appendix B. Hostile Intent Vignette Measure......................................................... 108

Appendix C. Revised Child Anxiety and Depression Scale (RCADS)
- Social Phobia Subscale......................................................................................... 110

Appendix D. Problem Behavior Frequency Scale ................................. 111

Appendix E. Revised CATS Hostile Intent Subscales Derived from
Exploratory Factor Analysis................................................................. 112
List of Tables

Table 1. CATS Hostile Intent and Social Threat Subscales and Factor Loadings ..... 91
Table 2. Ratings by Independent Evaluators of CATS Original and Revised Hostile Intent Subscale Items ........................................................................................................ 93
Table 3. Descriptive Statistics of Independent and Dependent Variables ............ 95
Table 4. Independent Samples T-tests by Gender .............................................. 96
Table 5. Intercorrelations Among Independent Variables ............................... 97
Table 6. Partial Correlations controlling for Gender among the Dependent and Independent Variables ................................................................. 98
Table 7. Total Variance Explained in the Principal Axis Factoring Solution ........ 99
Table 8. Pattern Matrix of Three Factor Solution ............................................. 100
Table 9. Correlation Matrix Examining Variables 14 & 19 which Load on Factor .... 101
List of Figures

Figure 1. Social Evaluation as a Mediator for Hostile Intent and Social Anxiety or Aggression................................................................. 102

Figure 2. Social Evaluation as a Mediator for Hostile Intent Toward Others and Social Anxiety or Aggression........................................... 103

Figure 3. Social Evaluation as a Mediator for Hostile Intent from Others and Social Anxiety or Aggression................................................. 104
CHAPTER I

Literature Review
Introduction

Social phobia, commonly referred to as social anxiety, is characterized by fear of or discomfort in social and/or performance situations. The American Psychiatric Association (1994) defines social anxiety as “a marked and persistent fear of one or more social situations in which the person in exposed to unfamiliar people or to possible scrutiny by others.” According to findings from the US National Comorbidity Survey, individuals with social anxiety are characterized by low self-esteem and high self-criticism (Cox, Fleet, & Stein, 2004). Clinically, the picture of social anxiety in children and adolescents may involve having few friends, avoiding activities in the classroom, (e.g. answering questions in class, reading aloud) and avoiding social interactions (e.g. initiating conversations and attending social events) (Beidel, Turner, & Morris, 1995; 1999; Connolly, Bernstein, & The Work Group on Quality Issues, 2007). Studies have shown that social anxiety has a relatively early onset (Kessler, Burglund, Demler, Jin, & Walters, 2005) with most individuals beginning to experience symptoms in childhood or adolescence (Chavira & Stein, 2005). It is estimated that at least 6% of children experience social anxiety (Chavira, Stein, Bayley, & Stein, 2004; Ruscio, Brown, Chiu, Sareen, Stein, & Kessler, 2008), and lifetime prevalence rates of social anxiety range from 7-13% (Kessler, 2003). Many children with social anxiety do not receive treatment. Of individuals who receive treatment, many do not complete treatment, and 30-40% of treatment completers remain symptomatic (Stein & Stein, 2008).

Social anxiety disorder in childhood often continues into adulthood. Studies of illness course in community and clinical samples have shown that social anxiety in adults often has a chronic course (Yonkers, Dyck, & Keller, 2001; Yonkers, Bruce, Dyck, &
The economic cost to society due to social anxiety is great. It is among the top ten physical and mental disorders that result in days of work lost. Social anxiety disorder is often untreated during childhood because impairments are often unapparent to teachers, and many parents do not recognize the extent of their child’s difficulties and believe that it is a stage that they will grow out of naturally (Masia, Klein, Storch, & Corda, 2001). When left untreated, or unsuccessfully treated, social anxiety has been highly correlated with the development of comorbid substance abuse, depression, and other anxiety disorders (Woodward & Ferguson, 2001). In addition to being associated with the development of other psychological disorders in early adulthood, social anxiety has been related to role impairments and problematic life stage transitions, low work productivity, impaired functioning in interpersonal relationships, persistent social isolation, underemployment, financial dependency and reported poor quality of life (Essau, Conradt, & Petermann, 2000; Kessler, 2003; Liebowitz, Gorman, Fyer, & Klein, 1985; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Stein & Stein, 2008; Turner, Beidel, Dancu, & Keys, 1986; Wittchen, Stein, & Kessler, 1999; Woodward & Ferguson, 2001). The National Comorbidity Survey found that adolescents diagnosed with social anxiety (alone or comorbid with other psychological disorders) were less likely to go on to college, but were not less likely to graduate from high school or college, once started.

Adolescents with social anxiety report significantly higher levels of loneliness, dysphoric mood, and emotional over-responsiveness, compared to adolescents with no psychological diagnosis (Beidel, Turner, Young, et al., 2007). Adolescents with social anxiety are also significantly less socially skilled than adolescents without a
psychological diagnosis (Beidel, et al., 2007; Spence, Donovan, & Brechman-Toussaint, 1999). This finding has prompted researchers to question whether individuals with social anxiety suffer from anxiety due to a skills deficit or if the anxiety precludes the individual from having the social contact needed to develop and practice appropriate social skills. Even though the direction of the relationship between social anxiety and social skills deficits remains unclear, the finding that individuals with social anxiety are less socially skilled has resulted in the inclusion of a social skills training component in several treatments developed for social anxiety.

The treatments for social anxiety have primarily looked at the efficacy of cognitive behavioral therapy (CBT) interventions (Barrett, Dadds, & Rapee, 1996; Bernstein, Lane, Egan, & Tenneson, 2005; Beidel, Turner, & Morris, 2000; Cobham, Dadds, & Spence, 1998, Kendall, 1990; Masia, et al., 2001, Spence, Donovan, & Brechman-Toussaint, 2000), with some treatments incorporating a social skills training component (Beidel, Turner, & Morris, 2000, Masia, et al., 2001, Spence, Donovan, & Brechman-Toussaint, 2000), and some including a parent component (Barrett, Dadds, & Rapee, 1996; Bernstein, Lane, Egan, & Tenneson, 2005; Beidel, Turner, & Morris, 2000; Cobham, Dadds, & Spence, 1998, Kendall, 1990, Spence, Donovan, & Brechman-Toussaint, 2000). CBT approaches specifically designed for the treatment of children’s social anxiety have largely focused on behavioral components of treatment (i.e. exposure exercises and social skills training) and have overlooked the cognitive components of treatment (i.e. identifying and disputing maladaptive cognitions). Research examining the cognitive mechanisms that underlie the development and maintenance of social anxiety is needed.
Efficacy trials examining CBTs for social anxiety have been promising, with many children responding to treatment. However, a considerable number of children and adolescents that receive treatment continue to experience difficulties related to social anxiety. In randomized-controlled treatment trials a third to one half of children completing treatment do not benefit substantially from these interventions (Silverman, Pina, & Viswesvaran, 2008). Understanding the underlying mechanisms and specific factors associated with treatment response may allow researchers and clinicians to improve upon and develop more effective treatments for social anxiety disorder.

Cognitive Processes in Social Anxiety

Understanding the underlying cognitive processes in social anxiety may better inform researchers working to enhance the efficacy of treatments for children with social anxiety. Research on cognitive processes involved in social anxiety has been conducted; however, much of the literature has focused on adults. There are numerous cognitive models that have been proposed to explain the development and maintenance of anxiety disorders in adults (e.g., Beck & Clark, 1997; Beck, Emery, & Greenberg, 2005; Riskind, Williams, & Joiner, 2006), and some cognitive models have specifically addressed the occurrence and maintenance of social anxiety in adults (Clark & Wells, 1995; Foa, Franklin, Perry, & Herbert, 1996; Ledley & Heimberg, 2006; Rapee & Heimberg, 1997; Trower & Gilbert, 1989). The literature on children’s social anxiety has focused on describing symptom presentation (Beidel, Turner, & Morris, 1999), and factors that contribute to the development of social anxiety, such as parenting styles, temperament, and peer socialization (Biedel, Morris, & Turner, 2004; Lucock & Salkovskis, 1988). Although there are some studies examining cognitive factors that contribute to the
development and maintenance of social anxiety in children (discussed in the following section), most of the cognitive factors investigated have been taken from the theoretical models of social anxiety in adults (Alfano, Biedel, & Turner, 2002; Ambrose & Rholes, 1993; Kendall & Chansky, 1991; Prins, 2001). In order to better understand the cognitive factors that have been investigated with children who experience social anxiety and because of the dearth of research examining cognitive models of social anxiety in children, the following section provides a brief review of cognitive models of social anxiety in adults.

**Cognitive Models of Social Anxiety in Adults.** Models of social anxiety in adults have many commonalities; however, different aspects of cognition have been focused upon depending on the model. Trower and Gilbert’s (1989) model of social anxiety takes an evolutionary perspective. They posit that social hierarchies exist in every setting and the ability to assess the social context for signs of threat and then exhibit submissive behaviors, when appropriate, can be advantageous. Trower and Gilbert suggest that there are many forms of appraisal and coping within the social environment. Many of these lead to the development of specific cognitive schemata which are associated with social anxiety. According to Trower and Gilbert the prevailing schema of a socially anxious individual is that the individual must continuously appraise the social environment for threats and be prepared to cope with those threats. In their model, social anxiety develops when individuals repeatedly detect social threat and then cope via submissive and avoidant behaviors. They suggest that any kind of negative stimulus in the social environment can lead to physiological, emotional, and cognitive reactions that trigger avoidant behaviors (Trower & Gilbert, 1989).
Clark and Wells (1995) proposed a cognitive model which suggests that socially anxious individuals frequently focus attention inward on physiological reactions and feared behavioral symptoms, which they assume are apparent to others, thereby increasing their perceived vulnerability to evaluation and criticism. Based on the body of literature examining attention in individuals with social anxiety, there appears to be an attention bias to information that confirms beliefs about social evaluation and threat (e.g., Clark, 2001; Pineles & Mineka, 2005). Specifically, these individual’s attention is focused inward on themselves and they are preoccupied with how they believe they are being perceived by the person with whom they are interacting (Clark, 2001; Wells, Clark, & Ahmad, 1998). This has been called the “observer perspective,” (p 71, Clark & Wells, 1995; Wells, Clark, & Ahmad, 1998). If an individual is taking this observer perspective and thereby focusing attention inward on herself, she may miss important information that the other person shares during an interaction, which in turn, may lead her to appear less socially skilled. This model is also supported by research showing that individuals with social anxiety exhibit a vigilance-avoidance response to facial expressions. By avoiding and not attending to the actual feedback they are receiving in the environment, and instead turning their attention inward to physiological cues and taking an observer perspective, they would most likely appear to lack social skills. If the individual comes across as lacking social skill, the specific outcome the socially anxious person fears, namely, negative evaluation and rejection from social others, is more likely to occur.

Ledley and Heimberg (2006), expand upon the model proposed by Clark and Wells (1995), highlighting that the cognitive distortions associated with social anxiety include not only attentional bias that is focused inward on the self, but also biases in
interpretation, judgment, and sometimes memory for social information and events. For instance, a result associated with taking the “observer perspective,” is having biased memories of social interactions, such as recalling the event in the third person. This means that an individual’s recollection of a social situation may be what they assume others perceived in the situation, rather than what actually took place (Coles, Turk, & Heimberg, 2002). This type of interpretation and memory bias could be problematic in many ways. Understanding the cognitive biases of socially anxious individuals may help inform cognitive aspects of treatment. Biases of attention, interpretation, judgment, and memory are now discussed in further detail.

**Cognitive Factors Contributing to Social Anxiety Reported in the Adult Literature**

**Attention Bias.** Many studies have hypothesized that individuals with social anxiety will more readily focus their attention on what they perceive as negative social information (i.e. threat of evaluation or criticism) than individuals not experiencing social anxiety. Different paradigms have been utilized to test this model of biased attention in individuals with social anxiety. Many studies have used the Stroop paradigm (Stroop, 1935) to test attentional bias (Maidenberg, Chen, Craske, Bohn, & Bystritsky, 1996; Mattia, Heimberg, & Hope, 1993). The Stroop paradigm in this context involves presenting a neutral or social-evaluative related word in different color inks. The individual must name the color of the ink rather than the word that is written. Studies have consistently shown that individuals with social anxiety have a longer latency to report the color of ink when presented with a social-evaluative related word compared to when the word is neutral, than do individuals without social anxiety. Investigators have
proposed that this increased latency of response to social-evaluative words may indicate heightened attention for socially threatening information (Ledley & Heimberg, 2006).

A paradigm called the dot-probe, in which a dot takes the place of one of the two words presented, has shown mixed results. In one study using this paradigm, Asmundson and Stein (1994) found that socially anxious individuals responded faster when the dot replaces a social-evaluative word compared to a neutral word. When the latency is shorter, it implies that the individual was focused on that word when the dot appears and therefore the individual responds faster; a finding that is consistent with the results of the Stroop studies. However, another study using the dot-probe paradigm did not replicate the findings of Asmundson and Stein (1994), finding that individuals with social anxiety did not show a bias for social-evaluative words (Mansell, Ehlers, Clark, & Chen, 2002).

To further elucidate whether socially anxious individuals have an attention bias for social-evaluative stimuli Mansell and colleagues (Mansell, Clark, Ehlers, & Chen, 1999) modified the original do-probe paradigm, replacing the probe word with a picture. The picture probes were facial expressions (positive, negative and neutral) or a household item. They tested this paradigm with a sample of individuals high or low in social anxiety, as rated by self-report measure. They found no differences in latency to respond to facial expressions or household items between the two groups. However, when given an anxiety provoking prompt (i.e. to give a speech after the dot-probe task) the group high in social anxiety showed a slower latency to respond to negative and positive faces, compared to the group low in social anxiety. Consistent with this finding, when the modified dot-probe paradigm was used with a clinical sample, participants with social
anxiety showed a slower latency to respond to faces than to household items (Chen, Ehlers, Clark, & Mansell, 2002). Based on these findings, the investigators suggested that socially anxious individuals avoid facial feedback from others. The investigators concluded that when social-evaluation is perceived by an individual with social anxiety, facial expressions of any nature are considered threatening and attention is diverted, suggesting a vigilance-avoidance pattern of responding (Chen, et al., 2002).

If this finding is taken into the social context, there are numerous social difficulties that could arise. If the individual with social anxiety diverts his gaze during an interpersonal interaction, he may appear less socially skilled (e.g. missing non-verbal cues and not responding appropriately) or disinterested. If his gaze is averted, he may not appreciate the positive cues in the conversation, such as smiles and head nods, that reinforce the social interaction. The socially anxious individual, missing the positive cues, is less likely to be reinforced for interacting and more likely to maintain the belief that he is not socially skilled.

Studies on attentional bias involving external sources of evaluation have produced mixed findings with some reporting that socially anxious individuals appear to have an attentional bias expressed as hypervigilant attention to social-evaluative threats, and other studies reporting that attentional bias is expressed as avoidance of social evaluation. Few studies have examined attentional bias to internal sources of threat (e.g. increased heart rate). In one study that did examine attentional bias to internal and external sources of threat, Pineles and Mineka’s (2005) investigated attentional biases when exposed to heart rate information and facial expressions. They found that individuals that rated themselves high in social anxiety were significantly more attentive to the heart rate
monitor cue, compared to individuals that rated themselves low in social anxiety. However, adult participants high in social anxiety did not exhibit any attentional bias toward external sources of potential threat. Although findings from this study did not provide evidence for an attentional bias involving external sources of threat, the findings did support the main tenet of Clark and Wells’ (1995) cognitive theory of social anxiety, that individuals who are anxious show a preoccupation with internal threat cues.

Studies have also have been designed specifically to investigate whether individuals with social anxiety focus their attention selectively to information that confirms their beliefs that others are evaluating them or that they are not socially skilled. A study by Veljaca and Rapee (1998) examined attention to body language that could be evaluated as positive or negative in a sample of non-clinical participants. The sample included two groups of adult participants, those who rated themselves high in social anxiety and those who rated themselves low in social anxiety. All participants were asked to give a speech to a group of confederates, who were trained to either give specific non-verbal negative feedback (e.g. yawns) or positive feedback (e.g. leaning forward, smiling). The investigators then asked the participants to recall any non-verbal feedback they perceived from the audience. Participants that rated themselves low in social anxiety reported significantly more positive non-verbal behaviors from the audience than negative, and participants that rated themselves high in social anxiety reported significantly more negative non-verbal behaviors from the audience than positive. The results must be interpreted with caution however, because rather than inserting specific non-verbal behaviors at specific time intervals during the speech, the confederates were told to insert their specific non-verbal behaviors “when they felt it was most appropriate”
Therefore, socially anxious individuals may have exhibited more negative behaviors during the task thereby eliciting more negative feedback from the confederates. If the latter is the case, then the results are a reflection of the actual feedback received and not an attentional bias. Taking this confound into account, these results may support the idea that individuals with social anxiety attend to and remember more negative information than individuals who are not socially anxious.

A study by Perowne and Mansell (2002) used a very similar study design to Veljaca and Rapee (1998), however these authors modified the design to control for negative, neutral, and positive audience feedback. They controlled for variability in audience feedback by taping an audience of six and telling the participants that the audience on the screen in front of them was viewing their performance live. The authors also assigned two confederates to each feedback condition. Perowne and Mansell (2002) found that participants high in social anxiety better remembered the feedback of the two “negative” confederates compared to the participants low in social anxiety. With these controls in place, the findings can be interpreted more confidently. Based on this study one may conclude that individuals with social anxiety attend to and remember more negative social feedback during a performance task than individuals who are less socially anxious.

Memory Bias. The research testing whether individuals with social anxiety have a bias for remembering social-evaluative information has not been consistent, with the exception of memory for facial expressions. One possible reason for the inconsistent findings is that many studies in this area are tapping into multiple constructs at once. For example, O’Banion and Arkowitz (1977) conducted a study in which women who rated
themselves low or high in social anxiety were given feedback after interacting with a male confederate. The women high in social anxiety had a better memory for negative feedback about themselves than the women low in social anxiety. The women showed no difference, however, in their abilities to remember the positive information. In contrast, a study by Wenzel and Holt (2002) using prose passages containing neutral or evaluative-threat content, found that individuals with social anxiety remembered less information from the evaluative-threat content passages than the non-anxious controls.

One finding in the literature that consistently distinguishes socially anxious from non-socially anxious individuals is their memory for facial expressions. Individuals with social anxiety have been shown to remember facial expressions better than non-socially anxious control participants (Coles & Heimberg 2005; Foa, Gilboa-Schechtman, Amir, & Freshman, 2000). For example, in a study by Foa and colleagues (2000) in which two groups, one group with a diagnosis of generalized social anxiety and one group of non-anxious control participants, were presented with cards depicting happy, neutral, or angry expressions, group differences were detected. First all participants were presented with a learning trial in which they needed to correctly identify 12 characters without error for five consecutive trials. This procedure controlled for the confound of attention bias, as all the characters were known prior to presenting participants with cards of the characters depicting various facial expressions. Overall the participants with social anxiety had a better memory for facial expressions than the non-socially anxious participants. Also, the participants with social anxiety showed better memory for emotional expressions compared to neutral expressions. They also had an enhanced ability to recall angry
expressions compared to the non-anxious participants. There were no differences between groups when examining neutral and happy expressions.

These findings are similar to the findings of Coles & Heimberg (2005) in which the authors replicated a study by Lundh and Ost (1996). The Lundh and Ost (1996) study found that socially anxious participants had a better recognition of critical facial expression compared to non-anxious controls, however, the study was criticized for a methodological flaw in which memory bias was entangled with response bias. To replicate and expand upon the Lundh and Ost (1996) study, Coles and Heimberg (2005) recruited participants with a primary diagnosis of social phobia and non-anxious control participants. The participants rated pictures of how critical the character appeared on a 0-5 scale (1 = ‘very accepting person’ and 5 = ‘very critical person’). After a 5 minute delay the participants were asked to complete a surprise recognition task. Half of the faces presented were new to the participants and half were presented previously during the rating task. Participants with social anxiety recognized more critical than accepting faces and the non-anxious control group showed the opposite pattern. To extend upon the findings of Lundh and Ost (1996), which was criticized for not conducting a signal detection analysis, Coles and Heimberg did analyze whether socially anxious individuals were showing a response bias rather than a recognition bias. Accuracy of the participants “hit rates” were analyzed. There were no differences between groups in accuracy of hit rates for accepting and critical faces, indicating that the findings are due to memory bias and not bias in responding to critical faces.

*Interpretation Bias.* Another aspect of cognition primarily examined in adults is interpretation or information-processing biases in social anxiety. The cognitive-
behavioral theory of social anxiety in adults proposes that how one interprets ambiguous social situations may maintain social anxiety (Clark, 2001; Rapee & Heimberg, 1997). The underlying assumption is that individuals with social anxiety assume that others are inherently critical, thereby any ambiguous social interaction may be interpreted as evaluation by a hypercritical other. Most studies investigating interpretation bias have supported this assumption, however some have not, which warrants further discussion.

In a recent study, Huppert, Pasupuleti, Foa, and Mathews, (2007), examined whether methodological variation in how interpretation bias is assessed impacts study findings. Past studies differed methodologically with some using only forced-choice questions on a self-report of interpretation bias, and others having participants generate responses during a sentence completion task. Across studies, sentence completion tasks have varied as well, with some studies asking participants to generate a single response per sentence and other studies participants generated multiple responses per sentence. Therefore, to examine the impact of methodological differences, Huppert et al. (2007), required that the participants complete a self-report measure and a multi-step sentence completion task. The investigators sampled individuals high and low in social anxiety, as determined by a high (more than 20) or low (less than 10) Social Phobia Inventory (SPIN; Connor et al., 2000) score. The participants completed a forced-choice, self-report measure of interpretation bias that was created for this study, the Self-report Measure of Interpretation Bias (SMIB). The participants first completed a sentence completion task that required generation of as many possible responses to each ambiguous sentence. The participants then choose which response best completed the sentence. The investigators examined total number of responses, first response and
endorsed responses separately, as well as responses on the SMIB. This study found across all three measures of response generation, that individuals who rated themselves high in social anxiety generated more responses or interpretations which were coded as negative or anxious and fewer positive or neutral, compared to individuals who rated themselves low in social anxiety. Individuals high in social anxiety endorsed more negative or anxious responses than positive or neutral responses, which was the opposite finding for individuals low in social anxiety. When examining the self-report data from the SMIB, participants high in social anxiety had higher rates of negative and anxious responses on the SMIB. A unique finding in this study, which is not consistent with previous literature, is that individuals high in social anxiety generated and endorsed significantly fewer positive responses compared to the low anxious group. However, when examining the self-report data from the SMIB, no differences in positive responses were found between the groups.

*Summary of Cognitive Factors in the Adult Literature.* The literature on attention bias, as described previously, provides some evidence that attention to internal and external cues may be distorted or biased in adults with social anxiety. Understanding attention bias further may be useful in the treatment of social anxiety. The Veljaca and Rapee (1998) study incorporated both attention and memory as individuals had to report on their recollections of the non-verbal feedback which they attended to while giving a speech. Many times attention in a situation and memory of the situation are intertwined, therefore it is difficult to determine if memory is a significant source of cognitive bias. For example, as the O’Banion and Arkowitz (1977) study reported, memory differences between women high and low in social anxiety when recalling negative feedback after an
interaction with a male confederate, may be confounded by attention bias. The attention bias literature has shown that individuals high in social anxiety differentially attend to negative cues, and it could be increased attention to negative feedback that is responsible for recalling more negative feedback. Even if we were confident that the findings of O’Banion and Arkowitz (1977) were due to memory bias rather than attention, the evidence for memory bias appears mixed in nature. For example, the Wenzel and Holt (2002) study in which individuals with social anxiety remembered less information from social-evaluative written passages than neutral passages, is conflicting with the results of the O’Banion and Arkowitz (1977) study in which evaluative information was more memorable. These differences could be attributed to the medium involved. That is, reading social-evaluative prose passages may be less personally threatening than interacting with a confederate or giving a speech to an audience, thereby producing different responses. However, the findings may reflect a true memory bias and the poor memory for social-evaluative passages might be interpreted as a vigilant-avoidant response. Based on the current literature it is difficult to discern if there are true memory bias effects for social-evaluative information in socially anxious individuals.

The current literature on interpretation bias and social anxiety in adults is relatively straightforward. Most studies investigating interpretation bias have shown that socially anxious adults interpret ambiguous social situations and cues as negative more often than non-anxious adults. In the past some studies’ results were not consistent with this finding. However, based on the study by Huppert and colleagues (Huppert et al., 2007), one may conclude that these differences were due to methodological variability.
The cognitive factors in children with social anxiety that have been investigated have been borrowed from the adult literature and primarily focus on biases of attention and interpretation. There are no studies, to our knowledge, that examine memory bias in socially anxious children and this is likely due to the inconsistent evidence regarding memory bias in the adult literature. Studies examining cognitive factors that may contribute to social anxiety in children will now be discussed.

Cognitive Factors Contributing to Social Anxiety Reported in the Child Literature

Attention Bias. Studies have shown that adults with social anxiety will more readily focus their attention on what they perceive as negative social information (i.e. threat of evaluation or criticism) than adults not experiencing social anxiety. Attention bias has not been examined specifically in children with social anxiety but rather with mixed groups of children who have been diagnosed with various types of childhood anxiety disorders. In one study that examined attention bias using the modified dot-probe paradigm with non-anxious and anxious children, participants viewed fear-related, neutral, and pleasant pictures (Waters, Lipp, & Spence, 2004). Similar to the findings of studies using the dot-probe paradigm with adults, anxious and non-anxious children showed a faster response toward fear-related pictures. However, in contrast with the non-anxious children, the anxious children attended to the “pleasant” pictures more so than to neutral pictures. This suggests that anxious children may have an attentional bias related to affectively valenced stimuli, regardless of negative or positive affect. Although the body of literature investigating attentional bias in social anxiety has used different strategies to refine the concept in adults, there is still a need for more research.
investigating whether children with social anxiety exhibit the same types of attentional biases when under the same conditions as adults with social anxiety.

**Interpretation Bias.** Different groups of researchers have studied how children misperceive aspects of their environments and the impact misperceptions have on their functioning. Unfortunately, the different groups do not share a common vocabulary when describing these processes, which results in confusion when discussing this literature. One group of researchers, who are more clinically focused, describe the misperception of environmental cues as “interpretation bias” and another group of researchers, who are more developmentally focused, describe this phenomenon as “attributional bias/error” and discuss the interpretation of cues as a part of the social information-processing model (Crick & Dodge, 1994). When discussing how misperceptions of one’s environment impacts functioning, the former group describes this in terms of “clinical symptom presentation or diagnosis,” while the latter group describes this in terms of the child’s “social adjustment.” To temporarily rectify the murky language extant in the literature, this paper will refer to misperceiving aspects of one’s environment as “interpretation bias.” First the literature surrounding interpretation bias from the clinically focused researchers will be discussed, followed by the literature generated by the more developmentally focused researchers.

Most studies involving children have examined the construct of interpretation bias with groups of children with various types of childhood anxiety disorders. For example, a study by Chorpita and colleagues (Chorpita, Albano, & Barlow, 1996) compared information-processing and interpretation bias in a group of children with any diagnosis of anxiety with a non-clinical sample. All children were given the ambiguous-situations
questionnaire (ASQ). The ASQ contains a list of ambiguous situations, which include a variety of threats (i.e. social evaluation, physical threat, somatic problem, and threat of loss), and is administered verbally to a child. The investigators read four ASQ scenarios to the children and had the children generate all possible interpretations of the situation and a behavioral plan in response to each situation. They then asked the children to rate which response they would most likely choose if they were in the situation. Children were then asked to discuss the situations with their family members and generate an interpretation of the situation and a plan of action while being videotaped. Children were again administered the ASQ after the discussion time with their family members. This study found that the anxious children were more likely to generate anxious interpretations to the situations before discussing it with the family, compared to the non-clinical control children. They also found that an avoidant or anxious plan was highly associated with being anxious, and this did not change after the family discussion. However, the investigators also found that having a family discussion appeared to influence the threatening and anxious interpretations assigned to the ambiguous situations, so that anxious children interpreted them as less threatening after discussing with their family.

Recognizing that parents of anxious children may be able to help their children interpret threatening situations differently, leads one to question whether some parents may negatively influence the child’s developing information processing style. A child’s information processing style develops early in life and can be influenced by parental input, such as parental perception of threat and parent’s perception of the child’s ability to cope with threat. Whether parents of socially anxious children more often have problematic interpretation biases than parents of non-socially anxious children, was
examined by Creswell, Schniering, and Rapee (2005). Their study was comprised of clinically anxious children who had recently entered treatment and their mothers, and a group of non-anxious children and their mothers recruited from the community. They investigated interpretation bias in both the children and their mothers using 12 ambiguous situations (6 physical threat, 6 social-evaluative threat). The investigators found that prior to treatment, clinically anxious children and their mothers reported more anxiety and threat/evaluation interpretation compared to the non-anxious dyads. The study found that clinically anxious children’s self-reported anxiety was not significantly correlated to their mother’s self-reported anxiety, however, children and their mother’s social evaluation/threat interpretation bias was significantly correlated. Although these mothers are not experiencing significant anxiety themselves, they may be influencing their children’s perceptions of social evaluation and threat, which in fact, has been proposed to be a factor that maintains children’s anxiety. When examined pre- and post-treatment, data revealed that children and their mothers had a significant reduction in self-reported anxiety as well as threat interpretation.

As indicated in the studies discussed above, interpretation bias appears to impact the way in which socially anxious children perceive ambiguous situations. A recent study was conducted to examine interpretation bias and how it may also effect perceptions of positive events (Vassilopoulos & Banerjee, 2008). The investigators recruited a non-clinical sample of children and had them complete numerous self-report measures, one of which measured their level of social anxiety. Then they examined whether children higher in social anxiety reported more negative affect in response to negative events, interpreted mildly negative events in a catastrophic way, reported that
negative events are more likely than positive events, and discounted or minimized positive events. As predicted, they found that children endorsing more symptoms of social anxiety reported more catastrophic interpretations of, as well as more negative reactions to, mildly negative social events. Also, children with greater anxiety tended to predict a higher probability of more negative events occurring compared to less anxious children. Children who were anxious also more often discounted positive events and had less positive emotions regarding positive events. This study lends insight into how anxiety and its associated interpretation bias can manifest itself in many aspects of a child’s cognitive processes.

As the literature regarding interpretation bias in socially anxious children continues to grow, a greater understanding of the underlying cognitive processes will hopefully emerge. The social information-processing model, originally proposed by Dodge (1986) and reformulated by Crick and Dodge (1994), has often been utilized to explain interpretation biases in children with aggressive behaviors or externalizing disorders. This model has 6 steps: encoding of cues, interpretation of cues, clarification of goals, response access or construction, response decision, and behavioral enactment. Although social information-processing theory has helped shape the research of cognitive mechanisms related to childhood psychopathology, the model may prove to be a useful framework for developing a comprehensive understanding of social anxiety in children.

*Interpretation Bias and the Social-Information Processing Model.* The social-information processing model has been used frequently to explain children’s aggressive behaviors, with most studies having focused on the ‘interpretation of cues’ step of the model. For example, studies have shown that aggressive children tend to have a hostile interpretation...
bias, meaning that they are more likely than non-aggressive children to infer hostile intent in an ambiguous social interaction (Dodge, 1980; Waas, 1988). This hostile interpretation bias has been shown to be related to reactive aggression, rather than proactive aggression, in numerous studies (e.g., Crick & Dodge, 1996; Dodge & Coie, 1987; Dodge & Frame, 1982). Dodge and Somberg (1987) showed that aggressive children react with a hostile interpretation bias when they are anticipating a physically threatening social interaction. There is much evidence in the social-information processing literature suggesting a relationship between interpretations of hostile intent and reactive aggression.

Some aspects of the social-information processing model have also been examined in the child anxiety literature. As in the childhood aggression literature, emphasis has been placed on studying associations between deficits in ‘cue interpretation’ and children’s anxiety symptoms. One study examined social-cue interpretation in anxious and non-anxious children, and found that anxious children misinterpreted non-hostile situations as hostile more often than non-anxious children (Bell-Dolan, 1995). Another study examined several social-cognitive processes in adolescents with adjustment problems, such as depression, anxiety, and aggression (Hoglund & Leadbeater, 2007). Results from the study indicated that social perspective awareness (i.e. understanding the thoughts, feelings and motivations of others), but not hostile attribution bias, mediated the relationship between relational victimization and anxiety. Not being able to understand the thoughts, feelings and motivations of others predicted higher rates of internalizing symptoms in this study of adolescents. The studies above primarily addressed how faulty cue interpretation and attributional processes may
be related to child and adolescent anxiety symptoms, however, there are other steps of the social-information processing model that can be used to provide a context to better understand the cognitive factors that contribute to childhood anxiety.

The social-information processing model can be utilized to better understand the cognitive processing of children with social anxiety. The literature discussed thus far regarding cognitive biases related to social anxiety can be understood within the social-information processing model (see Crick & Dodge, 1994 for full model). For example, one might hypothesize regarding the findings related to attention bias that during the first step “encoding,” the child would be sensitive to interoceptive cues (e.g. increased heart rate, feeling flushed or warm) and to selective information gathered from the social environment (i.e. what they imagine others are perceiving of them, negative social feedback from others, missed positive cues, etc.). During the second step “interpretation and mental representation of cues,” the literature on interpretation bias leads one to expect that a socially anxious child would be very concerned with “self-evaluation” and interpret external cues (i.e. others’ ambiguous actions) as critical and negative, and internal cues (increased heart rate, etc) as extremely apparent and judged by everyone. For step three, “clarification of goals,” one might hypothesize that the child’s goal would be to avoid or escape negative evaluation from others (i.e. not wanting to appear socially awkward or embarrass one-self). Although some of the literature investigating social anxiety in children could be conceptualized as fitting into various steps of the social-information processing model, few studies have utilized this model to guide their research on the development and maintenance of social anxiety.
This study aims to expand the literature on the cognitive processes in childhood social anxiety and will focus on one step of the social-information processing model to examine an aspect of interpretation bias. Therefore, the study will specifically address the processes that take place in the second step of the social information-processing model, “interpretation of cues.” The ‘interpretation of cues,’ according to Crick and Dodge (1994), may consist of one or more independent processes,

“…including, a) a filtered, personalized mental representation of the situational cues that is stored into long term memory; b) a causal analysis of the events that have occurred in the situation (including assessment of why the intended goal was or was not achieved); c) inferences about the perspectives of other in the situation (including attributions of intent); d) an assessment of whether the goal for any previous social exchange has been obtained; e) evaluation of the accuracy of the outcome expectations and the self-efficacy predictions that were made during the previous exchange with the peer (evaluation of past performance); and f) inferences regarding the meaning of prior and present exchange for the self (self-evaluation) and the peer (evaluations of others).” (p. 76).

Much of the literature reviewed to this point has addressed the attention and interpretation biases in regard to self-evaluations in children and adults with social anxiety. Similarly, numerous studies in the adult literature have suggested that adults with social anxiety (e.g., Rapee & Lim, 1992; Stopa & Clark, 1993) are harsher critics of themselves than others (Ledley & Heimberg, 2006). Studies have not examined why or how the assumption that others are inherently critical and hostile, and negatively evaluating of oneself develops during childhood. One possible explanation is that children with social anxiety evaluate others in harsh and critical ways, however, this hypothesis has not been examined in the literature. Whether being critical of or hostile toward others is a necessary part of the cognitive process maintaining maladaptive schemas in individuals with social anxiety will be addressed in this study.
In summary, aspects of the social information-processing model have been used to show how cue interpretations of ambiguous situations are associated with children’s maladaptive responses in social situations. The literature involving children with externalizing behavior problems has shown that children react aggressively in ambiguous social situations as a result of a hostile interpretation bias (i.e. they often interpret neutral actions as hostile). Also, the literature has shown that children who are socially anxious have a tendency to interpret ambiguous and non-hostile social situations as more critical and evaluative than their non-anxious peers. It appears that among children who interpret ambiguous or neutral social cues as negative, some react with aggression while others become anxious.

The interpretation of cues, as presented in the social information-processing model, includes both self-evaluations and other-evaluations. The interpretation bias associated with social anxiety in youth (i.e. perceptions of self-evaluation) includes a cognitive assumption that others are inherently hostile and critical; therefore the child is constantly perceiving or anticipating social evaluation of the self from others. The literature examining the relationship between social evaluation and child anxiety has consistently incorporated this assumption. Yet, no studies have investigated whether this model also includes the individual making critical and hostile judgments toward, or regarding, others. The “other-evaluations” in the social information-processing model will be examined in this study in regard to hostile intention toward others.

Goals of the Present Study

There are two goals of the present study. The first involved investigating the theoretical construct of hostile intent in children. The second goal examined meditational
models of cognitive factors and symptoms of psychopathology in children, which will be described in detail.

Hostile intent has been conceptualized both as perceiving another person’s actions as hostile and acting in a hostile way towards others; however, it has always been examined as a single construct. Often the construct of hostile intent has been associated with reactive aggression. Reactive aggression is a process in which another person is perceived as acting hostile toward the self, which justifies an aggressive or hostile reaction toward that person (Bell-Dolan, 1995; Crick & Dodge, 1994; Dodge & Somberg, 1987; Hoglund & Leadbeater, 2007). Hostile intent has not been examined in relation to anxiety. Hostile intent has often been measured in children and adolescents via vignettes of ambiguous social situations. These vignettes have been administered in story form (e.g. Bell-Dolan, 1995; Crick, Grotpeiter, & Bigbee, 2002) and also in video clip format (e.g. Dodge & Somberg, 1987), and are typically followed by questions that assess interpretations of why the child acted as he/she did in the vignette (i.e. hostile or not hostile), and sometimes assess how the subject would react if placed in a similar situation. More recently the construct of hostile intent has been measured by a subscale of the Children’s Automatic Thoughts Questionnaire (CATS; Schniering & Rapee, 2002). On the Hostile Intent subscale of the CATS children endorse how many times in the past week they have had various hostile thoughts. Although the CATS Hostile Intent subscale was originally created to assess one dimension of hostility, close examination of subscale items reveal that two forms of hostility are being measured: perceiving another person as hostile toward oneself (e.g. Most people are against me), and thinking in a hostile way about/toward another (e.g. Other kids are stupid). The interest in a two factor construct
of hostile intent originated from considering a developmental conceptualization of social anxiety in children. Why do children experiencing social anxiety assume that others will be inherently critical and evaluative? When taking this question into the realm of cognitive development, the developmental conceptualization underlying one of the main hypotheses arose: children may assume that others are critical and evaluative because they are experiencing their own hostile and critical thoughts about others. If younger children have yet to develop a strong theory of mind, it may be difficult for them to understand that if they are having a hostile or critical thought about others, that all people are not necessarily thinking the same. This underlying idea is difficult to examine if hostile intent is conceptualized as a single construct, including both hostility from others and hostility towards others. To date, no studies have examined whether hostile intent may exist as two constructs.

In the present study, the theoretical construct of hostile intent in children is examined by investigating whether hostile intent is best characterized by one or two factors, and by comparing two different methods of measuring hostile intention in children, vignettes and self-report. Three hypotheses were tested to examine the construct of hostile intent. First, the present study hypothesized that hostile intent is comprised of two independent factors, the first factor representing hostile thoughts about others, which we have termed the “hostility toward others” construct, and the second factor representing the belief that others have hostile intentions towards oneself, which we have termed the “hostility from others” construct. Factor analysis was used to examine the construct of hostile intent and its factor structure. Second, it was hypothesized that questionnaire self-report assessment of hostile intent would be
significantly related to vignette self-report assessment of hostile intent. Third, it was hypothesized that externalizing behaviors would be positively correlated with both “hostility from others” and “hostility toward others” factors, whereas, social anxiety will show a stronger positive correlation with the “hostility toward others” factor than the “hostility from others” factor. The third hypothesis was based on a developmental conceptualization of social anxiety in which children may assume that others are critical and evaluative because they are experiencing their own hostile and critical thoughts about others. If they have yet to develop a strong theory of mind, it may be difficult for children to understand that if they are having a hostile or critical thought about others, that all people are not necessarily thinking the same.

The second goal of the study involves investigating two models of cognitive processing in children. As discussed previously, the social information-processing model includes both self- and other-evaluations. However, the interpretation bias associated with social anxiety in youth primarily relates to perceptions of self-evaluation. The social anxiety literature proposes that individuals with social anxiety assume (or interpret) that others are inherently critical and therefore expect to be judged or evaluated by others. This is the construct of social evaluation, which has been established in the literature to be related to social anxiety in children. The literature has not examined whether individuals with social anxiety also make hostile or critical evaluations about or toward others (i.e. “other evaluations” in the social information-processing model). In the literature, critical and hostile interpretation biases have been related to youth who exhibit aggressive behaviors. Therefore, in this study we examined whether a cognitive style characterized by hostile intention and perceptions of social evaluation are related to both
social anxiety and aggression. We expected that hostile intent would predict social anxiety and aggression. We expected social evaluation to predict social anxiety, but not to predict aggression. The literature shows that children react aggressively in situations in which they interpret hostility from others, however socially anxious children do not often react aggressively. Therefore, if hostile intent is related to social anxiety then there may be another factor that mediates the relationship between hostile intent and social anxiety. This study proposes that social evaluation is the mediator that alters the pathway from hostile intention to aggression. The study’s first model examines the extent to which social evaluation mediates the relation between hostile intent and social anxiety (see Figure 1). The second model examines the extent to which social evaluation mediates the relationship between hostile intent and aggression. This study proposes that children with social anxiety experience hostile intent, but due to the fear of social evaluation they do not react aggressively. We predict that social evaluation mediates the relationship between hostile intent and social anxiety, but does not mediate the relationship between hostile intent and aggression.

Finally, we are interested in whether there are differences in the models described above when we examine hostile intent as a two dimensional construct: hostility toward others and perceived hostility from others. We proposed testing both models described in Figure 1, but with the two hypothesized constructs of hostility examined separately (see Figure 2 and 3). We predicted that the relationship between social anxiety and hostility toward others would be stronger than the relationship between social anxiety and hostility from others. We predicted that social evaluation would mediate the relationship between
both constructs of hostile intent (hostility toward others and hostility from others) and social anxiety.
CHAPTER II

Method
Method

Participants

The participants in this study are part of a larger ongoing longitudinal project investigating risk factors for internalizing and externalizing problems. The participants for the longitudinal study were recruited from local elementary schools in a suburban school district in New York State. Participants (N=191) were in grades 4 (66%) and 5 (34%), and ranged in age from 8 to 11 years, with an average age of 9.57 (SD = .57). There were 102 (53.4%) boys and 89 (46.6%) girls. Ethnicity in this sample was as follows: 72.3% European American, 6.8% Asian American, 4.2% African American, 2.6% Latino, 2.1% Native American, 11.5% bi-racial or mixed ethnicity and 0.5% unreported. The ethnic/racial composition of the participants was consistent with the reported ethnic composition of the school district (National Center for Education Statistics, 2006).

Procedure

Approval to conduct the study was obtained from the school district of the participating elementary schools and the University’s Institutional Review Board (IRB). Teachers distributed packets of information, including letters describing the overall study and the consent form. Students were instructed to have their parent or guardian read and return the consent form with parent or guardian signature regardless of whether the parent/guardian agreed or did not agree to allow their child to participate in the study. All students who returned a signed consent form were given a small prize (valued at less than a dollar) as incentive, even if their guardian did not agree to have the student participate. In addition to active parental consent for participation, children’s written
assent was required to participate in the study. A raffle for an IPod shuffle and a $20 Amazon.com gift card was utilized as incentives for participating in the study. The questionnaires were administered in groups, consisting of 8-12 students, during two 40-minute time blocks. Trained research assistants read the questionnaires aloud, while students followed along in their own questionnaire packet, in order to maintain compliance and to control for varying levels of reading comprehension.

Measures

Data was collected using a variety of self-report questionnaires that were completed by the children participating in the study. Only the measures completed during the first assessment of the children and those that are relevant to the current study will be described in detail.

Demographic Variables. Questionnaire packets included a general information form to assess gender, age, grade in school, and ethnic background. In addition, in an attempt to establish a rough estimate of socio-economic status (SES), children were asked if they received a free or reduced-price lunch. While helping the children to complete the general information form, we found that many children were unaware of what their parents paid for their lunches, as many parents pre-paid for lunch monthly. Many participants left this question blank (n= 39), and it was determined that the participants who responded were unable to answer reliably. Therefore SES was not obtained for the sample. However, the SES of our sample can be estimated by examining the U.S. Census data collected in 2000. The study was conducted in five elementary schools in one school district, which spanned three townships. The median annual household incomes (households of families with children under age 18) for those townships ranged from
$42,000-$57,000 and the percent of households with annual incomes below the poverty level ranged from 3.6% - 19.2% (U.S. Census Bureau, Census 2000). The census data suggests that the children attending these schools are primarily from middle-class backgrounds.

**Self-statement Questionnaires.** The children completed self-report measures assessing hostile intent, social evaluation, social anxiety, and aggression. Self-statement questionnaires were used as one method of collecting data for each construct being measured. Self-statement questionnaires list statements of thoughts or feelings that the child endorses as being to some degree like or unlike them. Self-statement questionnaires have been criticized for prompting children with statements that may more closely reflect constructs created by researchers than true thoughts and feelings that children experience. However, self-statement questionnaires have been recommended for assessing anxiety with younger children (Kendall & Sessa, 1993) because it is thought that younger children may be developmentally limited in their ability to spontaneously generate and articulate their thoughts and feelings of anxiety.

**Social Evaluation.** Perceived social evaluation was measured with the 10-item social threat subscale from the Children’s Automatic Thoughts Scale (CATS; Schniering & Rapee, 2002). The CATS social threat subscale assesses the occurrence of thoughts regarding social evaluation over the past week, including “People are thinking bad things about me,” “I’m worried I’m going to get teased,” and “Kids will think I’m stupid.” Response categories are ‘0 = not at all, 1 = sometimes, 2 = fairly often, 3 = often, 4 = all the time.’ Higher scores represent higher frequency of experiencing thoughts about social evaluation. The scores on the CATS social threat subscale have been shown to be
significantly higher in children and adolescents with anxiety (mean difference for anxiety = 8.76, \( p < .001 \)) and depression (mean difference for depression = 6.15, \( p < .001 \)) compared to community samples and children and adolescents with externalizing behavior disorders (Schniering & Rapee, 2002). The investigators report alpha coefficients of .92 for the CATS social threat subscale in both community (Schniering & Rapee, 2002) and clinical samples (Schniering & Lyneham, 2007). For the current study, internal consistency of the CATS social threat subscale was computed using Chronbach’s alpha, which yielded an alpha coefficient of .92.

**Hostile Intent.** Hostile Intent was measured with the 10-item Hostile Intent subscale from the CATS (Schniering & Rapee, 2002) and an additional nine items that were created for this study, which are explained in detail below. Using the past week as a time frame, children report if they had thoughts such as “Other kids are stupid,” “Most people are against me,” and “Some people deserve what they get.” The response categories are ‘0 = not at all, 1 = sometimes, 2 = fairly often, 3 = often, 4 = all the time,’ for the ten original items and the nine additional items. Higher scores represent a higher frequency of experiencing thoughts of hostile intent. Scores on the CATS Hostile Intent subscale have been shown to be significantly higher in children and adolescents with externalizing behavior disorders compared to child and adolescent community samples (mean difference = 6.52, \( p < .001 \)), anxious children (mean difference = 5.44, \( p < .05 \)), and depressed children (mean difference = 5.59, \( p < .05 \); Schniering & Rapee, 2002). Although the social threat and Hostile Intent subscales of the CATS are correlated \( r = .46 \), Schniering & Rapee, 2002) the subscales have distinct factor loadings with good internal consistency (Table 1). Internal consistency for the CATS Hostile Intent subscale
has been shown to be high in both community samples ($\alpha = .85$; Schniering & Rapee, 2002) and clinical samples ($\alpha = .82$; Schniering & Lyneham, 2007). For the current study, internal consistency of the CATS Hostile Intent subscale was computed using Cronbach’s alpha, which yielded an alpha coefficient of $.89$.

*Revised CATS Hostile Intent Scale.* When the items on the original CATS Hostile Intent subscale are qualitatively examined it becomes apparent that two dimensions of hostility are present within the subscale, namely, hostility toward others and perceived hostility from others. Some items appear to reflect a “hostility from others” construct (e.g. “Most people are against me”), while others appear to reflect a “hostility toward others” construct (e.g. “Bad people deserve to get punished”). Additional items were added to yield the Revised CATS Hostile Intent subscale which enabled us to examine the possibility that two dimensions of hostility are contained within the original CATS subscale; “hostility toward others” and perceived “hostility from others”. Five of the additional items were designed to further assess thoughts of hostility towards others and four items were designed to assess perceived hostility from others (see Table A2).

*Item generation/scale development.* Six independent evaluators examined the ten original items of the Hostile Intent subscale, as well as the nine additional items and rated the items as “0- Not at all, 1- Somewhat, or 2- Very much” representing the construct of hostility toward others and/or hostility from others. The independent evaluators’ ratings were reviewed and analyzed prior to the factor analysis of the revised subscale. Values closer to ‘0’ indicate that the raters felt it did not represent the construct, while values closer to ‘2’ indicate that the raters felt it does represent the construct. We hypothesized that most items represent one of the constructs, ‘hostility toward others’ or ‘hostility from others’.
others’ more often than they represent both constructs. For example, we predicted that
the item “People always try to get me in trouble” would be rated by independent
evaluators as representing the ‘hostility from others’ construct more so than the ‘hostility
toward others’ construct. Ratings made by independent evaluators are presented in Table
2. As shown in Table 2, the evaluators rated ten of the items as representing the construct
of hostility toward others. They rated six of the items as representing the construct of
perceived hostility from others, and three of the items (two of which were original items)
were rated as representing both constructs. The independent evaluators’ ratings support
the hypothesis that when qualitatively examined, most items represent one of the
proposed constructs rather than both. These ratings will be important to consider when
examining the pattern matrix of the factor analysis and understanding the factor structure.
Internal consistency of the new subscales “hostility toward others” and “hostility from
others” (derived from the factor analysis; see Results section) were computed using
Chronbach’s alpha, which yielded alpha coefficients of .89 and .89 for each subscale
respectively. No items were omitted from the original subscale to enable analyses to be
performed with the CATS Hostile Intent subscale in its original form as well as with the
revised version of the subscale. Factor analysis of the revised subscale is described in
detail in the Results section.

*Ambiguous Situation Vignettes.* Hostile intent was also assessed using a vignette
measure created for this study, which was modeled after the vignette assessment used by
Crick and Dodge, (1994). For the current study four vignettes were created. The
vignettes presented hypothetical, negative situations with ambiguous contributing factors
that were to be interpreted by the reader of the vignette. The four hostile intent vignettes
used in this study appear in Table B1 of the Appendix. Two of the vignettes are worded such that the child reading the vignette is the subject of the ambiguous situation, (e.g. “Imagine that you are playing on the playground after school...one of your classmates picked up your iPod for a minute. When you go to use it after the kickball game, it won’t work”). The other two vignettes are worded such that another person is the subject of the ambiguous situation (e.g. Imagine that you are in gym class...your team needs one point to win...John misses the basket and your team ends up losing). Each vignette is followed by two forced choice questions. The initial forced choice question is: “Why do you think this happened?” The child is asked to circle one of four reasons that explain why the event happened, which provides an indication of the reader’s interpretation bias as hostile or not hostile. The scenarios, in which the child is the subject of the vignette, assess whether the child interprets the ambiguous cause of the negative event as “hostility from others” (e.g. “The kid probably broke my iPod” or “The kid was jealous of my iPod and wasn’t careful with it”), or ambiguous/neutral and without hostile intent (e.g. “The iPod probably needs the battery recharged” or “The iPod might be too old to work”). The scenarios, in which another person is the subject of the vignette, assess whether the child interprets the ambiguous cause of the negative event in a judgmental or critical way, reflective of the “hostility toward others” factor (e.g. John does not practice enough between games) or in a neutral, non-hostile way (e.g. John was feeling sick that day). Responses were coded as “0 = Not hostile,” or ‘1 = Hostile.”

Each vignette is followed by a second forced choice question, with two response options that assess interpretation of fault. The child selects whether the negative event occurred “on purpose” or “by accident” and in the vignettes of the other person as
protagonist, whether it was “his/her fault” or “Not his/her fault”. “By accident” and “Not his/her fault” selections were coded as ‘Not hostile = 0’ and selecting “On purpose” and “His/her Fault” were considered ‘Hostile = 1.’

The coded answers from question 1 and 2 of each vignette were combined to produce a score for each factor. Therefore scores range from 0-4 for the “hostility toward others” factor and from 0-4 on the “hostility from others” factor. A higher score represents a greater degree of hostile intent. If factor analysis of the vignette items does not result in support for two latent constructs of hostile intent then vignette scores will be collapsed to represent one factor of hostile intent, which would range from 0-8. Internal consistencies of the ambiguous situation vignettes were computed for the overall vignette scores, and for the subscales representing “hostility toward others” and “hostility from others”. Internal consistency was computed using Chronbach’s alpha, which yielded alpha coefficients of .61 for the vignettes overall and .64 and .61 for each subscale respectively. Due to the low internal consistency of the vignettes, a principal components analysis of the vignette variables is recommended to see if the underlying constructs are different than expected. A principal components analysis may clarify why there is such low internal consistency and will help to understand if the measure is useful and valid. If the vignettes do not appear to be a valid measure of hostile intent (procedure for determining validity is described below), they will not be used in hypothesis testing.

Hostile intent was analyzed by examining each of the measures described above. Analyses were conducted to examine the relationship among variables using the original Hostile Intent subscale of the CATS, the revised CATS Hostile Intent subscale, and the ambiguous situation vignettes. If the vignette scores are highly correlated with the
original or revised CATS Hostile Intent subscale scores, then one may assume that they are measuring the same construct and the scores can be combined for analyses. If the vignette scores are not highly correlated with the original or revised CATS Hostile Intent subscale scores, the construct validity of the vignettes will be determined by 1) examining the factor structure of the vignettes and 2) examining correlations of other variables that theoretically are expected to be related to the construct of Hostile Intent. If the vignette scores are not highly correlated with the original or revised CATS Hostile Intent subscale scores but construct validity is established, the vignette scores will be used in separate analyses for hypothesis testing.

**Social Anxiety.** The 9-item social anxiety subscale of the Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) was used to assess levels of social anxiety (see Table C1). The items ask children to indicate how often they have experienced worries and feelings indicative of social anxiety, such as “I worry about what other people think of me,” and “I worry about making mistakes.” Children indicate their responses on a four word Likert-type scale (i.e. ‘Never,’ ‘Sometimes,’ ‘Often,’ ‘Always’). Higher scores represent higher levels of social anxiety. Chorpita, Moffitt, and Gray (2005) found that among 513 children in grades 3-12, the alpha internal consistency of the social anxiety subscale was .87. For the current study the internal consistency of the RCADS social anxiety subscale was computed using Chronbach’s alpha, which yielded an alpha coefficient of .85.

**Aggressive Behavior.** Two subscales of the Problem Behavior Frequency Scale (PBFS; Farrell, Kung, White, & Valois, 2000), overt aggression and relational aggression, were used to assess aggressive behaviors (see Table D1). The 7 items of the
overt aggression subscale are based on the Center for Disease Control’s National Youth Risk Behavior Survey (National YRBS; 1993). The relational aggression subscale includes 7 items, some of which are similar to those found in Crick and Grotpeter’s (1995) relational aggression scale, and other items were developed through focus groups and behavioral observations in classrooms that are described in Farrell and colleagues (2000). The range of scores when combining the subscales of the PBFS is from 0-126, with a higher score indicating a greater frequency of aggressive behaviors over the past 30 days. All items ask children to indicate how many times in the past 30 days they have done an activity or behavior, such as, “You picked on someone,” “You were in a fight in which someone was hit,” and “You excluded someone.” The measure’s authors reported that internal consistency for the overt and relational aggression subscales were high in both an urban sample (\( \alpha = .85 \) for both subscales) and a rural sample (\( \alpha = .82 \) and \( \alpha = .84 \), respectively). For the current study the internal consistency of the overt aggression subscale, the relational aggression subscale, and the combined PBFS scale were computed using Chronbach’s alpha, which yielded alpha coefficients of .82, .80, and .89, respectively.

Data Analytic Strategies

Power analysis. In order to conduct multiple regression analyses to test a meditational model, sufficient power is needed. A priori statistical power was determined utilizing the G*Power program (Faul, Erdfelder, Lang, & Buchner, 2007). Hypothesizing that the variable being studied yields a medium effect size, a sample of 119 participants would necessary to achieve 95% power. If the variable being studied only yields a small effect size, a sample of 863 participants would be necessary to
achieve 95% power. The analyses should have adequate power as a sample size (N=191) is sufficient for medium effects. However, the study is not adequately powered to reveal small effects when testing a meditational model.

Preliminary analyses. Prior to analyses each variable was examined for missing data, out-of-range variables, outliers, normality and multicollinearity. Preliminary analyses include correlations and descriptive statistics for demographic and outcome variables. Mean values, standard deviations, and intercorrelations of all independent (CATS Social Threat, CATS Hostile Intent, CATS Hostile Intent revised, Vignettes Hostile Intent) and dependent (RCADS Social Anxiety, PBFS Aggression) variables are reported for the total sample. T-tests were performed by gender.

Factor analysis. An exploratory factor analysis was conducted on the revised CATS Hostile Intent subscale in order to evaluate our hypothesis that there are two underlying dimensions within hostile intent. We used principal axis factoring (PAF) extraction method in order to examine the variables unique variance in regard to the factor structure produced. An oblique rotation, rather than a varimax rotation, was used for the PAF as it is assumed that the variables within the hostile intent scale are correlated.

Prior to conducting the PAF it was determined that the CATS Hostile Intent subscale met the assumptions needed to perform a factor analysis with oblique rotation. The correlation matrix met the following assumptions: 1) some correlations were above .32, 2) the anti-image correlation (AIC) matrix had values close to zero off the diagonal, and 3) Kaiser’s test was .60 or higher. There was also an absence of multicollinearity (determinant > .00001) in the data. After the extraction, the eigenvalues were examined,
and values of 1 or above can be considered factors. Because using the eigenvalue
criterion of 1 or above is considered imprecise (Costello & Osborne, 2005) the scree plot
was used to examine the slope of the eigenvalues. A clear break or bend in the slope of
the scree plot supports the presence of the factors. Each variable’s loading was examined
on the pattern matrix. Variables with a correlation of .35 or higher are interpreted and
considered to load on that respective factor, unless it cross-loads on other factors. Cross-
loading of a variable exists when the variable loads on more than one factor, and the
correlations are within .10 for both factors (e.g. loading on factor 1= .45 and factor 2=
.53). If the variable loading is more than .10 different, then it is considered to load on the
factor with the higher correlation. As described previously, the internal consistency of
our data for the Revised CATS Hostile Intent subscale was satisfactory, (α = .89).

*Testing Mediation.* Mediation was tested using multiple regression analyses, in
accordance with the method of Baron and Kenny (1986), which is described further in the
Results section. To test the hypotheses, four meditational models were examined (see
Figure 1 and 2) and are described further in the Results section.
CHAPTER III

Results
Results

*Preliminary Statistical Analyses*

Prior to statistical analyses, all study variables were examined using SPSS for out-of-range values, missing data, normality, outliers and multicollinearity. All variables were within specified ranges. Examination of missing data revealed that none of the variables of interest had greater than 5% missing data points; therefore no further investigation was warranted. For four participants, missing values on individual items of the RCADS Social Phobia subscale were replaced with mean item values. Mean substitution is a conservative procedure recommended by Tabachnick and Fidell (2001, p. 62) for replacing missing values.

To assess the normality of the continuous variables in the study, skewness and kurtosis were examined. Positive skewness was observed in the original and revised hostile intent measures, social evaluation, aggression and social phobia measures. The data was not transformed because skewness was a reflection of true variation in the sample (i.e. as would be expected most participants scored in the lower range on measures of psychopathology). Only the measure of aggression (PBFS total score) showed severe skewness and kurtosis. Half of the participants endorsed 0-5 instances of aggression in the past month, which explains the positive skew and peak of the data (kurtosis = 9.817, skewness = 2.716). The PBFS data could be transformed via logarithm to reduce the violations of normality. However, since all the main study variables have a similar skew and kurtosis, albeit to a lesser degree, it was determined that preserving the interpretability of the PBFS data was more valuable than the potentially marginal
improvement that a transformation would produce for the analyses (see Tabachnick & Fidell, 2001, p. 81).

Three cases with extremely high z scores on the Problem Behavior Frequency Scale were found to be univariate outliers. Prior to deciding if deleting cases would be necessary, the data was examined further to understand the influence of the outliers. Each variable was tested for multivariate outliers via Mahalanobis distance and Cook’s distance. Three cases were identified through Mahalanobis distance as multivariate outliers exceeding the critical value ($\chi^2(4) = 18.467$) with $p < .001$. However, Cook’s distance was small and no cases exceeded Cook’s distance cutoff of 1.00, indicating that the influence of the three cases were not problematic. Therefore, all cases were kept for analysis. Multicollinearity was examined and was problematic for the Problem Behavior Frequency Scale total score in relation to the PBFS Overt and Relational subscales, as was the Hostility toward others subscale in relation to the Revised CATS Hostile Intent subscale as their respective correlations with one another exceeded 0.90. However the PBFS total score is the sum of the PBFS Overt and Relational subscales and the Hostility toward others subscale was derived from the Revised CATS Hostile Intent subscale items, therefore it is not unusual that they would be so highly correlated. However, due to the problematic multicollinearity, these variables will not be used in regression analyses together as they are too closely related and may not represent distinct constructs.

Descriptive Statistics

Means and standard deviations of social evaluation, aggression, social anxiety, and hostile intent are reported for the total sample (Table 3). Consistent with other studies’ estimates (Chavira, et al., 2004; Ruscio, et al., 2008) of point prevalence of social
anxiety, 7% of our sample scored in the clinically significant range for social anxiety on the RCADS.

**Demographic Variables: Correlations.** In order to assess for potential covariates for later regression analyses, Pearson product-moment and point bi-serial correlations were conducted to examine the relationship between age, grade, ethnicity, and the outcome variables. No correlations were significant \((ps > .05)\).

**T-tests examining gender differences in study variables.** The results of independent samples t-tests that were conducted to examine gender differences in study variables appear in Table 4. T-tests showed that males rated significantly more instances of overtly aggressive and relationally aggressive behaviors than females, which is consistent with the extant literature. T-tests revealed that males reported more hostile thoughts compared to females. As measured by the revised CATS hostility toward others and hostility from others subscales, males perceived hostility from others and reported thoughts of hostility toward others more often than females. Finally, ambiguous situation vignettes were rated as more hostile by males compared to females.

**Correlations Among Study Variables.** Pearson product-moment correlations were also conducted to assess the intercorrelations among the independent variables, social anxiety and aggression (Table 5). Partial correlations, controlling for gender, were performed for the dependent and independent variables (Table 6). The correlations revealed that more symptoms of social anxiety were related to more concerns about social evaluation and more frequent thoughts of hostile intent. When hostile intent (as measured by the Revised CATS Hostile Intent subscale) was examined as two constructs, “hostility toward others” and “hostility from others”, social anxiety did not show a
stronger positive correlation with “hostility toward others” construct than the “hostility from others” construct, as was hypothesized. Rather, social anxiety was significantly correlated with both “hostility from others” ($r = .504, p < .001$) and “hostility toward others.” ($r = .249, p < .001$). Concerns about social evaluation were related to a higher frequency of aggressive behavior. A higher frequency of aggressive behavior was positively related to the original CATS Hostile Intent subscale, the revised CATS Hostile Intent subscale, the CATS “hostility toward others” subscale, and the CATS “hostility from others” subscale. The results showed that the ambiguous situation vignettes were not related to any other study variables. This unanticipated finding calls into question the validity of the vignettes for assessing hostile intent. If the vignettes measure the construct of hostile intent it is expected that they would be correlated to an already established measure of hostile intent, however this was not the case. Further examination of the vignettes’ validity will be discussed below.

*Testing the Validity of the Ambiguous Situation Vignettes*

The Ambiguous Situation Vignette scores were not correlated with the original or revised CATS Hostile Intent subscale scores, as was originally hypothesized, therefore the construct validity of the vignettes is uncertain. Construct validity can be determined by examining correlations of variables that are expected to be related, however, no variables in this study were correlated with the vignettes. Another method is to use exploratory factor analysis to examine the underlying factor structure of the vignettes. The vignettes were developed to assess hostile intent and therefore are expected to have an underlying structure of one or two primary factors. An exploratory factor analysis could examine the underlying factor structure of the vignettes and lend support to their
validity. We chose principal components analysis (PCA) extraction method in order to examine all the variance in the measure. A varimax rotation, was selected for the PCA because the vignettes had low internal consistency and therefore the items are not presumably correlated.

Prior to conducting the PCA the following assumptions must be examined in order to determine the appropriateness of conducting a factor analysis: 1) the correlation matrix should have many correlations above .32, 2) the anti-image correlation (AIC) matrix should have mostly small values off the diagonal, and 3) the Kaiser-Meyer-Olkin Measure of Sampling Adequacy should be above the criteria of > .60. None of the assumptions were met and thus the data were not appropriate for an exploratory factor analysis.

Due to the vignettes’ low internal consistency, the lack of correlation with measures theoretically related, and the inability to satisfy the assumptions for a principal component analysis, the validity of the vignettes remains unresolved. Because we could not be confident that the vignettes measured the construct of interest (i.e. hostile intent) they were not used in later hypothesis testing.

*Factor Analysis of Revised CATS Hostile Intent Subscale*

The hypothesized factor structure of the revised CATS Hostile Intent subscale was described previously (see Methods). An exploratory factor analysis was conducted on the revised CATS Hostile Intent subscale in order to evaluate the hypothesis that there are two underlying dimensions within hostile intent. We used principal axis factoring (PAF) extraction method which allows for the examination of the variables’ shared variance in regard to the factor structure produced. An oblique rotation, rather than a
varimax rotation, was used for the PAF because the variables of the hostile intent scale are assumed to be highly correlated; the correlation among variables was confirmed by examination of the values on the diagonal of the anti-image correlation matrix.

Prior to conducting the PAF it was determined that the revised CATS Hostile Intent subscale met the assumptions needed to perform a factor analysis with oblique rotation (see Methods), thus the PAF was conducted. The results of the factor analysis were examined to determine the number of factors present in the data. The eigenvalues were examined, and three factors had values of 1 or above. The third factor’s eigenvalue was close to 1 (eigenvalue = 1.043) and only accounts for 5.5% of the variance. Because using the eigenvalue criterion of 1 or above is considered imprecise (Costello & Osborne, 2005) the Scree plot was used to examine the slope of the eigenvalues. Looking at the Scree plot it is evident that there was a break in the graph at factor 3. The Scree plot indicated that there are two or three factors present. Factors 1 and 2 explain approximately 44% and 10% of the variance, respectively. Eigenvalues for the first three factors are 8.436, 1.935, and 1.043, respectively. The first ten eigenvalues are shown in Table 7. As can be seen in Table 7, after factor two changes in successive eigenvalues are small. This is taken as evidence that there are probably two factors. PFA was conducted again specifying two factors and then conducted again specifying three factors. Neither solution fit the data well (i.e. the eigenvalues and scree plot did not differ between the two analyses). Residuals were examined because when the analysis is good, the residuals are small. The three factor solution had fewer large (> .10) residuals (three rather than eight), but a similar number of moderate (.05 to .10) residuals. The fewer large residuals suggest that the three factor solution may be a better fit with the data.
The three factor model’s pattern matrix was examined to determine the number of variables that load on each factor (Table 8). Variables with a correlation of .35 or higher were interpreted and considered to load on that respective factor, unless it cross-loaded on other factors. Using these criteria, nine variables loaded on factor one, seven variables loaded on factor two and only two variables loaded on factor three, which brings the reliability of the third factor into question. Tabachnick and Fidell (2001, p. 622) caution that interpretation of factors defined by only one or two variables is hazardous, even when the analysis is purely exploratory. However, it is interesting that the two items (i.e. “If people treat me unfairly, I don’t let them get away with it” and “I won’t let anyone get away with picking on me”) loading on factor three are two of the three items (i.e. from the theoretical factor structure) which were rated by the independent evaluators as representing both constructs. If the two variables are highly correlated with one another and relatively uncorrelated with other factors, the factor may be considered reliable. In order to determine if the third factor was reliable, the correlation between the two variables and their correlations with the other variables were examined. The two variables were correlated with one another (.66); however, they were also moderately correlated with many other variables (see Table 9). Based on the moderate correlations with other items, the reliability of factor three, defined by only two variables, remains questionable. Therefore, it was determined that only factors one and two were reliable and would be examined further.

The pattern matrix from the original PAF analysis (i.e. without selecting for number of factors) was used, but only factors one and two were interpreted due to the lack of reliability of factor three. Comrey and Lee (1992) have established factor loading
guidelines for variables. Using these guidelines, there were nine variables on factor one and seven variables on factor two that were considered to have fair or better loadings. There are no variables that cross-load when using .35 as a cut-point. The sixteen variables which load on factors one and two were compared to the theoretical (i.e. hypothesized) factor structure defined by the independent evaluators to see if there was consistency between the hypothesized factor structure and the actual two factor solution. If the factor loadings are consistent with those hypothesized by the independent evaluators, then we may be confident that the factors are interpretable. When comparing the factor loadings and the theoretical factor structure proposed by the independent evaluators, we found that the two factor solution matched the hypothesized factor structure (see Tables 2 & 8). Therefore, the hypothesis that Hostile Intent has two underlying constructs, (i.e. “hostility toward others” and “hostility from others”) was supported by the interpretation of the two factor solution. New subscales were derived from the two factor solution (see Appendix E) and will be used to represent “hostility toward others” and “hostility from others” when testing mediation models.

*Model Testing*

Multivariate statistics were used to test the study’s models. Specifically, a series of hierarchical multiple regressions were used to examine whether social evaluation mediates the relationship between hostile intent and one of two dependent variables, social anxiety or aggression (Figure 1, Model 1 and 2, respectively). The models were examined in accordance with the guidelines set forth by Baron and Kenny (1986). To test for a mediated relationship between an independent and dependent variable, one should conduct a series of regression equations. The first regression equation determines
path a, which is the path from the independent variable to the mediator. The second regression equation is hierarchical and determines path b, c and c’. Path b is the relationship between the mediator and the dependent variable. Path c is the direct relationship between the independent variable and the dependent variable. Path c’ is the impact of the independent variable on the dependent variable when controlling for the effect of the mediator (paths a and b). One can establish if mediation exists if the following conditions are present: 1) the independent variable significantly predicts the proposed mediator, 2) the proposed mediator significantly predicts the dependent variable, and 3) the independent variable significantly predicts the dependent variable until the proposed mediator is controlled for, and if mediation exists, the independent variable will no longer predict the dependent variable. Full mediation exists when the relationship between the independent variable and dependent variable is reduced to zero after accounting for the mediator. In order to test if mediation exists in each of the proposed models, a series of multiple regressions were conducted in accordance with the recommendations of Baron and Kenny (1986). First, we examined the proposed model (Figure 1, Model 1) in which fear of social evaluation is hypothesized to mediate the relationship between hostile intent (as measured by the original CATS Hostile Intent subscale) and social anxiety. For each regression gender was entered as a covariate. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 1, Model 1. The conditions of mediation were met: Hostile intent significantly predicted fear of social evaluation (b= .637, β= .668, p< .001). Fear of social evaluation and hostile intent were significant predictors of social anxiety (b= .293, β= .480 p< .001 and b= .272, β= .466, p< .001, respectively), and the standardized regression coefficient
between hostile intent and social anxiety decreased substantially when controlling for fear of social evaluation ($b = .085, \beta = .146, p = .07$). The Sobel test was conducted to test the significance of the mediation effect (Baron & Kenny, 1986; Preacher & Hayes, 2004; Preacher & Leonardelli, 2003) and it revealed that the reduction of association between hostile intent and social anxiety when controlling for the effect of fear of social evaluation was significant ($z = 5.51, p < .001$).

Second, we examined the proposed model (Figure 1, Model 2) in which we hypothesized that fear of social evaluation would not mediate the relationship between hostile intent (as measured by the original CATS Hostile Intent subscale) and aggression. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 1, Model 2. For each regression gender was entered as a covariate. The conditions of mediation were not met. Hostile intent significantly predicted fear of social evaluation ($b = .637, \beta = .668, p < .001$) and aggression ($b = 1.101, \beta = .583, p < .001$). As predicted, fear of social evaluation did not predict aggression ($b = -.075, \beta = -.038, p = .622$) and consequently the standardized regression coefficient between hostile intent and aggression did not decrease when controlling for fear of social evaluation. Thus, social evaluation did not mediate the relationship between hostile intent and aggression.

Next, we examined another proposed model (Figure 2, Model 3) in which fear of social evaluation is hypothesized to mediate the relationship between hostility toward others (as measured by the hostility toward others subscale, see Appendix E) and social anxiety. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 2, Model 3. For each regression gender was entered as a covariate. The conditions of mediation were met: Hostility toward others significantly predicted fear of social
evaluation \((b=.578, \beta=.475, p<.001)\). Fear of social evaluation and hostility toward others were significant predictors of social anxiety \((b=.346, \beta=.565, p<.001\) and \(b=.210, \beta=.282, p<.001\), respectively), and the standardized regression coefficient between hostility toward others and social anxiety decreased substantially when controlling for fear of social evaluation \((b=.010, \beta=.014, p=.844)\). The Sobel test was conducted and it revealed that the reduction of association between hostility toward others and social anxiety when controlling for the effect of social evaluation was significant \((z=5.48, p<.001)\).

We then examined the proposed model (Figure 2, Model 4) in which we hypothesized that fear of social evaluation would not mediate the relationship between hostility toward others (as measured by the hostility toward others subscale, see Appendix E) and aggression. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 2, Model 4. For each regression gender was entered as a covariate. As predicted, the conditions of mediation were not met. Hostility toward others significantly predicted fear of social evaluation \((b=.578, \beta=.475, p<.001)\) and aggression \((b=1.541, \beta=.639, p<.001)\). However, fear of social evaluation did not predict aggression \((b=.137, \beta=.069, p=.265)\) and consequently the standardized regression coefficient between hostility toward others and aggression did not significantly decrease when controlling for fear of social evaluation \((b=1.461, \beta=.606, p<.001)\). Thus, as expected, social evaluation did not mediate the relationship between hostility toward others and aggression.

As shown in Figure 3, we tested two additional proposed models of mediation. In Figure 3, Model 5 we examined a proposed model in which fear of social evaluation is
hypothesized to mediate the relationship between perceived hostility from others (as measured by the hostility from others subscale, see Appendix E) and social anxiety. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 3, Model 5. For each regression gender was entered as a covariate. The conditions of mediation were met. Hostility from others significantly predicted social evaluation ($b = 1.030, \beta = .809, p < .001$). Social evaluation and hostility from others were significant predictors of social anxiety ($b = .251, \beta = .411, p < .001$ and $b = .417, \beta = .536, p < .001$, respectively). Also, the standardized regression coefficient for the relationship between hostility from others and social anxiety decreased, but was still significant while controlling for fear of social evaluation ($b = .158, \beta = .204, p = .043$). The Sobel test was conducted to determine if partial mediation existed, and it revealed that the reduction of association between hostility from others and social anxiety when controlling for the effect of social evaluation was still significant ($z = 4.07, p < .001$).

Finally, we examined the proposed model (Figure 3, Model 6) in which we hypothesized that fear of social evaluation would not mediate the relationship between hostility from others (as measured by the hostility from others subscale, see Appendix E) and aggression. A set of three multiple regressions were conducted to test paths a, b, c, and c’ of Fig. 3, Model 6. As predicted, the conditions of mediation were not met. Hostility from others significantly predicted social evaluation ($b = 1.03, \beta = .809, p < .001$) and aggression ($b = 1.157, \beta = .459, p < .001$). However, social evaluation did not predict aggression ($b = -.09, \beta = -.046, p = .667$) and consequently the standardized regression coefficient between hostility from others and aggression did not significantly decrease when controlling for fear of social evaluation ($b = 1.361, \beta = .540, p < .001$). Thus, as
expected, social evaluation did not mediate the relationship between hostility from others and aggression.
Discussion

Research on the cognitive processes of children with social anxiety is lacking. The research on the cognitions of children with social anxiety has primarily focused on cognitive content or product (i.e. positive vs. negative thoughts, determining inaccurate beliefs, negative self-images etc.) (Alfano, Biedel, & Turner, 2008; Bogels & Zigterman, 2000) rather than process (i.e. schema structured around themes of threat) (Alfano et al., 2002). Some studies have tried to better understand the underlying beliefs, attributions, expectancies and cognitive styles that are associated with anxiety disorders in children (Barrett, Dadds, & Rapee, 1996; Barrett, Rapee, Dadds, & Ryan, 1996; Muris, et al., 2000a; Muris, Merckelbach, & Damsma, 2000b). The most salient question regarding social anxiety that has not been addressed in the literature is how or why the underlying core belief, that others are inherently critical and evaluative, develops. Our hypotheses aimed to clarify what constructs and processes may be contributing to the development of this belief. Hypothesizing that the development of this core belief might be a response to one’s own critical or hostile thoughts about others, the next logical step was to examine whether children with social anxiety experience hostile intent.

The purpose of the current study was to contribute to this literature by examining the theoretical construct of hostile intent, and demonstrating that it has a distinct relation with social anxiety as well as aggression in children. Most of the existing literature on hostile intent has considered it a single construct and has found it to be associated with aggression in children (Bell-Dolan, 1995; Crick & Dodge, 1994; Dodge & Coie, 1987; Dodge & Frame, 1982; Dodge & Somberg, 1987; Hoglund & Leadbeater, 2007). Therefore understanding the role of hostile intent and its relationship to social anxiety,
and how that relationship is different from the relationship between hostile intent and aggression, has the potential to contribute significantly to the child social anxiety literature. The results of the study yielded mostly support for the proposed hypotheses, which are discussed below.

One goal of the study was to explore whether hostile intent is a singular or a two-dimensional construct. The study’s first hypothesis was that the construct of hostile intent includes a dimension that involves perceiving another person as hostile toward oneself, and a second dimension that involves thinking in a hostile way about or toward another. To examine this hypothesis additional items were created and added to the original hostile intent subscale of the CATS, yielding a revised CATS Hostile Intent subscale. The items were examined qualitatively by independent raters that marked the items as seeming to reflect hostility toward others, hostility from others or both. The questionnaire was then subjected to a factor analysis. The items that were added were designed to reflect the two distinct dimensions of hostile intent that appeared present in the already existing items of the CATS Hostile Intent subscale. The results showed that the independent evaluators’ ratings were consistent with the hypothesis that most items of the revised CATS Hostile Intent subscale could be considered representative of two dimensions, “hostility toward others” or “hostility from others,” rather than a single construct of hostile intent. Exploratory factor analysis produced a two factor model that supported the independent evaluators’ factor structure and the original hypothesis. Factor one represented hostility toward others and factor two represented hostility from others, and the item loadings were consistent with the ratings of the independent evaluators. It is possible that a third factor exists, however, the analyses did not produce a reliable third
factor. It appears that the hypothesis was supported that hostile intent, as measured by a self-report questionnaire, assesses hostility toward others and perceived hostility from others.

Different research groups have utilized different methods to assess children’s interpretation of hostile intent in social contexts, with some relying on questionnaire methods (e.g. Crick & Grotner, 1996; Schniering & Lyneham, 2007) and others utilizing vignette procedures (e.g. Bell-Dolan, 1995; Crick, Grotner, & Bigbee, 2002; Dodge & Somberg, 1987). Surprisingly few studies have used both forms of assessment in the same study. Both methods for assessing hostile intent have been highly correlated with reactive aggression and externalizing behaviors (Dodge & Coie, 1987; Dodge & Frame, 1982; Dodge & Somberg, 1987, Prinstein, Boergers, & Vernberg, 2001; Schniering & Lyneham, 2007), however the quality of the data they yield is somewhat different in nature. Some would argue that the vignettes are a more robust measure of interpretation bias, as they present ecologically valid scenarios and target the underlying cognitive processes that contribute to that bias. The self-report measures of hostile intent assess cognitive products or factors, which may be representative of the underlying cognitive processes. For example, the original and revised CATS Hostile Intent subscales require children to report how often in the last week a thought, such as, “Some people are bad,” came into their mind. Scores on the revised CATS Hostile Intent subscale represent the number and frequency of hostile thoughts the child reportedly had in the past week. This type of question, asking a child to recall past thoughts, may be too abstract for younger children and therefore the accuracy of their report may be questioned. Although vignettes are thought to be more valid than self-report instruments
in younger children, they typically require more resources (i.e. time to complete, administered by an interviewer) than self-report measures. Given the lack of information about the relative utility of each form of assessment of hostile intent, another goal of this study was to examine the degree to which a questionnaire method of assessing hostile intent corresponded with a vignette method. It was hypothesized that the original and revised CATS Hostile Intent subscales would be significantly related to a vignette self-report assessment of hostile intent that was created for the study. As stated previously, hostile intent has often been measured in children and adolescents via vignettes of ambiguous social situations. The vignettes created for this study were modeled after the vignette assessment used by Crick and Dodge (1994). Unexpectedly, the vignettes were not correlated with the original or revised CATS Hostile Intent subscales. The lack of expected correlation with the questionnaire, an already established measure of hostile intent, placed the construct validity of the vignettes into question. In order to further examine the validity of the vignettes a principal components analysis (PCA) could be conducted, as suggested by Tabachnick & Fidell (2001), to examine the underlying factor structure. However a PCA was not conducted as none of the assumptions were met and thus the data was not appropriate for an exploratory factor analysis. There are a number of potential explanations for why the vignettes lacked construct validity despite modeling them after already established vignettes that have been used to measure hostile attribution or interpretation bias. It is possible that participants have different answers when questions involve a hypothetical character in a social context compared to questions that ask how often during the past week one has experienced a type of thought “popping” into their head. If this is the case it may be the type or method of measurement that is causing
the discrepancy. It is also possible that the underlying assumption (of the vignettes) that hostile intent is a trait characteristic is flawed and that a state conceptualization is more accurate. The format of the vignettes assumes a trait-like conceptualization, meaning that it assumes the child will react in a actual situation similar to the one described in the vignette, regardless of an activated emotional state. If hostile intent is state-like then the child who is completing vignette questionnaires in a calm and non-threatening environment will respond differently than if he were standing in the emotion evoking scenario. The CATS hostile intent scale, which asks how many times a thought has entered one’s mind in the past week, does not rely on a trait-like basis for hostile intent, rather it relies on accurate memory for events. The lack of correlation between the two measures might have been due to the trait conceptualization underlying the vignettes.

Another potential reason for the lack of correlation among the measures is that the vignettes were followed by force-choice answers, some of which were hostile and some which were pro-social. It has been suggested that children can identify pro-social responses even when they are unable to generate them on their own and therefore assessment measures should be open-ended rather than forced-choice (Crick & Dodge, 1994). Therefore the lack of correlation with the CATS measure may have been due to children choosing the more socially acceptable answer rather than what they would truly do if placed in the ambiguous situation. To our knowledge the literature involving the CATS has not included studies in which different methods of measuring hostile intent have been compared. It would be interesting to see if an established vignette measure of hostility, using open-ended response choices correlates with the revised CATS Hostile Intent subscale.
Another possible, but less likely explanation for the vignettes not being correlated with the CATS hostile intent subscale is that the scenarios (e.g. a spelling bee, a broken iPod) in the vignettes were not relevant to our participants and that other scenarios may be more developmentally or culturally appropriate. It is also possible that the children were not accustomed to answering this type of hypothetical situation and therefore their responses were not consistent. It is possible that the scenarios did not include enough contextual detail for the participants, as this has been suggested by other investigators as a way to improve the validity of vignette assessments (Treat, Weersing, & Dirks, 2007). From qualitative examination it appeared that participants answered the two questions within each vignette scenario consistently, both ascribing fault and making a hostile or critical attribution, or not ascribing fault and making a neutral attribution for the event. Although qualitative analysis yielded probable consistency within the vignettes, it did not appear that there was consistency across vignettes, leading one to postulate that it may be the concrete context of the vignettes that influenced the child’s answers rather than the child’s cognitive style (e.g. the context of a spelling bee but not a basketball game, or vice versa, influenced whether the child had negative thoughts about the subject of the vignette, rather than the context being a hypothetical representation of any competitive event). This potential explanation for the vignettes’ lack of validity coincides with the participants’ stage of cognitive development, which for their ages (8-10 years) is typically the concrete operational stage (encompassing ages 7-11) and children in this stage continue to have difficulty with hypothetical concepts. If vignettes are used in future studies to test a similar hypotheses it may be beneficial to pilot the vignettes with a
small group of children in order to be more confident that they will capture the construct of interest.

Another primary goal of the study was to examine mediational models of cognitive factors that predict social anxiety and/or aggression in children. There is little research on the cognitive processes of children with social anxiety. What is established in the literature is that individuals with social anxiety assume that others are critical (Ledley & Heimberg, 2006; Roth, Antony, & Swinson, 2001) and the individual with social anxiety fears social evaluation (Alfano, Biedel, & Turner, 2006; Biedel, et al., 1999; Francis, Last, & Strauss, 1992; Muris, et al., 2000b). The literature has not explored from where the assumption that others are inherently critical and judgmental originates. We proposed that it is possible that children with social anxiety have critical and hostile thoughts about others and therefore form beliefs that others will be critical and hostile toward the self based on their own experiences thinking in hostile and critical ways about others. If this is true, and children with social anxiety are having critical and hostile thoughts about others and assume others will be critical and hostile toward the self, it is logical to expect that these children may act or react aggressively toward others. This argument is logical because it is well established in the literature that children with hostile attribution or interpretation biases also tend to have externalizing behavior problems and show increased levels of aggressive behavior compared to children without hostile attribution or interpretation biases (Bell-Dolan, 1995; Crick & Dodge, 1990; Crick & Dodge, 1994; Dodge & Somberg, 1987; Hoglund & Leadbeater, 2007). However, children with social anxiety do not show more aggressive behaviors compared to children who are not socially anxious. It is possible that children with social anxiety have hostile
attribution or interpretation biases (which we term hostile intent) but another variable intervenes or mediates the relationship between hostile intent and social anxiety. For instance, as was previously mentioned, it is established in the literature that children with social anxiety fear negative social evaluation (Beidel, Turner, & Morris, 1999; Francis, et al., 1992; Muris, et al., 2000b). We proposed that it is fear of social evaluation which mediates the hypothesized relationship between hostile intent and social anxiety. If socially anxious children experience hostile intent thoughts, it may be fear or awareness of social evaluation that prevents the child from acting aggressively. Therefore, this study predicted that socially anxious children would experience hostile intent, but that fear of social evaluation would mediate the relationship between hostile intent and social anxiety. The study proposed that hostile intent would also predict aggressive behaviors in children who are not socially anxious, however, the relationship between hostile intent and aggressive behaviors would not be mediated by fear of social evaluation. As expected, social evaluation mediated the relationship between hostile intent and social anxiety but it did not mediate the relationship between hostile intent and aggression. The study supported the hypothesis that children with social anxiety are experiencing hostile intent thoughts, and that fearful thoughts regarding social evaluation intervene making this relationship less consequential. Although the relationship between hostile intent and social anxiety is no longer significant when fear of social evaluation is entered into the equation, it still may be clinically relevant to address these automatic thoughts of hostile intent for a child in treatment for social anxiety. Based on these findings it may be beneficial to focus cognitive restructuring on hostile thoughts and beliefs as well as unrealistic fears of negative social evaluation from others; the latter has traditionally been
the focus of cognitive treatment for social anxiety. It is also possible, based on the findings, that a socially anxious child who becomes less concerned with negative social evaluation through therapy may become less inhibited about acting on their hostile thoughts.

The results supported the hypotheses when hostile intent was represented as a single construct using the original CATS Hostile Intent subscale and again when the revised CATS Hostile Intent subscale was separated into hostility toward others and hostility from others constructs (as determined by the factor analysis; see Figures 1, 2, & 3). Model 5 only showed fear of social evaluation partially mediating the relationship between hostility from others and social anxiety. If we conceptualize fear of social evaluation being fueled by perceptions of hostility from others, it is understandable that fear of social evaluation does not completely account for the relationship between perceived hostility from others and social anxiety. It is also not surprising that there was little difference in the models when hostile intent was analyzed as a single construct or as two separate constructs, as social anxiety was significantly correlated with both constructs of hostile intent, as was discussed above. It seems from the lack of difference in the models that there is little predictive utility in conceptualizing hostile intent as two constructs. It may be clinically useful to separate hostility toward others and hostility from others, however that is an empirical question that remains to be tested.

Although it was expected that hostility toward others would be the most salient predictor of social anxiety, the finding that hostility from others was also a significant predictor fits well with the conceptualization of social anxiety in the literature, in which fear of others’ judgment and criticism and possibly hostility (based on results of this
study) drives the disorder (Biedel, et al., 1999; Francis, et al., 1992; Ledley & Heimberg, 2006; Muris, et al., 2000b). For instance, children may fear social evaluation and hostility from others, leading them to avoid situations where they may encounter evaluation and/or hostility. Unfortunately this study was not designed to determine if hostility toward others develops as a cognitive style before, after, or simultaneously with perceptions of hostility from others and fears of social evaluation. Therefore the theory underlying the hypothesis that children with social anxiety have critical and hostile thoughts about others, which in turn leads them to develop a fear that others will be hostile toward them, still remains to be tested.

The results of the present study provide evidence and support for a more complex cognitive model of childhood social anxiety. This research complements other studies (Bell-Dolan, 1995; Crick & Dodge, 1994; Dodge & Somberg, 1987; Hoglund & Leadbeater, 2007) that have tested aspects of the social information processing model, and elucidates the role of interpretation biases in regard to self- and other- evaluations in children with social anxiety. This study suggests that exploring and addressing hostile intent thoughts may be beneficial to a child with social anxiety. The results support the assumption in the literature that children who are socially anxious perceive others as inherently critical and judgmental (Biedel, et al., 1999; Francis, et al., 1992; Ledley & Heimberg, 2006; Muris, et al., 2000b; Roth, Antony, & Swinson, 2001), as fear of social evaluation was significantly related to social anxiety in this sample. However, addressing only the social evaluative aspect of automatic cognitions may not be enough to interrupt the process of distorted thinking. If children are experiencing hostile intent toward others
and perceiving hostile intent from others, it may prove beneficial to address this part of the cognitive process in treatment settings.

Limitations

There are several limitations to this study. One limitation was the sole reliance on child self-report data. In addition to being solely child report, the data was obtained with only paper and pencil measures rather than a variety of methods (e.g. behavioral observation, clinical interview). The results might be considered more robust if the dependent variables, social anxiety and aggressive behaviors, were determined by child and parent clinical interview. Parent and child semi-structured interviews are considered the “gold-standard” when making diagnoses of childhood psychopathology, however due to limited research resources our dependent variables were measured only by child self-report. The use of a second reporter (i.e. parent or teacher) to complete a paper and pencil measure about the child might also have enhanced the validity of the social anxiety data, however, it has been shown that internalizing symptoms are more accurately reported by the child experiencing the symptoms and that parents often are unaware of the child’s difficulties with anxiety or depression (Fox, Halpern, & Forsyth, 2008; Wren, Bridge, & Birmaher, 2004).

Due to the method of data collection, which was solely child report, limited demographic information was obtained. As previously discussed, no measure of socioeconomic status was collected as we expected children would not have knowledge of their household’s income range. We attempted to collect a rough estimate of SES by asking participants about whether they received free or reduced-price lunch. We determined that the participants were unreliable in answering this question as many did
not know the cost of lunch. Anecdotally, this was because many parents pre-paid with a check each week and many children reported that they brought their lunch to school. Twenty percent of the sample left the question blank. It was determined that this was not a reliable measure of SES.

Another weakness of the study was limited ethnic diversity in the sample. The participant’s ethnicity was primarily Caucasian (72.3%), which was reflective of the community sampled. Thus, generalization to other ethnic groups should be cautioned. Future studies may examine if there are differences in cognitive processes in social anxiety among families from differing ethnic backgrounds.

The sample size was adequate for detecting medium effects using multiple regression techniques. However, a sample size of 200 is considered fair for conducting exploratory factor analysis, and our sample (N = 191) is considered poor to fair. Also, the ratio of participants to items factored (11:1) is considered poor. Therefore a larger sample may have yielded more robust or different results. For example a larger sample size might clarify if a third factor, representing both hostility toward others and hostility from others, is present.

Another limitation of this study involved its single time-point design. This study does not allow us to make causal conclusions based on the relationships that were shown because the data was correlational in nature. Additionally, the study was not designed to capture the temporal nature of developing different interpretation biases. The literature supports that children with social anxiety fear negative evaluation from others, and are more likely than non-anxious children to interpret ambiguous events as negative, however when and how these cognitive biases develop has not been studied.
Future Directions

This study adds to the limited knowledge of cognitive processes in childhood social anxiety. The preponderance of literature regarding the social information processing model focuses on children’s aggressive behaviors and externalizing disorders. This study utilized a step in the social information processing model to explore aspects of cognitive interpretation in children with social anxiety. As discussed previously, it would be valuable to understand the temporal development of interpretation biases related to social anxiety. The question of temporal development (i.e. whether hostility toward others arises before, after, or simultaneously with a child perceiving hostility from others and fearing social evaluation from others) was embedded in one of the initial study questions. The hypothesis that social anxiety would be more strongly related to hostility toward others arose from the idea that children may develop a bias for perceiving hostility from others because they themselves are experiencing hostile thoughts toward others. This hypothesis implicitly posits that hostility toward others develops prior to perceived hostility from others. Regardless of the results of this study it would be informative and valuable to the literature to determine if cognitive biases develop in a sequence or simultaneously. Answering this question may inform treatment, as we might focus on different biases of interpretation or attention at different developmental stages. However, this question needs to be examined with a longitudinal or cross-sectional design, instead of sampling at a single time point after it appears these biases have already developed. Future research may examine this question using a longitudinal design and ideally with a sample of younger children.
Although the hypotheses of the current study were largely supported, the methods of measurement used can be improved upon in future studies. First, future studies would benefit from multiple methods of measuring hostile intent. In order to increase the likelihood that vignettes have construct validity, future research could use vignettes with already established construct validity. If vignettes are created for a future study they should be tested on a pilot sample to ensure they are correlated with already established measures of hostile intent. Second, in future studies the factor structure of hostile intent should be replicated. Due to the relatively small sample size used to derive the factor structure of the revised CATS Hostile Intent subscale, the analyses should be replicated with a larger sample to clarify whether there are two or three factors present. Third, a more robust study design (i.e. multiple methods of data collection) may strengthen the results of the study. Using a structured clinical interview to gain diagnostic data would also add to the methodology of future studies. However, including these measures, which would increase the reliability and validity of our data, may also increase the burden of participation. Thus, a strategy for incentivizing parents and teachers may be necessary. Having incentives (e.g. participant remuneration) for taking part in lengthier assessments may increase the feasibility of accomplishing this goal in future studies. Further, future research should examine if parents have differing perspectives about their child’s experience of hostile intent. It is also possible that children are the best reporters of their automatic thoughts and cognitions.

Finally, the purpose of the study was to more fully understand the cognitive processes underlying childhood social anxiety in order to influence treatment development and implementation. If children with social anxiety are experiencing hostile
intent, treatment studies should examine whether cognitive restructuring focused on perceptions of hostility improves treatment outcomes. It is also possible that there are other variables that were not measured in this study that are impacting hostile intent and/or social evaluation. Familial factors, like parental attitudes (e.g. over protection) or parental interpretation biases could be evaluated to determine their influence in the development of hostile intent in children. Although the results of this study enhance our knowledge of cognitive processes in childhood social anxiety, a comprehensive understanding of what maintains social anxiety is essential for enhancing the effectiveness of current treatments.
References


cognitive-behavioural intervention, with and without parental involvement.

*Journal of Child Psychology and Psychiatry, 41*(6), 713-726.


<table>
<thead>
<tr>
<th>Predicted cognitive factor</th>
<th>Questionnaire item</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Threat</td>
<td>Kids will think I’m stupid</td>
<td>.64</td>
</tr>
<tr>
<td></td>
<td>I’m worried that I’m going to get teased</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td>Kids are going to laugh at me</td>
<td>.72</td>
</tr>
<tr>
<td></td>
<td>I’m going to look silly</td>
<td>.76</td>
</tr>
<tr>
<td></td>
<td>People are thinking bad things about me</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>I’m afraid of what other kids think of me</td>
<td>.66</td>
</tr>
<tr>
<td></td>
<td>I look like an idiot</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>Other kids are making fun of me</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Everyone is staring at me</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td>I’m afraid I will make a fool of myself</td>
<td>.74</td>
</tr>
<tr>
<td>2. Hostile Intent</td>
<td>I have the right to take revenge on people if they deserve it</td>
<td>.61</td>
</tr>
<tr>
<td></td>
<td>Other kids are stupid</td>
<td>.43</td>
</tr>
<tr>
<td></td>
<td>Most people are against me</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>I won’t let anyone get away with picking on me</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td>If someone hurts me, I have the right to hurt them back</td>
<td>.52</td>
</tr>
<tr>
<td></td>
<td>Some people deserve what they get</td>
<td>.60</td>
</tr>
<tr>
<td></td>
<td>I always get blamed for things that are not my fault</td>
<td>.67</td>
</tr>
</tbody>
</table>

Table 1. (continued). *CATS Hostile Intent (Original) and Social Threat Subscales and Factor Loadings*

<table>
<thead>
<tr>
<th>Predicted cognitive factor</th>
<th>Questionnaire item</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Hostile Intent</td>
<td>People always try to get me into trouble</td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>Some people are bad</td>
<td>.62</td>
</tr>
<tr>
<td></td>
<td>Bad people deserve to get punished</td>
<td>.48</td>
</tr>
</tbody>
</table>

Table 2  *Ratings by Independent Evaluators of Revised CATS Hostile Intent Subscale*

*Items*

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Hostility Toward Others- Average</th>
<th>Hostility From Others- Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. I have the right to take revenge on people if they deserve it</td>
<td>1.83</td>
<td>.83</td>
</tr>
<tr>
<td>5. Other kids don’t know the right way to do things&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.00</td>
<td>.00</td>
</tr>
<tr>
<td>6. Other kids are stupid</td>
<td>1.50</td>
<td>.17</td>
</tr>
<tr>
<td>9. Other kids look foolish when they say something wrong&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.33</td>
<td>.00</td>
</tr>
<tr>
<td>12. Other kids look silly&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.17</td>
<td>.00</td>
</tr>
<tr>
<td>13. Most people are against me</td>
<td>.67</td>
<td>2.00</td>
</tr>
<tr>
<td>14. If people treat me unfairly,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I don’t let them get away with it&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1.83</td>
<td>1.17</td>
</tr>
<tr>
<td>19. I won’t let anyone get away with picking on me&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>20. Kids get teased because they do stupid things&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.50</td>
<td>.00</td>
</tr>
<tr>
<td>24. If someone hurts me, I have the right to hurt them back&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.83</td>
<td>1.17</td>
</tr>
</tbody>
</table>

*Note.* Independent evaluators rated the items as “0- Not at all, 1- Somewhat, or 2- Very much” representative of each construct. The ratings of the six evaluators were averaged; values closer to ‘0’ indicate that it did not represent the construct, values closer to ‘2’ indicate that it does represent the construct.

<sup>a</sup> Items created for this study and added to the original CATS Hostile Intent subscale yielding the Revised CATS Hostile Intent subscale.

<sup>b</sup> These items were rated by the independent evaluators as being at least somewhat representative of both constructs.
Table 2 (continued) *Ratings by Independent Evaluators of Revised CATS Hostile Intent*

**Subscale Items**

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Hostility Toward</th>
<th></th>
<th>Hostility From</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Others- Average</td>
<td>Others- Average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. People say mean things about me&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.00</td>
<td>1.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Some people deserve what they get</td>
<td>1.00</td>
<td>.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Kids get picked on because they wear weird clothes&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.33</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. I always get blamed for things that are not my fault</td>
<td>.00</td>
<td>1.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37. Some people are out to get me&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.33</td>
<td>1.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42. People get mad at me a lot&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.00</td>
<td>1.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44. People always try to get me into trouble</td>
<td>.17</td>
<td>1.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Some people are bad</td>
<td>1.17</td>
<td>.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49. Bad people deserve to get punished</td>
<td>1.83</td>
<td>.33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Independent evaluators rated the items as “0- Not at all, 1- Somewhat, or 2- Very much” representative of each construct. The ratings of the six evaluators were averaged, and values closer to ‘0’ indicate that the raters felt it did not represent the construct, while values closer to ‘2’ indicate that the raters felt it does represent the construct.

<sup>a</sup> Items created for this study and added to the original CATS Hostile Intent subscale yielding the Revised CATS Hostile Intent subscale.

<sup>b</sup> These items were rated by the independent evaluators as being at least somewhat representative of both constructs.
Table 3 Descriptive Statistics of Independent and Dependent Variables

<table>
<thead>
<tr>
<th>Scale</th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>CATS social threat subscale</td>
<td>8.79</td>
<td>8.86</td>
<td>0-40</td>
</tr>
<tr>
<td>CATS Hostile Intent subscale (original)</td>
<td>11.06</td>
<td>9.30</td>
<td>0-39</td>
</tr>
<tr>
<td>CATS Hostile Intent subscale revised</td>
<td>18.21</td>
<td>15.42</td>
<td>0-66</td>
</tr>
<tr>
<td>Hostile intent vignettes</td>
<td>3.20</td>
<td>1.94</td>
<td>0-8</td>
</tr>
<tr>
<td>RCADS social anxiety subscale</td>
<td>10.60</td>
<td>5.42</td>
<td>0-27</td>
</tr>
<tr>
<td>PBFS aggression combined scale</td>
<td>12.28</td>
<td>17.54</td>
<td>0-118</td>
</tr>
<tr>
<td>PBFS relational aggression scale</td>
<td>6.50</td>
<td>9.16</td>
<td>0-63</td>
</tr>
<tr>
<td>PBFS overt aggression scale</td>
<td>5.77</td>
<td>9.38</td>
<td>0-55</td>
</tr>
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</table>
Table 4 *Independent Samples T-tests by Gender*

<table>
<thead>
<tr>
<th>Scale</th>
<th>M(males)</th>
<th>SD(males)</th>
<th>M(females)</th>
<th>SD(females)</th>
<th>t(188)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATS social threat subscale</td>
<td>9.19</td>
<td>9.99</td>
<td>8.17</td>
<td>7.29</td>
<td>.79</td>
</tr>
<tr>
<td>CATS Hostile Intent subscale (original)</td>
<td>13.14</td>
<td>10.19</td>
<td>8.61</td>
<td>7.56</td>
<td>3.44***</td>
</tr>
<tr>
<td>CATS Hostile Intent subscale revised</td>
<td>21.17</td>
<td>16.84</td>
<td>14.68</td>
<td>12.89</td>
<td>2.94**</td>
</tr>
<tr>
<td>CATS hostility toward others</td>
<td>8.16</td>
<td>7.91</td>
<td>5.18</td>
<td>6.18</td>
<td>2.86**</td>
</tr>
<tr>
<td>CATS hostility from others</td>
<td>8.43</td>
<td>7.55</td>
<td>6.06</td>
<td>6.03</td>
<td>2.37*</td>
</tr>
<tr>
<td>Hostile intent vignettes total scores</td>
<td>3.47</td>
<td>2.14</td>
<td>2.90</td>
<td>1.63</td>
<td>2.05*</td>
</tr>
<tr>
<td>RCADS social anxiety subscale</td>
<td>10.06</td>
<td>5.53</td>
<td>11.16</td>
<td>5.25</td>
<td>-1.402</td>
</tr>
<tr>
<td>PBFS aggression combined scale</td>
<td>15.66</td>
<td>20.91</td>
<td>8.19</td>
<td>11.48</td>
<td>2.98**</td>
</tr>
<tr>
<td>PBFS relational aggression scale</td>
<td>7.70</td>
<td>10.83</td>
<td>4.99</td>
<td>6.42</td>
<td>2.05*</td>
</tr>
<tr>
<td>PBFS overt aggression scale</td>
<td>7.96</td>
<td>10.88</td>
<td>3.20</td>
<td>6.52</td>
<td>3.58***</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001
Table 5 *Intercorrelations among Independent Variables*

<table>
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<tr>
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<th>2</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children’s Automatic Thoughts Scale (CATS)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social Evaluation Subscale</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Hostile Intent Subscale (Original)</td>
<td><strong>.641</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>3. Revised Hostile Intent Subscale</td>
<td><strong>.681</strong></td>
<td><strong>.973</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Hostility Toward Others Subscale</td>
<td><strong>.465</strong></td>
<td><strong>.851</strong></td>
<td><strong>.903</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. Hostility From Others Subscale</td>
<td><strong>.795</strong></td>
<td><strong>.850</strong></td>
<td><strong>.866</strong></td>
<td><strong>.609</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ambiguous Situation Vignettes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Hostility Toward Others</td>
<td>-.079</td>
<td>.061</td>
<td>.040</td>
<td>.099</td>
<td>-.014</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Hostility From Others</td>
<td>-.027</td>
<td>-.007</td>
<td>-.009</td>
<td>.031</td>
<td>-.065</td>
<td>.130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Total</td>
<td>-.062</td>
<td>.038</td>
<td>.024</td>
<td>.090</td>
<td>-.049</td>
<td>.761**</td>
<td>.744**</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001*
Table 6  Partial Correlations controlling for Gender among the Dependent and Independent Variables

<table>
<thead>
<tr>
<th></th>
<th>RCADS $^a$</th>
<th>PBFS $^b$ – Overt</th>
<th>PBFS $^b$ - Relational</th>
<th>PBFS $^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social Anxiety</td>
<td>Aggression</td>
<td>Aggression</td>
<td>Total</td>
</tr>
<tr>
<td>Children’s Automatic Thoughts Scale (CATS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Social Evaluation Subscale</td>
<td>.565**$^c$</td>
<td>.351**</td>
<td>.316**$^c$</td>
<td>.344**</td>
</tr>
<tr>
<td>2. Hostile Intent Subscale (Original)</td>
<td>.454**</td>
<td>.568**</td>
<td>.524**</td>
<td>.577**</td>
</tr>
<tr>
<td>3. Revised Hostile Intent Subscale</td>
<td>.457**</td>
<td>.577**</td>
<td>.543**</td>
<td>.592**</td>
</tr>
<tr>
<td>4. Hostility Toward Others Subscale</td>
<td>.333**</td>
<td>.570**</td>
<td>.544**</td>
<td>.589**</td>
</tr>
<tr>
<td>5. Hostility From Others Subscale</td>
<td>.530**</td>
<td>.455**</td>
<td>.418**</td>
<td>.461**</td>
</tr>
<tr>
<td>Ambiguous Situation Vignettes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Hostility Toward Others</td>
<td>-.030</td>
<td>.064</td>
<td>.066</td>
<td>.069</td>
</tr>
<tr>
<td>7. Hostility From Others</td>
<td>-.047$^c$</td>
<td>-.094</td>
<td>-.053$^c$</td>
<td>-.070</td>
</tr>
<tr>
<td>8. Total</td>
<td>-.053</td>
<td>-.020</td>
<td>.018</td>
<td>-.001</td>
</tr>
</tbody>
</table>

*Note.* $^a$Revised Children’s Anxiety and Depression Scale (RCADS); $^b$Problem Behavior Frequency Scale (PBFS); $^c$Represents a Pearson Product Moment Correlation as neither variables were correlated with gender.

*p < .05, **p < .01, ***p < .001
Table 7 Total Variance Explained in the Principal Axis Factoring Solution

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>8.436</td>
<td>44.402</td>
</tr>
<tr>
<td>2.</td>
<td>1.935</td>
<td>10.182</td>
</tr>
<tr>
<td>3.</td>
<td>1.043</td>
<td>5.490</td>
</tr>
<tr>
<td>4.</td>
<td>.941</td>
<td>4.954</td>
</tr>
<tr>
<td>5.</td>
<td>.819</td>
<td>4.313</td>
</tr>
<tr>
<td>6.</td>
<td>.753</td>
<td>3.965</td>
</tr>
<tr>
<td>7.</td>
<td>.699</td>
<td>3.678</td>
</tr>
<tr>
<td>8.</td>
<td>.628</td>
<td>3.304</td>
</tr>
<tr>
<td>9.</td>
<td>.575</td>
<td>3.025</td>
</tr>
<tr>
<td>10.</td>
<td>.499</td>
<td>2.626</td>
</tr>
</tbody>
</table>
Table 8  *Pattern Matrix of Three Factor Solution*

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.  I have the right to take revenge on people if they deserve it</td>
<td>.715</td>
<td>-.004</td>
<td>-.095</td>
</tr>
<tr>
<td>5.  Other kids don’t know the right way to do things</td>
<td>.720</td>
<td>-.080</td>
<td>.123</td>
</tr>
<tr>
<td>6.  Other kids are stupid</td>
<td>.787</td>
<td>.052</td>
<td>-.003</td>
</tr>
<tr>
<td>9.  Other kids look foolish when they say something wrong</td>
<td>.633</td>
<td>.032</td>
<td>-.008</td>
</tr>
<tr>
<td>12. Other kids look silly</td>
<td>.793</td>
<td>.078</td>
<td>.000</td>
</tr>
<tr>
<td>13. Most people are against me</td>
<td>.046</td>
<td>-.752</td>
<td>.143</td>
</tr>
<tr>
<td>14. If people treat me unfairly, I don’t let them get away with it</td>
<td>.325</td>
<td>-.102</td>
<td>-.546</td>
</tr>
<tr>
<td>19. I won’t let anyone get away with picking on me</td>
<td>.340</td>
<td>-.073</td>
<td>-.477</td>
</tr>
<tr>
<td>20. Kids get teased because they do stupid things</td>
<td>.457</td>
<td>-.192</td>
<td>-.111</td>
</tr>
<tr>
<td>24. If someone hurts me, I have the right to hurt them back</td>
<td>.546</td>
<td>-.106</td>
<td>-.240</td>
</tr>
<tr>
<td>27. People say mean things about me</td>
<td>.049</td>
<td>-.783</td>
<td>.123</td>
</tr>
<tr>
<td>28. Some people deserve what they get</td>
<td>.575</td>
<td>-.109</td>
<td>-.289</td>
</tr>
<tr>
<td>29. Kids get picked on because they wear weird clothes</td>
<td>.486</td>
<td>-.089</td>
<td>.098</td>
</tr>
<tr>
<td>34. I always get blamed for things that are not my fault</td>
<td>-.017</td>
<td>-.757</td>
<td>-.175</td>
</tr>
<tr>
<td>37. Some people are out to get me</td>
<td>.102</td>
<td>-.638</td>
<td>.119</td>
</tr>
<tr>
<td>42. People get mad at me a lot</td>
<td>.080</td>
<td>-.708</td>
<td>-.082</td>
</tr>
<tr>
<td>44. People always try to get me into trouble</td>
<td>-.194</td>
<td>-.830</td>
<td>-.265</td>
</tr>
<tr>
<td>46. Some people are bad</td>
<td>.321</td>
<td>-.442</td>
<td>-.097</td>
</tr>
<tr>
<td>49. Bad people deserve to get punished</td>
<td>.391</td>
<td>-.126</td>
<td>-.198</td>
</tr>
</tbody>
</table>
Table 9 *Correlation Matrix Examining Variables 14 & 19 which Load on Factor 3*

<table>
<thead>
<tr>
<th></th>
<th>14</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. I have the right to take revenge on people if they deserve it</td>
<td>.525</td>
<td>.446</td>
</tr>
<tr>
<td>5. Other kids don’t know the right way to do things</td>
<td>.428</td>
<td>.366</td>
</tr>
<tr>
<td>6. Other kids are stupid</td>
<td>.478</td>
<td>.374</td>
</tr>
<tr>
<td>9. Other kids look foolish when they say something wrong</td>
<td>.326</td>
<td>.370</td>
</tr>
<tr>
<td>12. Other kids look silly</td>
<td>.353</td>
<td>.424</td>
</tr>
<tr>
<td>13. Most people are against me</td>
<td>.305</td>
<td>.347</td>
</tr>
<tr>
<td>14. If people treat me unfairly, I don’t let them get away with it</td>
<td>1.000</td>
<td>.663</td>
</tr>
<tr>
<td>19. I won’t let anyone get away with picking on me</td>
<td>.663</td>
<td>1.000</td>
</tr>
<tr>
<td>20. Kids get teased because they do stupid things</td>
<td>.498</td>
<td>.349</td>
</tr>
<tr>
<td>24. If someone hurts me, I have the right to hurt them back</td>
<td>.538</td>
<td>.493</td>
</tr>
<tr>
<td>27. People say mean things about me</td>
<td>.356</td>
<td>.346</td>
</tr>
<tr>
<td>28. Some people deserve what they get</td>
<td>.570</td>
<td>.548</td>
</tr>
<tr>
<td>29. Kids get picked on because they wear weird clothes</td>
<td>.171</td>
<td>.272</td>
</tr>
<tr>
<td>34. I always get blamed for things that are not my fault</td>
<td>.408</td>
<td>.368</td>
</tr>
<tr>
<td>37. Some people are out to get me</td>
<td>.308</td>
<td>.203</td>
</tr>
<tr>
<td>42. People get mad at me a lot</td>
<td>.420</td>
<td>.392</td>
</tr>
<tr>
<td>44. People always try to get me into trouble</td>
<td>.421</td>
<td>.363</td>
</tr>
<tr>
<td>46. Some people are bad</td>
<td>.445</td>
<td>.391</td>
</tr>
<tr>
<td>49. Bad people deserve to get punished</td>
<td>.396</td>
<td>.443</td>
</tr>
</tbody>
</table>
Figure 1 *Social Evaluation as a Mediator for Hostile Intent and Social Anxiety or Aggression*

**MODEL 1**

- SOCIAL EVALUATION
  - a = .668**
  - b = .48**
- HOSTILE INTENT
  - c' = .146
- SOCIAL ANXIETY
  - c = .466**

**MODEL 2**

- SOCIAL EVALUATION
  - a = .668**
  - b = .038
- HOSTILE INTENT
  - c' = .609**
- AGGRESSIVE BEHAVIORS
  - c = .583**
Figure 2 Social Evaluation as a Mediator for Hostile Intent Toward Others and Social Anxiety or Aggression
Figure 3 Social Evaluation as a Mediator for Hostile Intent from Others and Social Anxiety or Aggression

MODEL 5

SOCIAL EVALUATION

HOSTILITY FROM OTHERS

SOCIAL ANXIETY

\[ a = .809^{**} \]

\[ b = .411^{**} \]

\[ c' = .204^* \]

\[ c = .536^{**} \]

MODEL 6

SOCIAL EVALUATION

HOSTILITY FROM OTHERS

AGGRESSIVE BEHAVIORS

\[ a = .809^{**} \]

\[ b = -.046 \]

\[ c' = .540^{**} \]

\[ c = .459^{**} \]
CHAPTER V

Appendices
APPENDIX A.

Original Hostile Intent Subscale and Additional Items

Table A1 *Original Hostile Intent Subscale Items*

<table>
<thead>
<tr>
<th>Original questionnaire items</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have the right to take revenge on people if they deserve it</td>
</tr>
<tr>
<td>Other kids are stupid</td>
</tr>
<tr>
<td>Most people are against me</td>
</tr>
<tr>
<td>I won’t let anyone get away with picking on me</td>
</tr>
<tr>
<td>If someone hurts me, I have the right to hurt them back</td>
</tr>
<tr>
<td>Some people deserve what they get</td>
</tr>
<tr>
<td>I always get blamed for things that are not my fault</td>
</tr>
<tr>
<td>People always try to get me into trouble</td>
</tr>
<tr>
<td>Some people are bad</td>
</tr>
<tr>
<td>Bad people deserve to get punished</td>
</tr>
</tbody>
</table>

Table A2 *Additional Items Added to the Hostile Intent Subscale*

<table>
<thead>
<tr>
<th>New questionnaire items for revised subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other kids look foolish when they say something wrong</td>
</tr>
<tr>
<td>Other kids look silly</td>
</tr>
<tr>
<td>Other kids don’t know the right way to do things</td>
</tr>
<tr>
<td>Kids get teased because they do stupid things</td>
</tr>
<tr>
<td>Kids get picked on because they wear weird clothes</td>
</tr>
<tr>
<td>Some people are out to get me</td>
</tr>
<tr>
<td>If people treat me unfairly, I don’t let them get away with it</td>
</tr>
<tr>
<td>People talk badly about me</td>
</tr>
<tr>
<td>People get mad at me a lot</td>
</tr>
</tbody>
</table>
APPENDIX B.
Hostile Intent Vignette Measure

Situation 1.
Imagine that you are standing in the lunchroom waiting to buy a snack, when all of a sudden you get bumped into from behind and feel something wet spill down your back.
Circle why you think this happened.
   a. The kid probably was angry with you.
   b. The kid probably spilled his milk on you.
   c. The kid probably tripped on something.
   d. The kid wanted to make you look like a fool.

Do you think the kid did this on purpose or by accident?
   a. On purpose       b. By accident

Situation 2.
Imagine that your class is having a spelling bee and the more words everyone spells correctly, the more time the teacher will give everyone for free time at the end of the week. Everyone was given the words to study at home. Meg went first, and she got a really easy word wrong.
Circle why you think this happened
   a. Meg probably didn’t study her words.
   b. Meg probably got nervous and forgot how to spell that word.
   c. Meg probably just didn’t know that word.
   d. Meg probably is a pretty bad speller.

Do you think it was Meg’s fault that she missed the word or not her fault?
   a. Her fault          b. Not her fault
**Situation 3.**

Imagine that you are playing on the playground after school and brought your iPod with you. You set your iPod down to play kickball. You notice one of your classmates picked up your iPod for a minute. When you go to use it after the kickball game, it won’t work.

Circle why you think this happened.

a. The iPod might be too old to work.
b. The kid probably broke my iPod.
c. The iPod probably needs the battery recharged.
d. The kid was jealous of my iPod and wasn’t careful with it.

Do you think that this happened on purpose or by accident?

a. On purpose       b. By accident

**Situation 4.**

Imagine that you are in gym class and everyone is playing basketball. Your team needs one point to win and the class is almost over. Your teammate John has the ball and he’s about to shoot a basket. No one is getting in his way, and it’s a really easy shot. John misses the basket and your team ends up losing.

Circle why you think this happened.

a. John might have been distracted as he was trying to make the basket.
b. John is a really bad basketball player.
c. John was feeling sick that day.
d. John doesn’t know how to play basketball well enough to be on a team.

Do you think it was John’s fault that he missed the basket, or not his fault?

a. His fault       b. Not his fault
APPENDIX C.

Revised Child Anxiety and Depression Scale (RCADS)- Social Phobia Subscale

Table C1. Social Phobia Subscale of the RCADS

<table>
<thead>
<tr>
<th>Item #</th>
<th>Questionnaire item</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>I worry when I think I’ve done poorly at something</td>
</tr>
<tr>
<td>7.</td>
<td>I feel scared when I have to take a test</td>
</tr>
<tr>
<td>8.</td>
<td>I feel worried when someone is angry with me</td>
</tr>
<tr>
<td>12.</td>
<td>I worry that I will do badly at my schoolwork</td>
</tr>
<tr>
<td>20.</td>
<td>I worry that I might look foolish</td>
</tr>
<tr>
<td>30.</td>
<td>I worry about making mistakes</td>
</tr>
<tr>
<td>32.</td>
<td>I worry about what other people think of me</td>
</tr>
<tr>
<td>38.</td>
<td>I feel afraid if I have to talk in front of my class</td>
</tr>
<tr>
<td>43.</td>
<td>I feel afraid that I will make a fool of myself in front of people</td>
</tr>
</tbody>
</table>
APPENDIX D.

Problem Behavior Frequency Scale

Table D1. *Overt and Relational Aggression Items of the Problem Behavior Frequency Scale*

<table>
<thead>
<tr>
<th>Questionnaire item</th>
<th>Overt Aggression</th>
<th>Relational Aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td>You were in a fight in which someone was hit.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You put down someone</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You threatened to hit another kid</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You spread a rumor</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You threatened a teacher</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You picked on someone</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You threatened someone with a weapon</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You excluded someone</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You shoved or pushed another kid</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You insulted someone's family</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You hit or slapped another kid</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You gave mean looks</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>You threw something at someone</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>You started a fight between others</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
APPENDIX E

Revised CATS Hostile Intent Subscales Derived from Exploratory Factor Analysis

Hostility Toward Others

2. I have the right to take revenge on people if they deserve it
5. Other kids don’t know the right way to do things
6. Other kids are stupid
9. Other kids look foolish when they say something wrong
12. Other kids look silly
20. Kids get teased because they do stupid things
24. If someone hurts me, I have the right to hurt them back
28. Some people deserve what they get
29. Kids get picked on because they wear weird clothes
49. Bad people deserve to get punished

Hostility From Others

13. Most people are against me
27. People say mean things about me
34. I always get blamed for things that are not my fault
37. Some people are out to get me
42. People get mad at me a lot
44. People always try to get me into trouble
46. Some people are bad