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The relationship among self-efficacy, negative self-statements, and social anxiety in children: a mediation

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THE RELATIONSHIP AMONG SELF-EFFICACY, NEGATIVE, SELF-STATEMENTS,
AND SOCIAL ANXIETY IN CHILDREN: A MEDIATION

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Abstract

Evidence suggests that general self-efficacy, one's beliefs about his or her global abilities, and social self-efficacy, one's beliefs in his or her ability to navigate social situations, are strongly connected to levels of social anxiety. Negative self-statements, also known as negative self-referent cognitions, have also been linked with levels of social anxiety. Although self-efficacy and negative self-statements have been shown to be important variables in the phenomenology and maintenance of social anxiety in children, they have yet to be examined in conjunction with one another. The purpose of this study was to examine the relationship between negative self-statements and self-efficacy and examine both general self-efficacy and social self-efficacy as mediator variables in the relationship between negative self-statements and social anxiety. This study also aimed to determine which type of self-efficacy would be the best fit for the proposed mediation model. To examine these variables, 126 children ages 11 to 14 years recruited from the Louisiana State University Laboratory School were asked to complete several questionnaires. Parents were contacted for consent and demographic information. A significant relationship between negative self-statements and both general self-efficacy and social self-efficacy respectively was established. Results also indicated that general self-efficacy fully mediated the relationship between negative self-statements and social anxiety while social self-efficacy only partially mediated the relationship between negative self-statements and social anxiety. Treatment implications, limitations, and future recommendations are discussed.

1. Introduction

With an early age of onset and increasing prevalence rates, social anxiety is a growing concern for children and adolescents. A host of variables have been connected to the development and maintenance of social anxiety. Two of which, self-efficacy and negative self-statements, have become progressively more important in recent literature. Although a significant relationship has been demonstrated between self-efficacy and social anxiety as well as between negative self-statements and social anxiety, the three variables have yet to be examined in relation to one another. The purpose of this study was to test two mediation models that examine the specific relationship among these three variables in children and early adolescents and to determine which of the two models would be the best fit for the relationship. A better understanding of the specific relationship among these variables could lead to more efficient assessment and treatment of social anxiety in children and adolescents.

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2. Review of the Literature

2.1 Social Anxiety

Social phobia (also known as social anxiety disorder) is a debilitating disorder that affects the lives of many children, adolescents, and adults. According to the Diagnostic and Statistical Manual of Mental Disorders (*DSM-IV-TR*; APA, 2000), Social Phobia is characterized by an excessive or unreasonable, marked and persistent fear of social situations that invariably provokes an anxiety response and significantly interferes with the person's daily life. Similarly, Schlenker and Leary (1982) defined social anxiety (i.e., a continuous construct) as anxiety that results from the prospect or presence of personal evaluation as well as fear of social failure and criticism. This marked fear of social failure is intricately interwoven into one's beliefs about himself/herself and his or her capabilities in social situations. Onset for social phobia typically occurs around the mid-teens and often stems from earlier signs of social inhibition and shyness (*DSM-IV-TR*; Van Roy, Kristensen, Groholt, & Clench-Aas, 2009). Prevalence rates for social phobia are reported to range from 3% to 13% (*DSM-IV-TR*), with the most recent estimates indicating a lifetime prevalence rate of 12.1% (Kessler et al., 2005).

Despite the prevalence of social phobia (i.e., a categorical, diagnosable disorder), elevated levels of social anxiety (i.e., a dimensional construct) that do not meet clinical criteria are more commonly addressed in the literature. Researchers suggest that social anxiety exists along a continuum with social phobia at one extreme and marked elevations in anxiousness at the other (Norton, Cox, Hewitt, & McLeod, 1997). Therefore, social anxiety is often examined when a diagnosis of social phobia is not relevant, convenient, or applicable. Whether or not social anxiety is examined as a clinical diagnosis or an anxious elevation along the social anxiety continuum, it is clear that without treatment, social anxiety can drastically impair one's social,

educational, and professional capacities throughout the lifespan (for a review see Davis, Munson, & Tarcza, 2009).

Social anxiety has been found to correlate with a number of variables (e.g., Spence, Donovan, & Brechman-Toussaint, 1999), but a specific cause of the disorder has yet to be determined. Generally, the etiology of anxiety disorders is attributed to one or a combination of four different pathways: classical conditioning, modeling, negative information transmission, and a nonassociative path. Classical conditioning involves a direct conditioning experience. Modeling occurs when a person learns to fear a situation by watching someone else behave afraid. Negative information transmission occurs when a person learns to fear a situation after hearing negative information about the situation. Finally, fear originating from a nonassociative pathway is likely due to a biological or genetic predisposition or unrecalled associative experiences over time and does not necessarily include a learning process. In addition, Schlenker and Leary (1982) identified two factors of social anxiety, among others, associated with these paths. The first factor, fear of negative evaluation, reflects concerns about certain ordinary events, whereas the second factor, negative self-concept, reflects concerns about social failures and criticism. Within each of these factors, multiple variables contribute to the development of social anxiety.

Theoretically it is suspected that self-efficacy and negative self-statements are two variables that can play a role in the manifestation of social anxiety. Low levels of self-efficacy are strongly negatively correlated with high levels of social anxiety in the adult population as well as the child and adolescent populations (Leary & Atherton, 1986; Muris, 2002). A greater number of negative self-statements has been found to be positively correlated with higher levels of social anxiety in adults, children, and adolescents (Glass & Furlong, 1990; Wichmann,

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Coplan, & Daniels, 2004). However, the relationship between these two variables has yet to be examined together in the literature with adults or children. Therefore, the purpose of the current study is to examine the connections between these two variables and their relationship with social anxiety in children and early adolescents.

2.2 Social Anxiety and Self-Efficacy

Self-efficacy is a well-known construct that has been linked to a number of emotional issues including anxiety disorders. Bandura (1977) defined self-efficacy as "the conviction that one can successfully execute the behavior required to produce the desired outcome" (p.193). Put in more simplistic terms, self-efficacy is the belief in one's own capability to do something. Adding to this definition, Sherer et al. (1982) noted that this belief has a strong effect on mastery expectations. As a part of people's beliefs and expectations of themselves, self-efficacy plays an important role in the development and maintenance of social anxiety.

Although Bandura (1977) was writing about efficacy for specific situations, Sherer et al. (1982) was describing a more global concept. Global self-efficacy (also known as general self-efficacy) refers to more general beliefs about a person's expectations across situations whereas the more specific term "social self-efficacy" refers to a person's belief about his or her capability to accurately perform in a social situation (Shelton, 1990). Research has suggested that global and specific self-efficacy often interact with one another to influence a person's beliefs (Shelton, 1990). Therefore, it is important to examine both global self-efficacy and specific self-efficacy to understand how self-efficacy influences social anxiety.

Leary and Atherton (1986) made a specific connection between self-efficacy and social anxiety in adults by proposing the concept of "self presentation efficacy expectancy" (p.257). They describe this concept as the probability of behaving in a certain intended manner in order to

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convey an intended impression. They suggest that the more positive the beliefs or expectancies are, the less social anxiety one will experience and vice versa. In other words, if a person does not believe that he or she can accurately execute a social situation, the lack of confidence is likely to heighten anxiety levels and decrease the probability of competently handling the situation.

Researchers have found evidence for the link between global self-efficacy and social anxiety, as well as social self-efficacy and social anxiety, in adults as well as in children and adolescents. For instance, Wheeler and Ladd (1982) found that social self-efficacy correlated (.41) with feelings of social anxiety in a sample of 138 third, fourth, and fifth graders. Similarly, Matsuo and Arai (1998) conducted two studies examining the relationship between general self-efficacy and specific types of anxiety in a total of 436 fourth, fifth, and sixth graders. Findings in both studies suggested that lower levels of general self-efficacy consistently accompanied higher levels of social anxiety (Matsuo & Arai 1998).

To further address both the areas of general and social self-efficacy, Muris (2002) examined three domains of global self-efficacy (emotional, academic, and social) and their relationship to several anxiety problems (e.g. social phobia, generalized anxiety disorder, separation anxiety disorder, etc.) in adolescents, ages 12 to 19 years. His findings suggested that lower levels of global self-efficacy were correlated with higher levels of trait anxiety and social anxiety. He also found, more specifically, that social self-efficacy was linked to social phobia and that social self-efficacy played a larger role in anxiety disorders in general than the other two domains examined (i.e., emotional self-efficacy and academic self-efficacy). Muris (2002) also noted that social self-efficacy played a larger role in (i.e., was more predictive of) anxiety disorders than depression.

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A closely related concept often used interchangeably with social self-efficacy is social competence. This variable also encompasses one's belief in his or her ability to proficiently handle a social encounter. Smári, Pétursdóttir, and Þorsteinsdóttir (2001) examined 184 adolescents between the ages of 14 and 15 years to determine the relationship between perceived social competence and social anxiety. They found that beliefs in social competence, or beliefs in one's ability to competently perform in a social situation, correlated negatively with social anxiety. Put differently, these findings suggest that the less perceived social competence one has, the more social anxiety he or she will experience.

Recently, it has been suggested that social self-efficacy may be a strong enough predictor of social anxiety to supersede other predictive variables such as the type of relationship surrounding the social interaction. Hannesdóttir and Ollendick (2007) conducted a study that examined potential differences in self-efficacy and its effect on social anxiety within the context of different social relationships. They examined the effect that social self-efficacy had on social anxiety in situations with strangers versus in situations with peers in 159 children ages 10 to 14 years. Children reported lower levels of self-efficacy with strangers than with peers; however, the overall level of social self-efficacy predicted the level of social anxiety regardless of interpersonal relationship. These findings suggest that social self-efficacy is more indicative of the amount of social anxiety present than the relationship the child has with the other person (people) in the social situation.

As described above, both general self-efficacy and social self-efficacy are closely related to the construct of social anxiety. It is possible that self-efficacy plays a large role in the phenomenology and maintenance of social anxiety. Therefore, its relationship with other social anxiety variables, such as negative self-statements, is also important to examine. Exploring these

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relationships could facilitate better assessment of social anxiety and aid in determining the best treatment for the disorder.

2.3 Social Anxiety and Negative Self-Statements

Much like self-efficacy, negative self-statements play a role in the development and severity of social anxiety. Negative self-statements are negative self-referent cognitions that can affect one's level of anxiety or depression (Ronan, Kendall, & Rowe, 1994). Greater numbers of negative self-statements are indicative of higher levels of anxiety. For instance, Treadwell and Kendall (1996) examined the relationship between negative self-statements and anxiety disorders in 151 children from 8 to 13 years of age. They found that children with anxiety disorders reported more frequent anxious negative self-statements than children without anxiety disorders. By further examining this relationship, the authors also found that negative self-statements were predictive of the severity of anxiety experienced before and after treatment had taken place. These findings suggest that negative self-statements significantly contribute to the construct of social anxiety.

In another study examining negative self-statements and anxiety disorders in children and adolescents ages 7 to 15 years, Muris, Merckelbach, Mayer, and Snieder (1998) found results similar to those demonstrated by Treadwell and Kendall (1996). A greater number of negative self-statements was predictive of higher levels of anxiety symptoms and trait anxiety; however, when specifically examining the relationship between negative self-statements and social phobia, results were mixed. The number of negative self-statements reported did significantly predict the severity of social anxiety experienced by children ages 7 to 10 years but did not significantly predict the level of social anxiety experienced by adolescents ages 11 to 15 years. These mixed

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results warrant further investigation of the relationship between social anxiety and negative self-statements.

The literature on the relationship between negative self-statements and social anxiety is clearer with adults. In examining social anxiety, negative self-statements, and physiological reactivity in adults, Beidel, Turner, and Dancu (1985) found that negative self-statements positively correlated with social anxiety. Specifically, they found that those who were socially anxious had significantly more negative self-referent cognitions than those who were not socially anxious. Turner, Beidel, and Larkin (1986) found a similar pattern of results in both a clinical and nonclinical adult sample. In their study, socially anxious people also exhibited more negative self-referent cognitions than those who were not socially anxious. Furthermore, Glass and Furlong (1990) also found a significant relationship between social anxiety and negative self-statements when examining adults. Their results indicated that with the use of self-report questionnaires, the amount of negative self-statements reported significantly predicted the level of social anxiety reported, with more negative self-statements predicting greater social anxiety.

Spence, Donovan, and Brechman-Toussaint (1999) were curious as to the developmental psychopathology of social anxiety and whether relationships found with adults were present among children with social anxiety. They tested several patterns of relationships to identify whether or not these trends carried over from social anxiety symptom presentation in adults to social anxiety symptom presentation in children and adolescents. Specifically, the authors examined the patterns of three variables (social cognitions, social skills, and social competence) in 54 children ages 7 to 14 years (27 children with social phobia and 27 matched children without the disorder). The researchers suggested that the variable trends exhibited by adults with social anxiety do exist in children and adolescents with social anxiety as well.   More

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specifically, much like the studies conducted with adults by Beidel, Turner, and Dancu (1985), Turner, Beidel, and Larkin (1986), and Glass and Furlong (1990), the authors found that children with social anxiety exhibited more negative self-referent cognitions about their social performance than those without social anxiety. In other words, higher levels of negative self-statements positively correlated with and significantly predicted higher levels of social anxiety.

Whichmann, Coplan, and Daniels (2004) conducted a study concerning the social cognitions of socially withdrawn children by examining 457 children ages 9 to 13 years who had been identified by a peer survey as either socially withdrawn/isolated or not socially withdrawn. This study revealed that withdrawn children exhibited more negative self-perceptions (negative self-referent cognitions) than those of their peers who were not socially withdrawn. These results are closely linked with the notion that children who exhibit more negative self-statements are more socially anxious and often more socially withdrawn.

Although the relationship between negative self-statements and social anxiety has not been shown in past literature to be quite as substantial as the relationship between self-efficacy and social anxiety, it is still an important relationship that must be considered when examining the phenomenology and maintenance of social anxiety. Because of its importance, the relationship between this variable and other important social anxiety variables, such as self-efficacy, should also be examined thoroughly as a means of better understanding assessment and treatment of social anxiety.

2.4 Mediation Model

As previously stated, no past research has explored the relationship between self-efficacy and negative self-statements in relation to social anxiety. However, by examining a similar cluster of variables, Cieslak, Benight, and Lehman (2008) set forth the model on which the

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current study is to be based. Specifically, the authors studied the effect that coping self-efficacy would have on the relationship between the number of negative self-statements present and the amount of posttraumatic distress experienced by adults in two separate studies. They proposed that a person's coping self-efficacy, or belief in their ability to accurately cope with a traumatic situation, would fully mediate the relationship between the amount of negative self-statements that person has and the amount of posttraumatic distress that person experiences. The authors first conducted a study examining this mediation model in a sample of 66 adult female victims of childhood sexual abuse. Based on the findings from the first study, the researchers suggested that coping self-efficacy fully mediated the relationship between negative self-statements and posttraumatic stress disorder. To be sure that these results were accurate and generalizable, the authors conducted a second test of the model with 70 adult motor vehicle accident victims (45 female and 25 male) and found the same results as in the first study. When controlling for coping self-efficacy, the relationship between the number of negative self-statements present and the amount of posttraumatic distress experienced was no longer significant (Cieslak, Benight, & Lehman, 2008).

A similar model was previously, incidentally demonstrated by Kent and Gibbons (1987) in a study concerning negative self-statements, self-efficacy beliefs, and anxiety about upcoming dental procedures. The authors found that negative self-statements positively correlated with dental anxiety and negatively correlated with self-efficacy beliefs about that anxiety. The authors also found that self-efficacy beliefs negatively correlated with dental anxiety. Furthermore, contrary to the authors' predictions, the relationship between self-efficacy beliefs and dental anxiety did not lose strength when controlling for negative self-statements; however, when controlling for self-efficacy beliefs, the relationship between negative self-statements and

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dental anxiety significantly weakened. Although Kent and Gibbons (1987) did not use the guidelines set forth to test mediation by Baron and Kenny (1986) and did not discuss mediation in their article, the results described in the paper suggest possible mediation of the relationship between negative self-statements and dental anxiety by self-efficacy beliefs. Based on the findings discussed in Cieslak, Benight, and Lehman (2008) and Kent and Gibbons (1987) and the similarity of the variables used in those studies, it is proposed that the basic premise of these meditation models can also be applied to negative self-statements, social self-efficacy, and social anxiety.

3. Present Study

The purpose of the present study was to determine whether or not general self-efficacy, a person's broad beliefs in his or her abilities, and/or social self-efficacy, a person's beliefs in his or her ability to accurately perform in a social situation, would fully mediate the relationship between negative self-statements and social anxiety in children and early adolescents (See Figure 1 and Figure 2). The present study also aimed to determine which of these two variables would be the best fit for the mediation model. Because self-efficacy has been shown to be an important variable in the development and maintenance of social anxiety, it is possible that it provides a pathway through which negative self-statements significantly predict social anxiety. Anticipated findings of this study could have treatment implications for social anxiety issues and social phobia. For instance, cognitive-behavioral therapy (CBT) has been identified as an empirically supported treatment for children and adolescents with anxiety issues (Davis, 2009; Davis & Ollendick, 2005; Kendall et al., 1997). Cognitive restructuring, the primary cognitive component of CBT, involves identifying cognitive distortions such as negative thoughts, anxious self-talk, and negative self-evaluations and challenging those distortions with alternative interpretations (Chorpita, 2007; Kendall, 1993). Negative self-statements have been found to predict anxiety levels even after treatment and, therefore, are an important target of cognitive restructuring (Treadwell & Kendall, 1996). If either general self-efficacy or social self-efficacy mediates the relationship between negative self-statements and social anxiety, this finding could enhance treatment approaches by indicating the importance of targeting one's self-efficacy during the cognitive components of treatment even above other important variables such as negative self-statements for better treatment outcomes. As a result, hypotheses for three stages of analysis concerning the relationship between these variables are listed.

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3.1 Hypotheses

3.1.1 Stage 1: Variable Analysis

It is important to first examine the relationship between each variable individually to determine if significant relationships exist between each pair.

Hypothesis one: The number of negative self-statements present will significantly predict the level of social anxiety present. Participants reporting a greater the number of negative self-statements will also report more social anxiety.

Hypothesis two: The amount of general self-efficacy present will predict the amount of social anxiety present. Participants reporting more general self-efficacy will also report less social anxiety.

Hypothesis three: The amount of social self-efficacy present will predict the amount of social anxiety present. Participants reporting more social self-efficacy will also report less social anxiety.

Hypothesis four: The number of negative self-statements present will predict the amount of general self-efficacy present. Participants reporting a greater number of negative self-statements will also report less general self-efficacy.

Hypothesis five: The number of negative self-statements present will predict the amount of social self-efficacy present. Participants reporting a greater number of negative self-statements will also report less social self-efficacy.

3.1.2 Stage 2: Mediation analysis

If each path is statistically significant in the hypothesized direction, two proposed mediation models will then be examined.

Model One:

Hypothesis six: General self-efficacy will fully mediate the relationship between negative self-statements and social anxiety.
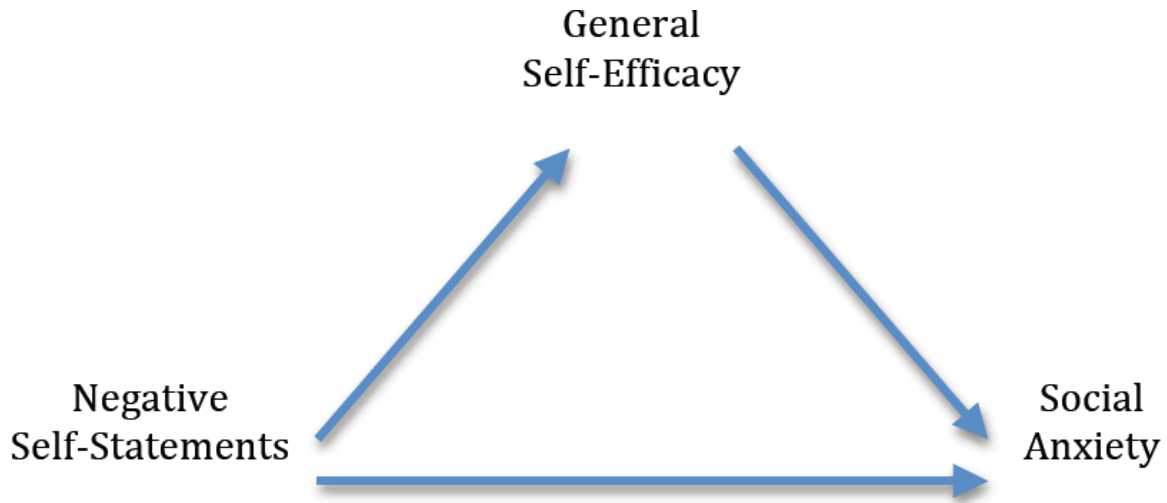
Figure 1. Mediation Model One: General Self-Efficacy as a Mediator

Model Two:

Hypothesis seven: Social self-efficacy will fully mediate the relationship between negative self-statements and social anxiety.
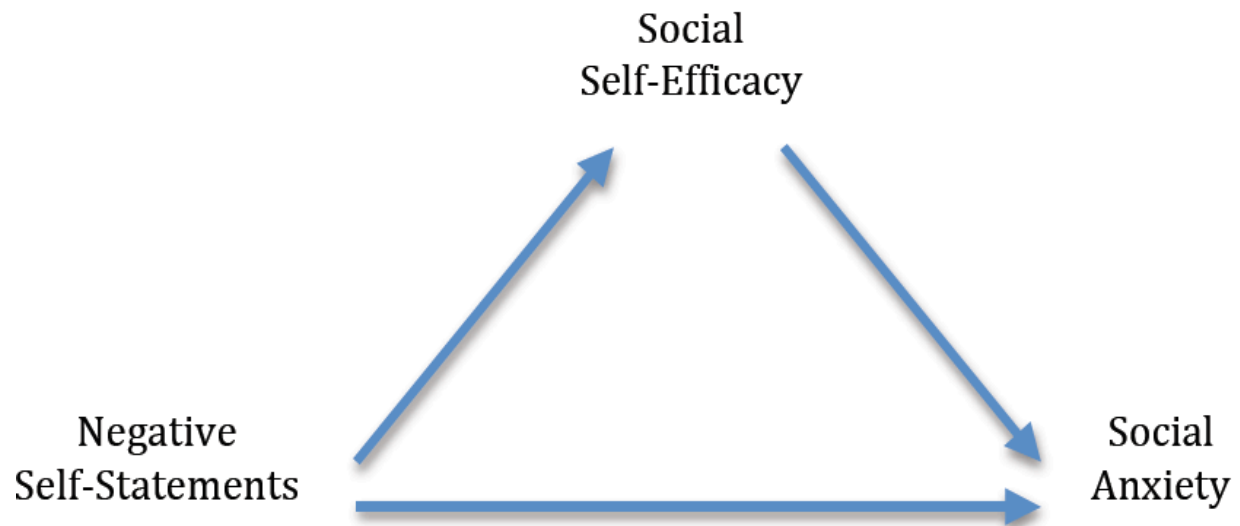
Figure 2. Mediation Model Two: Social Self Efficacy as a Mediator

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3.1.3 Stage 3: Model comparison

If each mediation model is significant, the models will be examined in comparison with one another to determine which mediator is the best fit for the model.

Hypothesis eight: The mediational relationship will be better represented with social self-efficacy as the mediator variable than with general self-efficacy as the mediator variable.

4. Method

4.1 Power analysis

A power analysis was calculated using G*Power 3.0 (Faul, Erdfelder, Lang, & Buchner, 2007). Previous literature generally suggests large effect sizes (See Table 1) for the relationship between self-efficacy and social anxiety (Hannesdóttir & Ollendick, 2007; Muris, 2002) and the relationship between negative self-statements and social anxiety (Cieslak, Benight, & Lehman, 2008; Glass & Furlong, 1990; Treadwell & Kendall, 1996; Wichmann, Coplan, & Daniels, 2004). Therefore a large effect size was estimated (f^2=.35), with power (1-β) set at .80, alpha (α) = .05 for an omnibus multiple regression F test with two predictors. As a result, based on an a priori power analysis at least 32 participants would need to participate in order to detect significant effects if they exist. Because the onset for social phobia typically occurs around the mid-teens but often stems from earlier signs of social inhibition and shyness (*DSM-IV-TR*; Davis et al., 2009; Van Roy, Kristensen, Groholt, & Clench-Aas, 2009), the target age range for participants was 10 to 14 years.

Table 1: Previous Literature Effect Size Calculations

Study	Relationship	r	f^2	Size
Hannesdottir & Ollendick (2007)	Self-efficacy and Social Anxiety		.6	Large
Muris (2002)	Self-efficacy and Social Anxiety	.34	.266	Medium
Muris et al. 1998	Negative self-statements and Social Anxiety	.54		Large
Glass & Furlong (1990)	Negative self-statements and Social Anxiety	.54	.41	Large
Treadwell & Kendall (1996)	Negative self-statements and Anxiety		.44	Large
Wichmann, Coplan, & Daniels (2004)	Negative self-statements and Social Anxiety	.324		Medium
Cieslak, Benight, & Lehman (2007)	Negative self-statements and PTSD Anxiety		.43	Large
Cieslak, Benight, & Lehman (2007)	Negative self-statements and Coping Self-efficacy		.85	Large

4.2 Participants

One hundred and thirty nine participants ranging in age from 11 to 14 years were recruited from the middle school grades of the University Laboratory School in Baton Rouge, Louisiana. Of those participants, 13 were excluded due to missing data (>10% missing). For the remaining 126 participants a mean replacement technique was utilized to account for any missing data points. Participants were primarily Caucasian (82.5%) with 7.9% being African American, 1.6% being Asian, 1.6% being Hispanic, and 6.3% reporting "other" for ethnicity. Participants came from grades 6-8 (grade 6 = 46%; grade 7 = 32.5%; grade 8 = 21.4%) with an average age of 12.23 years and were divided relatively equally by gender with 57.1% being female and 42.9% being male. Fourteen of the 126 participants exceeded the clinical cutoff of 18 on the Social Phobia and Anxiety Inventory for Children (SPAI-C) creating a potential prevalence rate (11.1%) similar to that reported by Kessler et al. (12.1%; 2005). The parents of those children who demonstrated elevated scores on the SPAI-C were contacted with referral information.

4.3 Measures

In order to accurately examine the relationships among self-efficacy, negative self-statements, and social anxiety, the following set of measures was compiled. These measures were chosen based on the narrow focus of their targeted variables, the overall quality of their psychometrics, and the clarity and convenience of their format. While it is noted that other, similar measures may be substituted without drastic implications, these measures collectively were expected to provide an accurate and comprehensive examination of the variables in question.

4.3.1 Demographics

To obtain background information about the child and his or her family, a demographic questionnaire was created and included in the initial parent consent packet distributed to the parents. The questionnaire inquired about age, gender, and ethnicity of the child, socioeconomic status of the family, family history of mental illness, and number of people living in the home (See Appendix A).

4.3.2 Social phobia

The Social Phobia and Anxiety Inventory for Children (SPAI-C; Biedel, Turner & Morris, 1995) was used to determine the level of social anxiety of each participant. The SPAI-C was designed to assess physical, cognitive, and avoidant domains of social phobia in children. It consists of 26 self-report items that are rated on a three point Likert scale with 0 being "never or hardly ever" and 2 being "always or almost always." Within the normative sample, the mean for non-socially anxious children was 13.74 (SD = 8.5) and the mean for socially anxious children was 21.8 (SD = 8.4) with the clinical cut off for social phobia being 18 (Biedel & Morris, 1995; Biedel, Turner, & Morris, 1998). Using the cut off score of 18, Biedel, Turner, and Morris (1998) found the sensitivity of the SPAI-C to be 63% and the specificity to be 71%. Similarly, by comparing the SPAI-C to the Social Anxiety Scale for Adolescents (SAS-A; LaGreca, 1998), Inderbitzen-Nolan, Davies, and McKeon (2004) found the sensitivity of the SPAI-C to be 61.5% and the specificity to be 82.7%. The inventory also demonstrates good internal consistency and test-retest reliability (r = .95, r = .86; Biedel, Turner & Morris, 1995). The SPAI-C was purchased for use.

4.3.3 Self-Efficacy

Two separate measures were administered to examine self-efficacy. Because general self-efficacy has been shown to negatively correlate with social anxiety (Matsuo & Arai, 1998; Muris, 2002), a general self-efficacy measure was given to gain an accurate assessment of each participant's global self-efficacy. In addition, because social anxiety has been shown to be particularly correlated with the social domain of self-efficacy (Hannesdóttir & Ollendick, 2007; Muris, 2002; Wheeler & Ladd, 1982), a social skills self-efficacy measure was given to determine participants' self-efficacy in the context of social situations.

The Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001*)* assesses general self-efficacy across three domains: academic, social, and emotional situations. The SEQ-C is a 24-item self-report measure with 8 eight items for each domain. Each item is rated on a five-point Likert scale with 1 being "not at all" and 5 being "very well." The scale has been shown to demonstrate good construct validity via strong correlations with Muris, Schmidt, Lambrichs and Meesters' (2001) Negative Attributions Questionnaire and Bijstra, Jackson, and Bosma's (1994) Coping List measure (Muris, 2001). Suldo and Huebner (2005) found internal consistency for the SEQ-C to be 0.82, 0.78, and 0.76 for the academic, emotional, and social subscales, respectively. The SEQ-C was used with the permission of the author.

The Self-Efficacy Questionnaire for Social Skills for Children (SEQ-SS-C; Ollendick & Schmidt, 1987*)* assesses children's self-efficacy specifically for social situations by inquiring if the child thinks that he or she could complete the social task being asked of him or her. The scale is a 10-item self-report measure that is rated on a five-point Likert scale with 1 being "not sure at all" and 5 being "really sure." The scale has high internal consistency and test-retest reliability ($r = .87$, $r = .75$; Ollendick & Schmidt, 1987). By administering the SEQ-SS-C, an

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accurate representation of participant's beliefs in his or her capabilities to perform in a social interaction was obtained. This measure was also used with the permission of the author.

4.3.4 Negative Self-Statements

To measure participants' negative cognitions about themselves, the Negative Affectivity Self-Statement Questionnaire (NASSQ; Ronan, Kendall, & Rowe, 1994) was administered. The NASSQ is a 39-item self-report questionnaire that examines anxious and depressive self-statements in children with negative affect. Participants are asked to endorse how true the statements are of themselves on a five-point scale with 1 being "not at all" and 5 being "all the time." The measure has excellent internal consistency and test-retest reliability ($r = .96$, $r = .78$; Ronan, Kendall, & Rowe, 1994). The measure also has excellent construct validity. According to Ronan, Kendall, and Rowe (1994) strong patterns of correlation exist between the depressive and anxious items when compared with the Children's Depression Inventory (CDI; Kovacs, 1981), Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds, & Richmond, 1978), and the State Trait Anxiety Inventory for Children: Trait Scale (STAIC-T; Spielberger 1973). The NASSQ was used with the permission of the author.

4.4 Procedure

Permission was first obtained from the Institutional Review Board to recruit and gather information from participants. Participants were then recruited from a private middle school in Louisiana. Teachers were informed of the study via an informational email (See Appendix B). A promotional letter was then sent home by participants to inform parents of the study and request permission for their child's participation (See Appendix C). An active consenting/assenting procedure was used as parents were asked to sign an informed consent form, and participants were asked to sign an assent form before beginning the study (See

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Appendix D & Appendix E). The demographic questionnaire was also included in the initial

consent packet sent home to the parents to be returned by the participants before participation in

the study. Once the consent/assent was collected and any questions concerning the study were

addressed, the participant measures listed above were administered at a single time period during

school hours. Data collection took place midway through the academic year to allow students to

better adjust to their transition. Parents whose children demonstrated clinical elevations on the

SPAI-C were provided an informational letter with referral information (See Appendix F).

Participant data was then analyzed according to the procedures listed in the results section of this

paper.

5. Results

5.1 Preliminary analyses

Preliminary analyses were conducted in SPSS 16.0 to examine the effects of gender, age, and ethnicity on the key variables of social self-efficacy, general self-efficacy, amount of negative self-statements, and social anxiety level. Significant gender differences were found for general self-efficacy [$F(1,124) = 5.66$, $p < .05$] with girls reporting higher levels of general self-efficacy than boys. No other significant differences were found for gender, ethnicity, or age on any of the key variables. See Table 2 and Table 3 for descriptive statistics of key variables and relationships among them.

Table 2: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
General Self-Efficacy	126	53	120	89.91	13.12
Social Self-Efficacy	126	29	145	112.68	15.62
Social Anxiety	126	0	26.02	8.95	6.46
Negative Self-statements	126	72	278.99	127.92	39.37

Table 3: Bivariate Correlations

	1	2	3	4
1. General Self-Efficacy	1.0			
2. Social Self-Efficacy	.435**	1.0		
3. Negative Self-Statements	-.437**	-.226	1.0	
4. Social Anxiety	-.431**	-.318**	-.272**	1.0

Note: * $p < .05$, ** $p < .01$

5.2 Stage 1: Variable Analyses

In accordance with Baron and Kenny's (1986) mediational procedure, the existence of a significant relationship between each pair of variables was first established via linear regression analyses using SPSS 16.0. Because gender was significant in the preliminary analyses, hierarchical regression procedures were used with gender being entered as a covariate in the first step of every regression analysis conducted. To examine Hypothesis 1 that negative self-statements significantly predicted social anxiety, SPAI-C scores were regressed onto NASSQ scores. Analyses revealed that a greater number of negative self-statements significantly predicted a higher level of social anxiety [R^2 = .08; $F(2,123)$ = 5.22, $p < .01$; β = .28, $p < .01$]. To examine Hypothesis 2 that general self-efficacy significantly predicted social anxiety, SPAI-C scores were regressed onto SEQ-C scores. Results indicated that more general self-efficacy [R^2 = .19; $F(2,123)$ = 14.17, $p < .01$; β = -.44, $p < .001$] significantly predicted a lower level of social anxiety. Similar procedures were utilized to examine Hypothesis 3 that social self-efficacy significantly predicted social anxiety. SEQ-SS-C scores were regressed onto SPAI-C scores. Results indicated that more social self-efficacy [R^2 = .10; $F(2, 123)$ = 6.91, $p < .01$; β = -.32, $p < .001$] significantly predicted lower levels of social anxiety. To examine Hypothesis 4 that negative self-statements significantly predicted the amount of general self-efficacy, NASSQ scores were regressed onto SEQ-C scores. Results indicated that a greater number of negative self-statements significantly predicted less general self-efficacy [R^2 = .24; $F(2, 123)$ = 19.64 , $p < .001$; β = -.45, $p < .001$] . Similarly, to examine Hypothesis 5 that negative self-statements significantly predicted social self-efficacy, NASSQ scores were regressed onto SEQ-SS-C scores. Analyses revealed that a greater number negative self-statements significantly predicted less social self-efficacy [R^2 = .07; $F(2, 123)$ = 4.82, $p < .05$; β = -.23, $p < .01$].

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5.3 Stage 2: Mediation Analyses

5.3.1 Model One

Once a significant relationship between each pair of variables was established, each mediational model was individually tested via multiple regression analysis utilizing Baron and Kenny's (1986) procedures. To examine Hypothesis 6 that general self-efficacy would fully mediate the relationship between negative self-statements and social anxiety, SEQ-C scores and NASSQ scores were regressed onto SPAI-C scores such that gender was entered in at Stage 1 and SEQ-C scores and NASSQ scores were entered in at Stage 2. Results demonstrated that when controlling for general self-efficacy, negative self-statements no longer accounted for a significant portion of the variance [R^2 = .20; $F(3, 122)$ = 9.86, $p < .001$; β = .10, $p > .05$] indicating that general self-efficacy fully mediated the relationship between negative self-statements and social anxiety. See Table 4 for results.

Table 4: Model One Statistics

Mediation Regression Analyses

| | Anxiety score | | |
	R^2	β	p
Step 1	.003		.550
Gender		-.054	.550
Step 2	.195**		.000
Negative Self-Statements`		.100	.277
General Self-Efficacy		-.393**	.000

Note: * $p < .05$, ** $p < .01$

Additional analyses as suggested by Preacher and Hayes (2004) and MacKinnon et al. (2002) were conducted in AMOS to confirm these results. Gender was entered as a covariate before analyses were conducted. A Sobel test, an asymptotic test of variance, yielded a significant indirect effect [3.88, p < .001], confirming that general self-efficacy mediated the relationship between negative self-statements and social anxiety. Bootstrapping, a process that utilizes data resampling, was also performed to account for the possibility of a skewed data sample (Preacher & Hayes, 2004; Preacher, Rucker, & Hayes, 2007). Results from this test also indicated a significant indirect effect [.17, p < .001]. Collectively, these results establish that general self-efficacy fully mediated the predicative relationship between negative self-statements and social anxiety in children and adolescents even after controlling for gender as a covariate. See Figure 3 for a pictorial depiction of the mediation model.
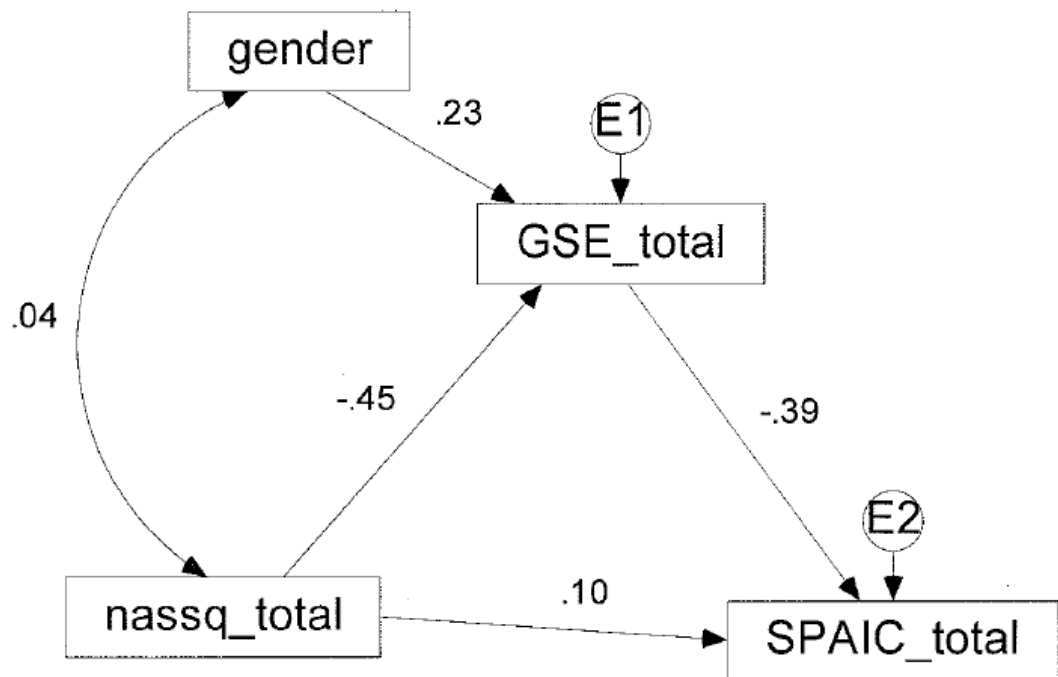

Figure 3: General Self-Efficacy as a Mediator

5.3.2 Model Two

Similarly, multiple regression procedures were conducted to examine Hypothesis 7 that social self-efficacy would fully mediate the relationship between negative self-statements and social anxiety. SEQ-SS-C scores and NASSQ scores were regressed onto SPAI-C scores such that gender was entered at Stage 1 and SEQ-SS-C scores and NASSQ scores were entered at Stage 2. Analyses revealed that when controlling for social self-efficacy, negative self-statements still accounted for a significant portion of the variance [R^2 = .14; $F(3, 122)$ = 6.84, p<.001; β = .21, p < .05] indicating that social self-efficacy did not fully mediate the relationship between negative self-statements and social anxiety. See Table 5 for results.

Table 5: Model Two Statistics

Mediation Regression Analyses

		Anxiety score	
	R^2	β	p
Step 1	.019		.121
Gender		-.139	.121
Step 2	.140**		.001
Negative Self-Statements`		.21*	.013
Social Self-Efficacy		-.28**	.002

Note: * p < .05, ** p < .01

Additional analyses were conducted in AMOS to confirm these results as well as test for an indirect effect. Gender was entered as a covariate for the model. A Sobel test yielded a significant indirect effect [2.17, p < .05], as did bootstrapping [.06, p < .05], indicating that social

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self-efficacy partially mediated the relationship between negative self-statements and social anxiety, but the relationship still remained significant. Thus, hypothesis seven was only partially supported. See Figure 4 for a pictorial depiction of the partial mediation model.
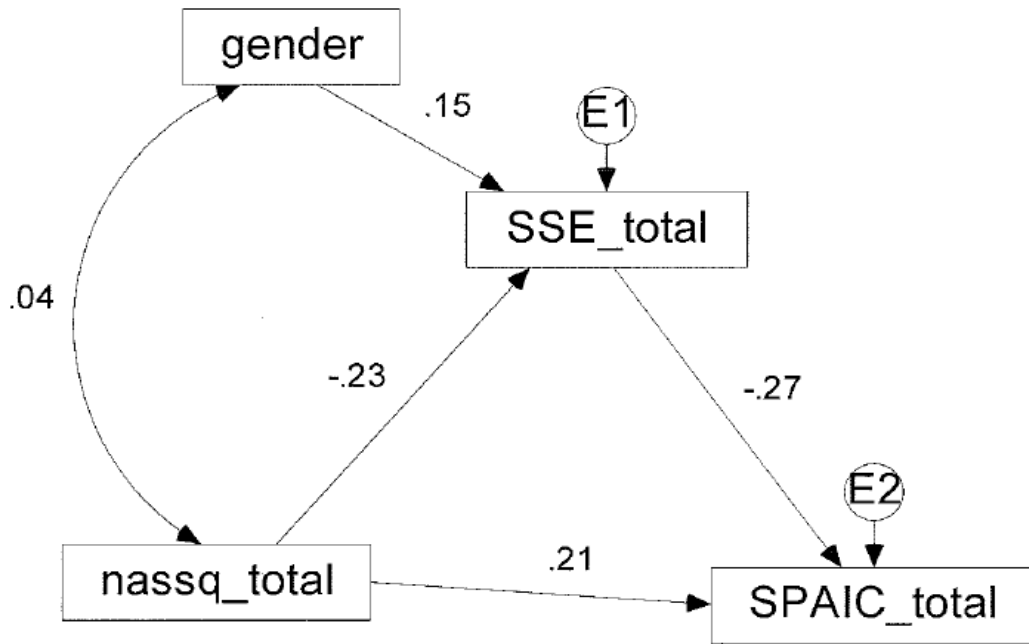
Figure 4: Social Self-Efficacy as a Mediator

5.4 Stage 3: Model Comparison

Because Hypothesis 7 was not fully supported, it was unnecessary to test statistically which model best fit the data (Hypothesis 8). The first mediation model provided a better fit for the data with the relationship between negative self-statements and social anxiety being fully mediated by general self-efficacy even after controlling for gender. The second model, with social self-efficacy as the mediator variable, only resulted in partial mediation and did not fit the data as well as the first model. Therefore, Hypothesis 8, that the mediational relationship would be better represented with social self-efficacy as the mediator variable than with general self-efficacy as the mediator variable was not supported.

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6. Discussion

The purpose of the present study was to examine the relationship among the variables of negative self-statements, self-efficacy, and social anxiety specifically by proposing two separate mediational models in which general and social self-efficacy respectively would mediate the relationship between negative self-statements and social anxiety. To establish the importance of each variable, each pair was first examined individually. As hypothesized, negative self-statements significantly predicted the level of social anxiety experienced with more negative self-statements leading to greater social anxiety. Both general self-efficacy and social self-efficacy significantly predicted the level of social anxiety experienced with more self-efficacy leading to less social anxiety. These findings replicated results from previous literature (Cieslak, Benight, & Lehman, 2008; Glass & Furlong, 1990; Hannesdóttir & Ollendick, 2007; Muris, 2002; Wichmann, Coplan, & Daniels, 2004). Additionally, significant relationships between negative self-statements and general self-efficacy as well as negative self-statements and social self-efficacy were established with the amount of negative self-statements predicting the amount of self-efficacy experienced. Results indicated that a greater amount of negative self-statements predicted less general and social self-efficacy. This novel finding significantly contributes to previous findings indicating that negative self-referent cognitions are detrimental to one's emotional and psychological well-being (Ronan, Kendall, & Rowe, 1994; Treadwell & Kendall, 1996).

After establishing individual relationships between the variables, the two proposed mediational models were examined. As predicted, general self-efficacy fully mediated the relationship between negative self-statements and social anxiety, indicating that negative self-referent cognitions affect social anxiety through the pathway of one's beliefs in his or her global

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abilities. Unexpectedly, social self-efficacy only partially mediated the relationship between negative self-statements and social anxiety, meaning that one's negative self-referent cognitions may partially affect his or her social anxiety through his beliefs in his or her social abilities, but negative cognitions have a separate, unique effect on one's social anxiety as well. It was previously hypothesized that the second mediational model (social self-efficacy as the mediator) would be a better explanation of the relationship between these variables than the first (general self-efficacy as the mediator) due to the strong connection between social self-efficacy and social anxiety, but results actually indicated the opposite. The path through general self-efficacy provided a better explanation for the relationship between negative self-statements and social anxiety than the path utilizing social self-efficacy. Specific reasoning for this relationship is unclear; however, it is possible that social self-efficacy, which has a strong but specific relationship to social anxiety, cannot account for the overarching importance of broad negative self-referent cognitions. For instance, Treadwell and Kendall (1996) demonstrated that negative self-statements significantly predicted levels of anxiety even after treatment had taken place, signifying that this type of negative cognition has a substantial impact on one's overall level of anxiety. General self-efficacy, a more global construct, may encompass these general negative cognitions within its broad boundaries whereas the more specific situational focus of social self-efficacy may not do so as effectively.

These findings, despite the unexpected nature, could have important treatment implications. As previously mentioned, the current cognitive method used in CBT, cognitive restructuring, challenges negative thoughts and negative self-evaluation with alternative interpretations (Chorpita, 2007; Kendall, 1996). The results of this study indicate that it may be beneficial to bolster one's general and social self-efficacy as a way of combating negative self-

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referent thoughts and evaluations as well. Specifically, because more negative self-statements are related to higher levels of social anxiety through the path of both general and social self-efficacy, increasing one's beliefs in his or her global abilities as well as his or her specific social abilities may lower negative self-referent cognitions thereby decreasing overall levels of social anxiety. Targeting general self-efficacy as well as the more situationally specific social self-efficacy may increase confidence, morale, and lead to better treatment outcomes which can be tracked with continual assessment of these constructs and their relationship with social anxiety throughout treatment.

6.1 Limitations and Future Recommendations

Like all research, this study is not without limitations. First, the sample consisted of children and adolescents primarily of Caucasian ethnicity (82.5%) and may be considered a convenience sample as recruitment from a single private school created a great disparity between the ethnic proportions of the sample and the ethnic proportions within the state in which the data was collected. This skewed ethnic distribution may make generalizability of the study findings to different ethnic groups more difficult. Also, 46% of the sample came from grade 6, which could have several implications as well. Social anxiety usually does not occur until the late childhood and early adolescent years (*DSM-IV-TR*; Davis et al., 2009; Van Roy, Kristensen, Groholt, & Clench-Aas, 2009). With a large portion of the sample being younger in age, the sample may not accurately reflect the age at which one typically sees increased social anxiety. Although as previously noted, data collection took place midway though the school year giving students ample time to adjust to a new setting, sixth grade is classified as a transition year for the sample school (the first year of the middle school setting), which could indicate more social challenges and external stressors than other years.

Another limitation may lie in the measures themselves. Each measure was carefully chosen because it had been previously demonstrated in the literature to be a valid and reliable measure of the construct it assesses. Despite those efforts, the broad nature of the NASSQ may be more closely related to the global focus of the SEQ-C than the restricted situational focus of the SEQ-SS-C exaggerating the effects of full versus partial mediation within the models and creating a method effect. Even though the close relation of the questionnaires in the first model as compared to the second model may have exaggerated the differences between the two models, the goodness of fit for each of the model as well as the replication of results with multiple tests suggests that a true difference does exist between general and social self-efficacy as the mediator variable.

Finally, although the variables were examined along a continuum similar to the trend in previous literature (Norton, Cox, Hewitt, & McLeod, 1997) and the sample had a potentially similar prevalence rate (11.1%) to the national rate reported by Kessler et al. (12.1%; 2005), only 14 of the 126 students met the clinical cutoff for social anxiety on the SPAI-C. Furthermore, the overall mean of social anxiety ($M = 8.95$) was lower than the mean of non-anxious children in the normative sample for the SPAI-C ($M = 13.74$) as found by Biedel, Turner, and Morris (1998). The few participants who would potentially meet the criteria for social anxiety as well as the potentially lower level of social anxiety in the overall sample may make the examination of variables specifically linked to the manifestation and presentation of social anxiety more challenging. Had the variables been examined exclusively in the context of social phobia, an even clearer depiction of the relationship between the variables may have been possible.

In conclusion, general self-efficacy fully mediated the relationship between negative self-statements and social anxiety meaning that one's beliefs about his or her global abilities affect

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his or her negative cognitions and therefore, level of social anxiety. Similarly, social self-efficacy partially mediated the same relationship, indicating that even beliefs about social situational abilities have an effect on negative cognitions and social anxiety. Future research should focus on replicating the predictive relationship between negative self-statements and self-efficacy as well as determining the value of targeting global and social ability beliefs in the treatment of social anxiety for children and adolescents.

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Appendix A. Demographic Questionnaire

Demographics

Your child's age:_____

Your child's gender: M   F

Your child's ethnicity: Caucasian   African American   Asian   Other_____

Number of Siblings: _____

Number of Family Members in the Household: _____

Household Income: _____

Please list any current psychiatric or psychological diagnoses that your child has:
_____
_____
_____

Please list any current medications that your child is taking:
_____
_____
_____

Please List any family history of mental illness:
_____
_____
_____

Appendix B. Informational Letter for Teachers

Date: xx/xx/xxxx

Dear Teacher,

   My name is Brittany Moree, and I am a doctoral student in the psychology program at Louisiana State University. As part of my Master's Thesis, I am looking at the relationship between children's thoughts and social anxiety. I would like to request the participation of your class in my study. Please send home the attached parent letters and consent forms. I will collect the consent forms from you on the day that I give the questionnaires. Children whose parents consented will be taken to a separate room to fill out the questionnaires so that I will not further disrupt your class period. Completion of this project will give me a better understanding of the development of social anxiety. I greatly appreciate your time and support in my thesis project.

Thank you in advance for your time and assistance.

Sincerely,

Brittany N. Moree
Doctoral Student; Clinical Psychology
Louisiana State University

Appendix C. Promotional Letter for Parents

Date: xx/xx/xxxx

Dear Parent or Guardian,

My name is Brittany Moree, and I am a doctoral student in the psychology program at Louisiana State University. For my Master's Thesis, I am interested in looking at how children's thoughts affect their worries. I would like to ask your permission for your child to be part of my project. If you agree, please sign the attached consent form, fill out the attached demographic questionnaire, and return it to school with your child. Details of the project are discussed in the consent form. Once I receive the consent form and the demographic questionnaire, I will also send home one questionnaire for you to complete and return in a postage-paid envelope provided by me. I greatly appreciate your time and support in my thesis project.

Thank you in advance for your help.

Sincerely,

Brittany N. Moree
Doctoral Student; Clinical Psychology
Louisiana State University

Appendix D. Parental Consent Form

PARENTAL CONSENT FORM

Project Title: The Relationship Between Self-Efficacy, Negative Self-Statements, and Social Anxiety in Children: A Mediation Model

Performance Site:
Physical Address: Psychological Services Center, LSU, 31 Johnston Hall, Baton Rouge, LA 70803.
Mailing Address: Psychological Services Center, 236 Audubon Hall, Baton Rouge, LA 70803

Investigator: The following investigators are available for questions Monday-Friday, 10:00 a.m.- 4:00 p.m.
>Dr. Thompson Davis III
>Psychology Department, LSU
>(225) 578-1494
>
>Brittany N. Moree
>Psychology Department, LSU
>(225) 578-1494

Purpose of the Study: The purpose of this research project is to examine the relationship between self-efficacy, negative self-statements, and social anxiety in children and adolescents ages 10 to 14.

Inclusion Criteria: Children and adolescents 10-14 years of age whose parents have given consent to participate in the study

Exclusion Criteria: Children who do not meet the age requirements or whose parents have not consented for participation; non-English speakers; and/or children who have moderate, severe, or profound intellectual disability, psychosis, or medical conditions that would prevent their ability to complete the study.

Maximum Number of Subjects: The maximum number of subjects will be 100.

Study Procedures/Description of the Study: Participants will be asked to complete questionnaires for the investigators. Parents will also be asked to complete a questionnaire and return it in a postmarked envelope to the Psychological Services Center at Louisiana State University.

Benefits: While no benefit is guaranteed from participation, individuals who meet clinical cutoffs on any social phobia measure will be provided with information about further evaluation and treatment options in the community.

Risks/Discomforts: No other risk or discomfort is anticipated other than those associated with completing questionnaires.

Right to Refuse: Participation is voluntary and a child (or adolescent) will become part of the study only if both child and parent agree to the child's participation. At any time, either the child or parent may withdraw from the study without penalty or loss of any benefit to which they might otherwise be entitled at that point.

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Privacy: Records with identifying information will be kept in a locked facility. Electronic data will be entered without identifying information. Summary results of the study may be published, but no names or identifying information will be included for publication. Participant identity will remain confidential unless disclosure is required by law (e.g., suspected or reported ongoing child abuse or neglect). I understand that the investigators are required by law to report any reasonable suspicions.

Withdrawal: Participants may withdraw from the study at any time. Parents wishing to withdraw should contact the principal investigator or co-investigators in writing as soon as this decision has been made.

Removal: Participants may be removed from the study without consent if they are believed to be a danger to themselves or others and/or if the investigators believe removal and assessment elsewhere would be in the best clinical interest of the participants. Removal may also occur if the investigators lose contact with a family after attempts to reach them.

Unforeseeable Risks: There may be unforeseeable risks to participants of this study as a result of participating, however, steps are taken to minimize any potential foreseeable risks and discomfort.

Study-related illness or injury: In case of medical emergency and in case further psychological attention is needed, we have listed resources below:

> Medical Services
> 911 (for emergencies)
>
> Mental Health Services
> 911 (for emergencies)
> Psychological Services Center, LSU, (225) 578-1494

Signatures:

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225)578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.

_____   _____
Parent/guardian Signature   Date

Reader of the consent form, please sign the statement below if the consent form was read to the parent because he/she is unable to read:
The parent/guardian has indicated to me that he/she is unable to read. I certify that I have read this consent form to the parent/guardian and explained that by completing the signature line above, he/she has agreed to participate and has given permission for the child to participate in the study.

_____   _____
Signature of Reader   Date

Appendix E. Child Assent Form

Child and Adolescent Assent Form

I, _____, agree to be in this study that looks at how children's thoughts about themselves are related to social worries. I will be asked to answer questions about any fears or worries that I may have, as well as questions about how I get along with others (like my friends and family), and I will do my best to answer these questions. I can decide to stop being in the study at any time without getting in trouble.

_____   _____   _____
Child/Adolescent Signature   Date   Age

_____   _____
Witness Signature*   Date

(*Witness must be present for the assent process, not just the signature by the minor.)

Appendix F. SPAIC Elevation Parent Notification Letter

Dear Parent,

As you may remember, on January 15th 2010, your child,

_____, participated in my research project on social

anxiety. While completing this study, it has come to my attention that your child had an elevated

score on one of the questionnaires (the Social Phobia and Anxiety Inventory for Children). This

means that your child may be experiencing problematic social anxiety, but does not necessarily

mean a disorder or serious problem exists. If you feel that your child is having difficulties with

anxiety and would like to receive more information about assessment and/or treatment options,

please contact the Psychological Services Center at Louisiana State University (578-1494).

Sincerely,

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Brittany N. Moree, B.S.
Graduate Clinician
Doctoral Student; Clinical Psychology
Louisiana State University

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Johnny L. Matson, Ph.D.   Thompson E. Davis III, Ph.D
Director of Clinical Training   Assistant Professor
Professor and Distinguished Research Master   Director, Psychological Services for Youth
Louisiana State University   Clinic (PSYC)
LA Licensed Psychologist #517   Department of Psychology
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Vita

Brittany Moree is a graduate student in the clinical psychology doctoral program at Louisiana State University. She obtained her Bachelor of Science degree in psychology at Clemson University where she completed her honors thesis examining social anxiety in young adults and graduated summa cum laude from the Calhoun Honors College. Her research interests include child anxiety, social phobia in children and adolescents, and the intersection of anxiety and autism in children and adolescents. She currently serves as the coordinator of Child and Adolescent Services at the Psychological Services Center at LSU and will become the coordinator of the child anxiety project under Dr. Thompson Davis III beginning in the summer of 2010.