Elementary Students' Test Anxiety in Relation to the Florida Comprehensive Assessment Test (FCAT)

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ELEMENTARY STUDENTS’ TEST ANXIETY IN RELATION TO THE FLORIDA COMPREHENSIVE ASSESSMENT TEST (FCAT)

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ABSTRACT

This study is designed to determine if elementary students experience test anxiety in relation to the Florida Comprehensive Assessment Test (FCAT). Forty-eight students were recruited from one 3rd, 4th, and 5th grade classroom at a high performing elementary school in the Leon County Public School System. The pre-test anxiety measure, the Children’s Test Anxiety Scale (CTAS), was given two weeks prior to the administration of the FCAT. The CTAS asks students how they feel when thinking about tests and measures three forms of anxiety responses relating to the student’s thoughts, autonomic responses, and off-task behaviors. The students were also given a post-test the week after the FCAT with questions about how they felt when taking the FCAT and used the same three forms of anxiety responses included on the CTAS. Results were compared by pre/post FCAT administration, grade, race, and gender.
CHAPTER ONE
INTRODUCTION

The most current education statistics available show that more than 48.5 million students were enrolled in the U.S. public school system during the 2003-2004 school year. Florida was one of the top 5 states with the highest enrollment numbers, with over 2 million public school students. In 2005, the number of students enrolled in Pre-K through Grade 8 was over 34 million, which was almost a million over the projected enrollment counts for that year (U.S. Department of Education, 2006). A recent estimate states that almost 33% of elementary school students exhibit test anxiety (Cizek & Burg, 2006), which results in a significant number of students being impacted by some level of anxiety in relation to testing.

Test anxiety has become even more of an important issue as the amount of testing and its consequences have increased for students in the U.S. (Cizek & Burg, 2006). The implementation of the No Child Left Behind Act (NCLB) in 2002 has mandated that every student be assessed annually in reading, mathematics, and science in grades 3-8 as well as pass an assessment once in high school before graduation (Cizek & Burg, 2006).

The Florida Comprehensive Assessment Test (FCAT) is Florida’s answer to the No Child Left Behind Act and is given annually to public school students in 3rd-11th grade. Similar forms of standardized testing have become widely used among public schools in the United States to measure student achievement (Lowe, et al., 2007).

Test anxiety has negative effects on learning and academic performance. Students who become anxious in testing situations do not achieve well on standardized achievement tests, leading to poor grades, retention, and eventual school dropout (Cizek & Burg, 2006; Lowe, et al., 2007). The statistics for 2005 show the current dropout rate at 9.4% of students (U.S. Department of Education, 2007). These negative effects can also lead to potentially higher amounts of test anxiety (Cizek & Burg, 2006) and impact the student’s current and future level of academic standing, degree achievement, entrance into college, and selection of occupation, with test anxious students pursuing careers that involve infrequent evaluation that may not challenge them mentally (Ergene, 2003).
Most literature on test anxiety has been conducted with students in colleges and universities, with a relatively small number of studies conducted with elementary, middle, and high school students (Ergene, 2003). Since many students with test anxiety may not graduate high school or become enrolled in a college or university for a number of reasons, studies on test anxiety should focus on younger students in the public school systems, especially since test anxiety has been found to impact student performance in as early as fourth grade (Hembree, 1988). Identifying the pervasiveness of test anxiety in elementary students and introducing test anxiety prevention programs in the lower grades would be beneficial to students (Ergene, 2003).

Purpose

This study was designed to fill a gap in the literature regarding test anxiety of elementary children in relation to the mandated Florida Comprehensive Assessment Test (FCAT). The purpose is to assess anxiety responses of elementary children in the areas of thoughts, autonomic reactions, and off-task behaviors before and after the FCAT administration.

Research Questions

The questions that are addressed in this study are:

1) Did 3rd, 4th, and 5th grade students’ exhibit general test anxiety prior to the FCAT, as evidenced by the Children’s Test Anxiety Scale (CTAS)?
2) Did elementary students’ levels of test anxiety change after taking the FCAT?
3) Will test anxiety increase across grade levels?
4) Were there differences in test anxiety by gender?
5) Were there differences in test anxiety by race?

Hypotheses

The null hypotheses that are examined in this study are:

H₁: Elementary students’ will not exhibit high levels of general test anxiety.
H₂: Elementary students’ will not exhibit high levels of test anxiety after taking the FCAT.
H₃: There will be no differences in anxiety by grade level, race, or gender.
H₄: There will be no correlation between levels of generalized test anxiety and FCAT test anxiety.
Definitions & Incidence of Test Anxiety

The American Heritage Dictionary defines the word test as a “procedure for critical evaluation of the presence, quality, or truth of something; a series of questions or problems designed to determine knowledge, intelligence, or ability; and a basis for evaluation of judgment” (Houghton Mifflin Company, 2001). A test can also be defined as any systematic sampling of a student’s knowledge, skill, or ability (Cizek & Burg, 2006).

Anxiety can be defined as an emotion based on an appraisal of a threat (Spielberger, 1972); a state of uneasiness, apprehension or an intense fear resulting from the anticipation of a threatening event (Houghton Mifflin Company, 2001) and an exaggerated, internal feeling of fear that a person experiences with dread or tension despite no real tangible threat existing (Cizek & Burg, 2006).

The concept of anxiety is viewed as resulting from state and/or trait anxiety. State anxiety is a transitory emotional state or condition that is characterized by subjective, consciously perceived feelings of tension, apprehension, nervousness, worry and by activation of the autonomic nervous system, which varies in intensity and fluctuates over time depending on the level of perceived threat (Schwarzer, et al., 1982; Spielberger, 1972). This form of anxiety is low in nonstressful situations or when a circumstance is perceived as not threatening (Spielberger, 1972). Most people with state anxiety only exhibit it in specific situations (Cizek & Burg, 2006).

Trait anxiety refers to relatively stable individual differences in anxiety proneness. Those high in trait anxiety see more situations as threatening than those low in trait anxiety and respond to those situations with greater levels of intensity (Schwarzer, et al., 1982; Spielberger, 1972). People high in trait anxiety are generally more anxious across varying contexts than those with state anxiety (Cizek & Burg, 2006). Those with test anxiety are more likely to be state anxious, although those high in trait anxiety tend to be more prone to test anxiety than those who are low in trait anxiety (Cizek & Burg, 2006).

Although a number of researchers have studied the concept of test anxiety, many of the theoretical definitions they use to define their research vary. Since test anxiety is
multidimensional in nature, no single theoretical perspective has been able to adequately account for its level of complexity (Lowe, et al., 2007). The generally agreed upon concept of test anxiety is a specific form of anxiety and has been defined as a set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure of an exam or similar evaluative situation (Cizek & Burg, 2006; Sieber et al., 1977; Zeidner, 1998). These responses are produced when thinking about or being in a testing or similar situation where a person is being evaluated.

When a person faces evaluative achievement-demanding situations, test anxiety can also be seen as an unpleasant state consisting of feelings of tension and apprehension, worrisome thoughts and activation of the autonomic nervous system (Spielberger, 1972). Test anxious students tend to view general evaluative situations as threatening. They demonstrate anxious behaviors when their intellectual, motivational and/or social capabilities are exceeded by the demands of the testing situation. They also perceive that their performance on the test will most likely be low (Cizek & Burg, 2006; Zeidner, 1998).

Effects of Test Anxiety

Test anxiety, when viewed as a form of state anxiety, is theorized to contain two components: a cognitive component of worry as well as a physical reaction called emotionality, which has recently been named physiological hyperarousal and linked with stress (Cizek & Burg, 2006; Lowe et al., 2007). When worrying, attention is directed inward to the self instead of to the task at hand, as exemplified by being diverted from performing well on a test due to concerns about the likelihood and consequences of evaluation and failure. Although test anxious students often spend more time studying for tests than their peers, they lack confidence in their ability level, feel inadequate, and see themselves as more susceptible to failure (Johnson, 2007). Students show worry when they think or verbalize negative or pessimistic expectations and are preoccupied before and/or during a test which leads to poor performance or failure. They also think or verbalize negative or pessimistic expectations (Cizek & Burg, 2006). Test anxiety can also be evidenced by a negative impact on student’s scores, especially when the test is administered in a stressful, evaluative condition (Wine, 1971).

The emotionality/physiological hyperarousal aspect of test anxiety is physical and leads an individual to experience feelings of tension, apprehension, nervousness and uneasiness, an
increased heart rate, sweating, shallow or rapid breathing, an upset stomach, and other symptoms (Cizek & Burg, 2006; Lowe et al., 2007; Schwarzer, et al., 1982). A student might exhibit this by nervousness, pacing, pencil-tapping, looking at the clock, sweating, fidgeting, crying, fainting, trembling, vomiting, and experiencing blurred vision, etc. (Cizek & Burg, 2006). A relationship has also been found between test anxiety and harmful intrapersonal and interpersonal behavior patterns (Johnson, 2007; Wine, 1971).

Students with high levels of test anxiety tend to have reactions based on threat perceptions, reduced feelings of self-efficacy, self-derogatory conditions, anticipatory failure attributions and more intense emotional reactions and arousal at the first signs of possible failure (Ergene, 2003). High text anxious students do not perform well academically with those who experience high levels of test anxiety being up to two years behind their peers in basic reading and math skills (Johnson, 2007). They also have lower test scores, higher rates of grade retention, and dropping out of school, which is associated with feelings of generalized anxiety, depression, suicide, hopelessness (Lowe & Lee, 2007) and become more prone to cheat or act in other inappropriate ways (Cizek & Burg, 2006). Some symptoms that teachers and parents may notice are eating and sleeping disturbances, toileting accidents, crying, illness, acting out, resistance to attending school, withdrawal at school or at home, lowered self-esteem and self-efficacy, pessimistic attitudes regarding school, poor grades, verbal expressions of concern, and a profound fear of failure (Cizek & Burg, 2006; Johnson, 2007). Students with test anxiety may also spend longer taking tests, leading to test fatigue (Johnson, 2007).

Low test anxious individuals are able to focus on task-relevant variables when performing tasks while a highly test anxious person focuses on self-evaluative, self-deprecatory thinking, and the perception of their autonomic responses. When these thoughts are prevalent, the individual cannot properly divide their attention between these internal cues and the cues that would be relevant to the task (Wine, 1971). This makes less attention available for external stimuli such as the testing situation. On research using test anxiety scales, those who scored high in anxiety described themselves in negative self-devaluing terms (Wine, 1971) and also felt social derogation, the fear of a negative reaction of someone significant associated with failing tests (Lowe & Lee, 2007). They also typically experience lower-self esteem, self-acceptance, and self-control than their peers and are more likely to have an external locus of control (Johnson, 2007). Although these thought processes in anxious persons have been proven during the
pressure of a testing situation, it is hard to determine if these tendencies are only brought about in testing situations (Wine, 1971).

Test anxiety is also an anticipated stressor. Anxiety and the coping process begin with the anticipation of a stressful event, carries through the stressful event, and may even last until after the event, while awaiting feedback or dealing with the consequences of the level of performance (Raffety, Smith, & Ptacek, 1997). There is a large amount of research showing that high levels of anxiety negatively impact a student well before the testing situation by impacting their ability to profit from teachers instruction (Tobias, 1979).

Although these symptoms of test anxiety can be viewed as negative for some, they have a positive effect on others. If the testing situation is viewed as challenging instead of threatening, a greater sense of motivation is usually experienced. This has a positive effect on performance and is termed the “facilitative effect” of anxiety (Cizek & Burg, 2006).

It has been recently estimated that almost 33% of elementary school students experience some form of test anxiety. Although large epidemiological studies are lacking in the research, enough data show that it is found in a substantial number of students that it should be taken seriously (Cizek & Burg, 2006; Lowe & Lee, 2007). Although varying percentages predict the numbers of test anxious students one might find in a typical classroom of 20-25 children, the lowest percentages estimate that only 1-2 students would be affected by test anxiety. More moderate percentages estimate 4-5 students’ would be affected and in a high-end estimate, about 8-10 students would be affected by test anxiety (Cizek & Burg, 2006). Since researchers tend to use varying definitions of test anxiety, a definitive estimate has been hard to settle on. Also, many research studies combine this concept with other similar issues relating to their specific area of research. Some studies use different methodologies and some test other forms of anxieties. Also, school-aged children who exhibit test anxiety may also exhibit symptoms of other phobias or disorders (Cizek & Burg, 2006) which may be the main focus within these diverse test anxiety research studies.

Sources of Test Anxiety

Although not all possible variables relating to test anxiety have been empirically explored, some have been documented, specifically age, sex, ethnicity, socioeconomic status (SES), family environment, self-esteem, subject matter and cross-cultural issues. The degree of
teacher manifested anxiety has shown the strongest correlation to date between student test anxiety and any other variable (Cizek & Burg, 2006). Test anxiety has been found to be higher in students with: low to average ability levels, low GPA, poor study skills, low self-esteem, African American or Hispanic ethnicity (in early grades), recent move to a new school, perception that a test will be difficult, teachers anxious about testing, and those who are female (Cizek & Burg, 2006; Johnson, 2007). It may be that females are more willing to report test anxiety than males (Cizek & Burg, 2006).

Anxiety might increase as students advance to higher grade levels due to increased pressure and demands from parents and teachers for high academic accomplishment, learning tasks and materials becoming harder as students get older which might lower their expectations of succeeding, a negative cumulative effect of students’ past failures and poor performances, and a decrease in students’ levels of defensiveness as they age. Older students are more willing to report anxiety levels. (Cizek & Burg, 2006; Zeidner, 1998).

Zohar (1998) states that though research shows that individual differences exist regarding test anxiety, there have not been any studies conducted to see if the same individual would differ in their level of test anxiety. A theoretical framework was studied on within-subject variations in test anxiety 118 college aged students who were taking three examinations during a Scholastic Aptitude Test (SAT) preparation class. The expectation was that anxiety and coping levels would vary by each student’s appraisal of the test (Zohar, 1998). The student’s level of self-efficacy and expected success level was measured three days before the SAT’s were taken. The test anxiety level varied with each exam as a function of each student’s outlook and situational factors (Zohar, 1998). It has also been shown the anxiety might be higher depending on what a student might think about the subject being tested or the student’s achievement level in certain subject areas (Cizek & Burg, 2006).

Standardized achievement testing in educational settings is considered a high stakes assessment given that the consequences of the scores may be used to determine districts’ funding, teachers’ promotions, and students’ progress. In an article by Paris et al., (1991) researchers asked student’s views about standardized achievement tests and found these assessments were affected by the student’s self-perceptions, their levels of motivation, and their strategies in testing situations (Paris, et al., 1991).
Teachers report a significant amount of pressure has been placed on them to raise the test scores of students (Cizek & Burg, 2006) and they can inadvertently place a high amount of stress on students. Test anxiety from a family environment can either result from a parent’s high expectations of the child in the early years of education, or it can result due to poor family relationships.

Three main categories are used to classify why some students report test anxiety: 1) they do not have appropriate test-study and test-taking strategies and are aware that they are not well prepared, 2) they use appropriate test preparation strategies, but then become distracted during testing, or 3) they believe that they have appropriately prepared for the test but then perform poorly are not able to pinpoint why (Cizek & Burg, 2006).

Since the 1970’s, research on cognitive, instructional, educational, and developmental psychology shows that the motivation and purpose of the learner, the content, and the setting of the task all strongly effect how someone learns. Performance on traditional tests cannot be considered accurate or to be completely indicative of a student’s knowledge and academic achievement. Also, there can be a large amount of variability in individual student performance due to each teacher’s level of test preparation and administration.

**History of Test Anxiety in Research**

The field of test anxiety research has been estimated to be around 50 years old (Cizek & Burg, 2006). The concept of test anxiety was first examined in 1914, with the first instruments to measure test anxiety developed in the early 1950’s. Test anxiety was first viewed as one-dimensional in nature due to being defined in motivational terms and was seen as a form of general anxiety exhibited in testing situations. Students with test anxiety were seen as more likely to have incorrect responses on tests, i.e., a poor test performance (Lowe et al., 2007).

The first theory on test anxiety, the Test Anxiety Theory by Mandler and Sarason (1952), made general predictions regarding situational stress variables. It stated that a stimulus situation (such as an indication that the person is being judged or a statement of expected performance) could lead to inferior performance and task-irrelevant responses in test/achievement, anxiety-prone individuals. It also asserted that those without these tendencies would improve their performance due to a higher level of drive based on the stimulus situation (Mandler & Sarason, 1952).
Mandler and Sarason developed the first instrument to assess anxiety in adults in 1952 based on the Test Anxiety Theory called the Test Anxiety Questionnaire (TAQ) (Cizek & Burg, 2006; Stober & Pekrun, 2004). The TAQ consisted of 37 questions and was developed to measure the extent to which test takers were engaging in actions that were either task-relevant (helpful in completing the task) or task-irrelevant (hindering successful completion of the task) (Cizek & Burg, 2006). This was the first time test anxiety began to be recognized as a multidimensional construct.

In 1966, Mandler and Watson examined subjects’ thoughts in relation to test anxiety. Subjects completed the TAQ and were divided into low and high test anxious groups. Subjects from both groups were asked on a posttest “How often during the testing did you find yourself thinking how well, or how badly, you seemed to be doing?” The high test anxious subjects demonstrated a significantly greater number of these thoughts than low test anxious subjects (Wine, 1979).

The Test Anxiety Scale for Children (TASC) was developed in 1958 by Sarason, Davidson, Lighthall, Waite, and Ruebush (1960) and to this day has been the most widely used self-report instrument for measuring test anxiety in children. It is a verbally administered test appropriate for students in first through sixth grade that conceptualizes test anxiety in a single dimension and is measured by 30 statements. If the student selects true, they believe the statement applies to them; if they select false, then they do not believe the statement applies to them. The TASC was first used with educational researchers to examine the effects of evaluative anxiety on learning and performance (Sieber, et al., 1977). In one of the first studies using the TASC, anxiety and IQ in elementary school aged children were measured. A decrease in IQ was found following an increase in the anxiety level and once the anxiety was reduced, the IQ scores went back up (Sarason et al., 1960; Sieber et al., 1977).

Some conceptual changes in relation to test anxiety began occurring over the 60’s and early 70’s. Anxiety was now viewed as either a temporary state of mind or as a basic personality trait and a distinction developed between the two basic dimensions of test anxiety: worry and emotionality (Stober & Pekrun, 2004). The view of test anxiety at this time shifted further from more of a behavioral to a cognitive orientation (Lowe, et al., 2007). Other theoretical development and research on test anxiety in the 1960’s dealt with concerns regarding student underachievement and its effects on student education, although the amount of research is
limited since most research and development during this time was focused on compensatory education (Cizek & Burg, 2006).

In an effort to test the TASC by determining if children were distorting their reports of anxiety, an eleven item Lie Scale for Children (LSC) was developed to accompany the TASC (Eaton, 1980). The LSC contains questions with anxiety occurrences assumed to be universal for children. The items are worded so that each “no” response is scored as being a defensive or lie response. The anxious scores on the TASC and the lie scores are summed to make the LSC score.

The sum of the TASC and lie scores produced a negative correlation, showing a causal relationship between defensiveness and anxiety. Eaton (1980) tried to determine if this correlation was due to a causal relationship or a spurious result since both scales were measuring the same construct. Cross-lagged correlations determined that the TASC and LSC are not measuring the same construct and that there is a causal relationship, where the child’s level of defensiveness influenced their test anxiety scores (Eaton, 1980). It was concluded that when interpreting the TASC scores, LSC scores should also be measured since the LSC scores were found to be an important influence in the children’s TASC scores (Eaton, 1980).

Although in published research the TASC has been the most widely administered test anxiety measure for use with children, new comprehensive test anxiety measures need to be developed that will incorporate earlier test anxiety models, take into account the multidimensional nature of the construct, and be based on current research (Zeidner, 1998). Wren and Benson (2004) mention three concerns regarding the TASC’s validity and show why it is important to develop a more current instrument of test anxiety. First, the TASC has outdated and complex wording for children on some of the items. This can be seen in that almost two-thirds of the questions read to students had 20 or more words. Tests need to be easy for all children to read and to understand the questions that they are being asked. Secondly, the TASC is outdated due to theoretical and conceptual advances, and thirdly, there are definition and dimensionality issues with the TASC (Wren & Benson, 2004). Today’s classrooms are also more diverse in the cultures of students than compared to the 1960’s and a new inventory is needed to reflect this diversity.

The cognitive-attentional model of test anxiety (Wine, 1971) states that anxiety divides attention between task-relevant and task-irrelevant thoughts which lead to disturbed recall of
prior learning (Lowe et al., 2007). Once the task-irrelevant thoughts interfere with the ability to focus on the test, performance on the test is lowered. The Reaction to Tests measure was developed by Sarason in 1978 and was the first measure designed to examine the four different cognitive and emotional components of test anxiety: worry, test-irrelevant thought, tension, and bodily reactions.

Tobias (1979) developed a research model based on the general negative effects of anxiety on learning from instruction and hypothesized that there are three points when anxiety has the largest effect on students learning from teachers’ instruction. The first point is during preprocessing, where anxiety can impact learning by interfering with the level of input that a student can register and understand. The student divides attention between the task, somatic concerns and negative self-references. The less the student is able to process, the less can be later recalled for further processing. One suggestion to reduce this type of negative impact of anxiety is to be able to hear or see the instruction again, such as by video or audio playback.

Anxiety will also impact instruction during the processing of input stage where the level of difficulty, reliance on memory, and organization of the task will likely have the strongest effect on learning (Tobias, 1979). Anxious students perform poorer on difficult material than less anxious students, so a reduction in the level of difficulty will be effective in lowering poor performance. Instruction which requires students to rely on short or intermediate term memory is harder for anxious students than when they need to recall long term memory information. Achievement will improve if the amount of memory recall required is reduced and if prior instructional material is available for reference. The third way to reduce the negative effects of student anxiety relates to the organization of the task. Studies show that well-organized material helps anxious students achieve a better organization of input (Tobias, 1979).

The last stage where anxiety impacts instruction is called the postprocessing effect. When retrieving content that has been previously mastered, there is interference in recalling that material, such as in posttest situations (Tobias, 1979). The postprocessing form of interference is seen in students who say that they have studied diligently, but seem to “freeze up” when taking the test (Tobias, 1979). Although these three points have been consistent with prior studies, more research into these predictions would help clarify the interaction of anxiety due to instructional methods.
Advances in the 70’s and 80’s focused more on cognitive models of test anxiety and how it affects attention and cognitive performance and the applications derived from that research (Stöber & Pekrun, 2004). The study and test-taking skills deficit paradigm became popular in research from the early 80’s. It found that students who have poor studying and test taking skills have difficulty encoding and organizing material taught in class. Due to this inability they do not perform well on tests which leads to test anxiety. (Lowe, et al., 2007).

Research in the 90’s of the self-regulation, self-worth, and transactional process models has formed the next phase of test anxiety conceptualization. In the self-regulation model human behaviors are seen as being continuously matched to achieve a desired goal. Test anxiety occurs when students feel self-doubt about their ability to perform on a test and engage in self-depreciating thoughts which lead them to misinterpret information and not focus on relevant cues, leading to poor test performance (Zeidner, 1998).

The self-worth model implies that test anxious students are unable to achieve self-worth or maintain their level of competency due to multiple academic failures. Test anxiety is seen as a perceived intellectual incompetency in defense to protect oneself from low self-evaluation (Lowe et al., 2007). The transactional process model shows the relationship between a student’s personality traits and a specific evaluative situation. Test-anxious students experience higher levels of trait anxiety in testing situations, with certain situations being more threatening. This results in higher degrees of state anxiety with symptoms of worry and emotionality (Lowe et al., 2007; Zeidner, 1998). This is the time frame when emotionality in relation to test anxiety began to be called physiological hyperarousal (Lowe et al., 2007).

In the past number of years, not many articles have been written on the direct concept of test anxiety due to articles branching off into other stressors relating to testing anxiety, i.e. performance anxiety. Broader constructs are also being examined with different wording and phrases like ‘examination stress’ or ‘competitive anxiety’ (Stöber & Pekrun, 2004). The basic construct of test anxiety is still being used in personality, social psychology and applied psychology research, especially when looking at individual’s performance and achievement issues. In educational settings, more detailed forms of test anxiety have also been studied looking at educational issues, such as anxiety relating to instructional methods (Tobias, 1979). Another reason for the phrase ‘test anxiety’ not being as prevalent in current literature is that other concepts, like the fear of failure, may be almost indistinguishable from that of test anxiety.
The research conducted on test anxiety provided more than 1,000 scientific publications since 1952, although test anxiety research has declined recently (Ziedner, 1998). Approximately 30 studies in the 50’s focus on test anxiety, 150 in the 60’s and 271 in the 70’s, and only a small amount in the 80’s and 90’s (Cizek, 2006; Hembree, 1988). It has been estimated that over two dozen checklists, surveys, questionnaires, and other instruments have been developed over the years to measure test anxiety (Cizek & Burg, 2006). There have only been three measures for use with elementary aged students, the TASC and two current measures valid for use with today’s students that are discussed below, the Test Anxiety Inventory for Children and Adolescents (TAICA) and the Children’s Test Anxiety Scale (CTAS).

**Current Test Anxiety Measures for use with Children**

*The Test Anxiety Inventory for Children and Adolescents (TAICA)*

The Test Anxiety Inventory for Children and Adolescents (TAICA) was developed recently since the only prior measure of test anxiety of children and adolescents had been developed in the 1960’s. The concept of test anxiety was narrowly defined on the TASC. It was not multidimensional in nature and measured symptoms during a test, not before or after the test (Lowe & Lee, 2007). Since test anxiety is now viewed as a multidimensional concept and there has not been a theory fully explaining it to date, Lowe, et al., (2007) developed a new test anxiety model. This new model is based primarily on the biopsychosocial model, which views psychological, social, and biological processes as influencing an individual’s health. This new model also incorporates the proximal and distal manipulations that social systems have on the development of an individual’s test anxiety (Lowe, et al., 2007).

The variables that influence if a child or adolescent perceives an upcoming test as a threat include child specific variances of intelligence, social-emotional functioning, trait anxiety, study skills and habits, academic ability, and academic self-efficacy (Lowe, et al., 2007). The degree that the test is perceived as being a threat influences the student’s level of test anxiety. Test anxiety impacts an individual’s behaviors (task relevant vs. task irrelevant behavior). It also impacts cognitions consisting of worry; cognitive obstruction, which is the degree to which an individual can organize thoughts and concentrate on the test; and fear of social humiliation. Further physiological reactions are impacted; autonomic and nervous system arousal. Test
anxiety also influences the student’s immediate appraisal of how they are performing on the test, which if seen as inadequate will increase anxiety. This negatively impacts the final score on the test which has been shown to be related to academic self-efficacy beliefs (Lowe, et al., 2007).

The TAICA is based on this working model of test anxiety and is a multidimensional self-report measure consisting of 45 items to assess test anxiety in children and adolescents in 4th through 12th grade. It is made up of a performance enhancement/facilitation anxiety scale, a lie scale, and four test anxiety subscales consisting of cognitive obstruction/inattention, physiological hyperarousal, social humiliation, and worry. An overall test anxiety scale is computed as an additional measure of debilitating test anxiety which is derived from the raw scores of the four test anxiety subscales. The items found in the TAICA were developed from a review of the test anxiety literature, the clinical and school experience of the researchers, and the researchers knowledge in test anxiety measure development (Lowe & Lee, 2007).

In the first study to examine the TAICA’s reliability, Lowe et al. (2007) examined a sample of 206 children and adolescent volunteers in grades 4-12. To examine the psychometric properties of the TAICA each subject filled out two packets of previously validated and reliable tests on each visit ranging from behavior and personality measures to anxiety and test anxiety measures (one of which was the TAICA) for two sessions within a 1-3 week period (Lowe, et al., 2007). The results showed that the TAICA has a strong to very strong internal consistency, reliability, and temporal stability. Moderate to strong correlations were found between the TAICA and other previously validated measures of test anxiety. A limitation of this research was that this study was not representative of minority and economically disadvantaged students in the nation’s school system. Future studies will need to address this further and need to analyze the construct validity, internal structure, and the external relations among constructs of the TAICA scores (Lowe et al., 2007).

Another study which looked into the factor structure of the TAICA across gender (Lowe & Lee, 2007) used 696 students in 4th through 12th grades, 391 of which were female and 305 were male. Over a collection period of two years, all students were given the measure to complete while in a school setting. Female students scored significantly higher than male students on the Total Test Anxiety scale of the TAICA and the scores computed from the four debilitating test anxiety subscales. Due to a negligible effect size, the male students scored significantly higher on the TAICA lie scale and no gender differences were found on the
Performance Enhancement/Facilitation Anxiety scale (Lowe & Lee, 2007). The findings show that facilitating test anxiety may vary by age, the TAICA scores were similar across gender, and support was provided for the TAICA construct validity. Additional data need to be collected in the future to examine the relationship of TAICA scores in regard to age, gender, ethnicity, socioeconomic status, etc. Studies have shown that students from lower socioeconomic backgrounds report higher levels of test anxiety than those from higher socioeconomic backgrounds (Hembree, 1988; Lowe & Lee, 2007).

The TAICA will not be used in the current study since this measure has been recently developed, a limited amount of information has been found in regard to the psychometric properties on student scores of the TAICA, only a few studies exist regarding the measure’s validity, and the TAICA is not currently available for public use. Also, since the data have not been shown to be valid for use with minority and economically disadvantaged students, the following measure, the Children’s Test Anxiety Scale (CTAS), will be used in the current study.

**Children’s Test Anxiety Scale (CTAS)**

Standardized testing, which is any uniform system of gathering information that is developed, administered, and scored under controlled conditions (Cizek & Burg, 2006), has become increasingly more common for public school children of today in the United States. In order to hold schools accountable for their students’ achievement, the federal legislation of the No Child Left Behind Act of 2001 mandates that a minimum of 95% of all children in each grade level will be tested each year in grades 3-8 and at least once during the grades of 10-12, and test scores for all students must improve every year so that no child is performing below grade level by 2013 (Wren & Benson, 2004). This increase in standardized testing will most likely lead to higher test anxiety in students. Once students have become anxious regarding testing, the achievement scores of the students might be negatively influenced, which in turn will impact the tests validity. Since such high stakes are being placed on these test scores, it is important to determine if test anxiety does negatively impact the students required to take these standardized achievement tests.

In response to these concerns, Wren and Benson (2004) directly address the importance of having a recent, valid, and reliable self-report instrument in order to measure the test anxiety construct in children from varying ethnicities. The Children’s Test Anxiety Scale (CTAS) was
developed and validated for use in measuring the current construct of test anxiety for students in grades 3 through 6, which is equivalent to children in the 8-12 age range. Wren and Benson (2004) focused on this age group since a meta-analysis of test anxiety articles by Hembree (1988) found that test anxiety noticeably increased in grades 3-5 and began to affect student’s performance from approximately the fourth grade on, indicating a conditioned response leading to fear of evaluative situations (Johnson, 2007). Also, most self report measures for children tended to be written at the third grade reading level to allow students to complete the instrument with minimal assistance and most standardized testing in the United States starts in third grade (Wren & Benson, 2004).

The Children’s Test Anxiety Scale (CTAS) is based on three interrelated components found in recent literature regarding children’s test anxiety manifestation: thoughts, autonomic reactions, and off-task behaviors. The CTAS is a 30 item self report measure that has been validated for use with children in third through sixth grade that asks questions related to the components of thoughts, autonomic reactions, and off-task behaviors with four response choices in a Likert scale format.

The first phase in the development of the CTAS required defining the theoretical domains of children’s test anxiety. It had been previously determined that test anxiety is situation specific and manifests during formal evaluative situations when an unpleasant emotional state is experienced. The theoretical definition of test anxiety in relation to the CTAS consists of the three interrelated components of thoughts, autonomic reactions, and off-task behaviors (Wren & Benson, 2004).

In the second phase of development, an open-ended questionnaire was administered as an optional writing assignment to 218 elementary school students in order to find words and language used by children referring to test anxiety (Wren & Benson, 2004). After collecting the responses, the researchers reviewed them, organized a preliminary tryout of items to place on the instrument, and performed a final edit of the items. The number of items initially consisted of 107 written questions that reflected the three dimensions of test anxiety (thoughts, autonomic reactions, and off-task behaviors). All items were also determined to be best written in the first person. The chosen response format determined for the CTAS was a Likert scale, with four response options of 1= almost never, 2= some of the time, 3= most of the time, and 4= almost always.
An eight member public school teacher panel, all of whom had at least 5 years of teaching experience, judged the questions; two teachers were used at each grade of 3rd, 4th, 5th, and 6th. A reading specialist also analyzed the reading level of all items and discarded the words and phrases students would likely not be able to comprehend. The researchers then used the information from both the teacher’s panel and the reading specialist in order to determine which items should stay, be revised, or be thrown out. The final pool of questions was then dropped to a number of 50 which contained 23 items related to thoughts, 14 items related to autonomic reactions, and 13 items related to off-task behaviors (Wren & Benson, 2004).

The third phase of developing the CTAS was the quantitative evaluation phase which had 3 purposes. The researchers obtained data to estimate the internal consistency of the new scale and subscales, obtained a preliminary indication of the plausibility of the three-factor structure proposed for children’s test anxiety and how well the questions worked with the theoretical domain, and assessed the relationship among the factors (Wren & Benson, 2004). The 50 item scale was tested on a sample of 230 3rd to 6th graders during normal school hours. The correlations for each item ranged from 0.22 to 0.71 within their subscales of gender, race, and grade level. All questions with less than a 0.20 correlation with their subscale were discarded, which left 9 items related to autonomic reactions subscale, 8 items on the off-task behaviors subscale, and 13 items on the thoughts subscale. The reliability of the 30-item CTAS was 0.92, with the subscales ranging from 0.78 to 0.89 (Wren & Benson, 2004). The fourth phase was validating the CTAS, which was done through giving the 30-item scale to different samples of students in the 3rd to 6th grades.

The scoring of the CTAS can be obtained by summing the Likert scale responses of each student for each of the 30 total items as well as for each subscale of thoughts, autonomic reactions, and off-task behaviors. The four Likert scale response options are 1-almost never, 2-some of the time, 3-most of the time, and 4-almost always. The lowest total generalized test anxiety score possible would be 30, a low to mid-range score would range from 31-60, a mid to high-range score would range from 61-90, and the highest possible score would be 120. In order to examine levels of generalized test anxiety on each of the three subscales, scores can be added for thoughts, with scores ranging between 13-52, autonomic reactions, with scores ranging between 8-32, and off-task behaviors, with scores ranging between 9-36. Each students subscale score will be divided by the number of questions possible for each subscale to get a mean
response and the total score will be divided by 30 in order to find a mean score of generalized test anxiety for each student. The scores will range from a 1.0-4.0, i.e., a student with a 2.83 mean total CTAS score, would evidence general test anxiety responses between some of the time and most of the time.

Test Anxiety Reduction Research

One of the most prevalent concerns in research relating to test anxiety has been reduction of anxiety (Ergene, 2003), although research has shown that most students do not get referred to or voluntarily attend test anxiety reduction programs even if they are available. Research and development including test anxiety reduction strategies in educational instructional material between educational, clinical, and counseling psychologists would be worthwhile for students (Tobias, 1979).

Five interventions for reducing test anxiety have been found in the research: behavioral, cognitive, cognitive-behavioral, study skills, and test-taking skills (Cizek & Burg, 2006). Behavioral approaches focus on the student’s emotionality, cognitive approaches focus on worry, cognitive-behavioral approaches focus on the combination of worry and emotionality, study skill approaches focus on a student’s knowledge and skills deficit, and test-taking approaches focus on the student’s poor test taking skills (Cizek & Burg, 2006). The most effective interventions appear to be from a combination of cognitive and behavioral treatments with skill focused approaches (Cizek & Burg, 2006; Ergene, 2003; Hembree, 1988).

In a study by Kalechstein, et al., (1988) it is suggested that the cognitive and emotional components of test anxiety are highly related. Important variables that may be behind low performance on tests are considered to be test-wiseness (a subject’s capacity to utilize the characteristics and formats of the test and/or test-taking situation to receive a high score), test anxiety, and locus of control (whether someone believes that reinforcements are contingent on his/her own behavior) (Kalechstein, Hocevar, & Kalechstein, 1988). Those with internal locus of control believe that the consequences of their actions are due to their behavior while external locus of control individuals view the consequences of their actions as being controlled by fate or luck rather than by their own actions. This study had three hypotheses; that children who received task taking strategies will show lower levels of test anxiety, children who received training in test taking strategies will demonstrate a higher locus of control on post-test measures,
and that children that receive test-wiseness training will have higher standardized reading test scores than those who did not in achievement measures (Kalechstein, Hocevar, & Kalechstein, 1988).

The test-wiseness training was comprised of five sessions and significantly affected scores on the reading comprehension posttest, but not on a vocabulary posttest. In this test-wiseness training the children were taught to follow directions, use time wisely, and to guess an appropriate answer. These children all had a significantly higher internal locus of control on the post-test measure, but these results did not show up again once the delayed post-test was given. While this training did influence the level of test-irrelevant thinking, which is seen as a directly cognitive measure, it had no effect on global test anxiety, bodily reactions, tension and worry. This is not surprising since these are major parts of the large physiological component of test anxiety seen in the Wren & Benson (2004) study.

Another form of reducing anxiety in a learning environment is a study on memory support effects on anxiety. Stieber, Kameya, and Paulson (1970) noted that a program has not been developed to minimize the adverse effects of anxiety on learning environments. In previous research, the effect of anxiety when using memory support has not been studied. The authors attributed this to two rationales: the means available to reduce anxiety (behavior therapy, removing threatening cues, and pharmacological treatments) are not appropriate for improving school performance and there are unresolved issues in the way test anxiety is defined and measured (Stieber, et al, 1970). Stieber, Kameya, and Paulson (1970) observed the effects of test anxiety on children’s memory processes as measured by the Test Anxiety Scale for Children (TASC) in problem solving and the extent in which memory support reduced the effects of test anxiety. They observed children’s memory errors and performance errors as a function of test anxiety and memory support (such as a diagram or notes available, etc.).

A highly anxious person is not careful or accurate in problem solving when necessary information is not available and organized in an external format (Stieber et al, 1970). In such situations, the anxious person seeks less information and more rapidly makes a decision. The hypothesis in this study is that information has to be remembered before a correct strategy can be formulated. Highly anxious persons make more wrong choices, commit more memory errors, and less often catch those errors before committing to their answers than a low anxious person.
When provided with memory support this difference in high and low anxious persons should be reduced (Stieber et al., 1970).

In the first experiment, twenty fifth and sixth grade girls and boys were chosen from among 170 children in a middle class elementary school who had previously taken a modified version of the TASC a few weeks earlier. Those who scored in the highest and lowest quartile of the TASC were selected and then paired with a same gender subject with similar IQ scores until 10 pairs of boys and girls were selected. For both the girl and boy groups, the low anxious pairs were split into half receiving a memory support condition and half receiving a non-memory support condition and the high anxious pairs were split in the same manner. A marble puzzle was performed by all subjects, although in one version of the puzzle, no memory support was provided and when an error was made the subject had to remember the characteristics of the wrong moves taken. In the memory support condition, the subject was allowed to start over again on another puzzle board and reference the board with the error in order to not make the same mistake again. All subjects were able to make correct solutions within 20 minutes. (Stieber et al., 1970)

In the second experiment, 48 boys and 48 girls were chosen from fifth and sixth grade classes in a middle class elementary school. These subjects were chosen from 379 children who completed the modified version of the TASC a few weeks earlier. Twenty-four subjects equally divided by sex were chosen with low and high anxiety and were placed into supported or not supported memory level groups. Materials consisted of a deck of cards containing all combinations of three dimensions in order to match cards by size (big and small), shape (triangle and arrow), and color (red and black). Practice problems were given and were followed by the concept-learning experiment. Two experimental groups were used. The first was given a memory support condition in which the examples remained exposed for reference and the other group had each example removed before the next problem to be solved. Subjects who gave four correct matching answers in a row had then completed the experiment.

The results of this experiment supported the hypothesis that test anxious student’s had a disrupted short term memory function during problem solving and that the memory support conditions diminished the difference between the high and low anxious test groups (Stieber et al., 1970). Although it is obvious that short term memory is disrupted by anxiety, it is not clear how this occurs. It could be that anxious children experience frequent disruptions due to task
irrelevant thinking. Anxiety could become a source of input while working on problems and may disrupt the subjects’ memory organization or may overload short term memory’s capability to function correctly (Stieber et al, 1970). It is also possible that the level of anxiety is so high that it interferes in the lower level of short term memory functioning. Based on the results of this study, if high anxious individuals had access to external memory support, then anxiety might become reduced. Although this could depend on one’s locus of control, with those having high levels of internal locus of control feeling more anxiety due to performance.

The purpose of a meta-analysis by Ergene (2003) was to determine effectiveness of test anxiety reduction programs and to find out if the effectiveness is related to particular interventions, studies, and subject characteristics. Fifty-six published and unpublished studies were used in this meta-analysis that dealt with test anxiety reduction programs. Test anxiety reduction research articles were categorized into eight different intervention approaches: behavioral, cognitive, cognitive-behavioral, skill-focused, behavioral and skill-focused, cognitive and skill focused, cognitive, behavioral and skill-focused combined and all other techniques. The two that were the most effective in reducing test anxiety were behavioral and cognitive approaches. Cognitive and behavioral techniques focus on relieving the symptoms of test anxiety that interfere with an individual’s ability to perform well or be comfortable in testing situations (Ergene, 2003).

Another finding revealed that combined therapies with skill focused approaches were highly effective. The effectiveness of the cognitive approaches increased when they were combined with skill-focused techniques. Although some researchers conceptualize test anxiety as a result of a lack of knowledge in the subject matter, in the ability of an individual to study, and/or a lack of test taking skills, this meta-analysis showed that study skills training had a small effect size. This proves that test anxiety cannot be decreased with learning effective studying or test taking skills, which many schools try to teach in order to help improve student’s achievement levels on standardized tests (Egene, 2003). If test anxiety reduction programs would begin in the early elementary school grades, it might help reduce the increasing amount of test anxiety students feel as they get older.

Reducing test anxiety may not increase all students’ test scores or grades for two reasons. Many other factors may lead to a student’s performance on a test, but once test anxiety is reduced a more accurate picture of the student’s abilities will be able to emerge. Also, other
factors also contribute to test performance, such as frustration, low motivation, etc, and these may lower a student’s ability to learn new material and skills thus leading to lower test scores and grades (Cizek & Burg, 2006). The ability to generalize test anxiety reduction research is limited since most has been conducted with small sample sizes, differing research settings and conditions, conflicting results, and differing theoretical constructs of test anxiety (Ergene, 2003).

_Coping in a school failure situation_

Coping has been defined in research as a situational process through which a person deals with a specific stressor and is a response seen by the individual to be threatening, harmful, or challenging. In studies observing children’s coping ability it was found that under stress children use action-oriented strategies and emotion-oriented strategies, such as defense mechanisms (Mantzicopoulos, 1997). The children’s ability to cope is due to the socioemotional resources the child has available such as frequency and familiarity of the event, their affective state and perception of control and competence in the situation.

This study focuses on coping efforts in a stressful failure experience in a school setting. Fourth and fifth grade children (n=187) were chosen from an elementary school in California. Each student had data taken on their socioeconomic status, their score on the Academic Coping Inventory (ACI; which shows their scores on four dimensions: positive coping, projection coping, denial coping, and anxiety amplification), their intrinsic or extrinsic motivation, their affective reactions as measured by a four point Likert scale (the extent to which they experienced threat or harm emotions), their attribution of their failure (by luck, effort, ability, or task difficulty), and their score on a self-perception profile for children (SPPC; which measured a child’s sense of competence in scholastic achievement, social competence, behavioral conduct, and global self-worth) (Mantzicopoulos, 1997).

Each subject was asked to think of a situation such as a test or project in which it was important to perform well but they did not. Subjects were then placed in one of four coping groups: positive coping, projection, denial, and self-blame. Findings showed that coping strategies did not differ by gender. Differences were observed in the positive coping group versus the other groups. They tended to value academic experiences for personal reasons instead of reasons because of external sources or external expectations and attribute their failure experience to an unstable rationale versus a stable one (Mantzicopoulos, 1997). These different
coping groups did not significantly differ in positive emotions they felt after the failure. But, those that felt negative emotions felt more threat and harm appraisals than challenge appraisals, which may lead these children to believe that they do not have the resources necessary to cope with the stressful experience successfully. The main differences between positive and defensive copers were attributed to scholastic competence, stability attributions, negative affect, and the child’s underlying rationale for school success (Mantzicopoulos, 1997).

Standardized Testing in the State of Florida

*History of the Florida Comprehensive Assessment Test (FCAT)*

Although the increase in standardized testing measures, such as the FCAT, has been widely criticized over the years, standardized testing in Florida has roots emerging from the 1960’s. The school accountability standards for the state of Florida began in 1968 when the Department of Education (DOE) began improving educational effectiveness. In 1971, the Educational Accountability Act was developed in order to implement the Commissioner of Education’s Statewide Assessment Program (Florida Department of Education, 2004). This established a uniform statewide educational objective for each grade level and subject area which determined student status, progress and achievement of the educational objectives established (Florida Department of Education, 2005). In 1971, the first statewide assessment began to collect data on students’ in second and fourth grade with the State Student Assessment Tests (SSAT) and in grades third, sixth, and ninth in 1972 (Florida Department of Education, 2005).

In 1974, the need for school and student level data was determined and the Educational Accountability Act of 1971 was amended to include reading, writing, and mathematics assessments from all students by 1976. This act also developed into the Minimum Student Performance Standards (MSPS), which organized educational objectives to have wider applications for curriculum and instructional planning (Florida Department of Education, 2005). In 1976, the expansion of the Educational Accountability Act required development of assessments for students in grades 3, 5, 8, and 11 by 1978. The first idea that students should have to pass a standardized test in order to graduate (like the FCAT Writing+ requirement currently in place for 10th graders) occurred in 1978, when a literacy test was approved to start
requiring graduating students to pass in order to receive a diploma (Florida Department of Education, 2004). This test is now called the High School Competency Test (HSCT).

In 1991, the state decided to hold schools accountable for their yearly progress by rewarding high performing schools as well as providing assistance to those who needed it. These low performing schools were given the title of “Critically Low Schools” in the School Improvement and Accountability Act (Florida Department of Education, 2005). In 1995, the Florida Commission on Education Reform and Accountability decided to require standardized assessments to help raise the potential of students as well as to help students’ be able to compete for jobs in today’s ‘global marketplace’ (Florida Department of Education, 2004). The plan for the Florida Comprehensive Assessment Test (FCAT) was authorized in 1996 and the next year tested students’ in 4th, 5th, 8th, and 10th grades. The purpose was to measure achievement of the Sunshine State Standards (SSS), which were developed with a goal of providing students educations based on high expectations (Florida Department of Education, 2005). The Sunshine State Standards consist of broad statements of what students in each grade should be able to perform, with smaller sections called ‘benchmarks’ being measured through the FCAT. Baseline data on the FCAT began to be gathered in 1998 and looked at reading in grade 4, mathematics in grade 5, and a combination of reading and math in grades 8 and 10.

In 1999, the Florida Legislature passed the Bush/Brogan A+ plan. This legislation required public accountability for schools by requiring that schools must be child centered in their educational programs (Florida Department of Education, 2004). This expanded the statewide assessment program to include the assessment of reading, mathematics, and science in grades 3-10, and a system to follow each student’s academic growth over time (Florida Department of Education, 2005). The Sunshine State Standards now included Grade-Level Expectations (GLEs) for students in grades 3-10 in language arts, mathematics, science, and social studies (Florida Department of Education, 2005). Children who received low scores on the FCAT received an academic improvement plan and, if there is still no improvement the next year, the student received a different education plan. Parents were given an opportunity to relocate their child’s school if it received an “F” rating in 2 out of 4 consecutive years. Schools receiving “D” and “F” scores were provided additional funds to help the school implement their comprehensive school improvement plan enabling students to reach the goals outlined in the A+
This A+ Plan for Education raised accountability for student knowledge while requiring the concept of yearly learning gains for students in grades 3-10 (Florida Department of Education, 2004). The A+ school grades were based on the percentages of students meeting high standards as well as students who made gains in learning each year in each school. These school performance grade results led to the first time monetary rewards given for achieving the school recognition criteria through this school grading system.

In 2001, passing scores on the FCAT were mandated to be met by 10th graders in order to receive their high school diploma, although students who do not pass may retake any failed portions during their 11th and 12th grade school year. The developmental scale score was developed in 2002 for students in grades 3-10 with scores ranging from 0-3000, which provides teachers and parents a guideline for viewing a student’s yearly progress (Florida Department of Education, 2004). These student achievement data are also used to report the educational status and annual progress for students, schools, districts, and the state.

The No Child Left Behind Act (2001)

The No Child Left Behind Legislation consists of goals to make sure that every child is able to learn and is provided with a quality education. In order to put this into practice, four decisions were made: to hold each school accountable for it’s results, give states and districts flexibility in how they decide to spend their federal money, integrate scientific research into classroom practices, and involve parents by informing them and giving them choices regarding their children’s education (Florida Department of Education, 2007b).

This legislation requires every public school in the nation to report student achievement levels based on reading, mathematics, and writing assessments determined by each state as well as reporting all high school graduation rates. An Adequate Yearly Progress (AYP) Report for each school must also be submitted including numbers from nine different groupings of students: 1) all the students in the school, 2) White, 3) Black, 4) Hispanic, 5) Asian, 6) American Indian students, 7) economically disadvantaged students, 8) students with limited English proficiency, and 9) students with disabilities (Florida Department of Education, 2007b). All groups must meet the target level of progress in order to achieve appropriate Adequate
Yearly Progress (AYP). This is assessed in Florida by testing at least 95% of the students on the FCAT. Criteria include meeting the reading and mathematics proficiency target, improving at least 1% in the percentage of students scoring a 3 or higher on the FCAT Writing and at least a 1% raise in the graduation rate for high schools (Florida Department of Education, 2007b).

Schools that are unable to meet these objectives still can meet their AYP goal as long as they are able to reduce the percentage of non-proficient students in each subgroup by at least 10% each year. The plan approved for use in Florida uses the students’ scores derived from the FCAT as well as the definitions already used in the A+ plan. Schools that are rated as a “D” or “F” in the A+ plan will not make AYP and must provide free tutoring for their students or students will have the opportunity to transfer to another school in the area (Florida Department of Education, 2007b).

The Florida Comprehensive Assessment Test (FCAT)

The Florida Comprehensive Assessment Test (FCAT) is Florida’s response to the mandated reporting required by the No Child Left Behind Act and was implemented with the purpose of increasing student’s achievement levels. It is given to students in grades 3-10 and is comprised of two components: criterion referenced tests (CRT), which measure mathematics, reading, science, and writing from the Sunshine State Standards, and the norm-referenced tests (NRF), where a student’s results in reading and mathematics are measured against national norms (Florida Department of Education, 2004; 2005). There are three categories for Sunshine State Standard expectations: strand, which is a broad category of knowledge, standard, which is a general statement of expectation, and benchmark, which is a more specific level of expectation for each grade level (Florida Department of Education, 2005).

The questions on the FCAT are developed yearly by the Florida Department of Education’s (DOE) test-development contractors, which are then revised by a total of 300-400 teachers and curriculum supervisors as well as the DOE staff (Florida Department of Education, 2004). The FCAT is psychometrically sound and has been proven to be both reliable (provides consistent measurement of a students knowledge) and valid (test measures the characteristics it was designed to measure) for the purposes intended. The Department of Education also makes sure that the FCAT meets external quality standards by the American Educational Research
Association (AERA) (Florida Department of Education, 2005). Legally schools need to provide proof that students are notified in advance of the testing requirements, students will have opportunities to retake the test if they do not pass the first time, and schools must prove that they are teaching the skills that are essential for passing the test with evidence such as lesson plans, textbooks, and curriculum.

The FCAT has been given annually in the Florida public school system since 1998. There are multiple choice, gridded-response, and performance tasks in the Reading, Mathematics, and Science portions of the FCAT, which is given every March (Florida Department of Education, 2005). The writing portion is a prompted essay and is given in February. Depending on the student’s grade level, the FCAT takes students approximately 10 hours to complete over a time frame of about two weeks. Although the cost of this testing is less than one-third of one percent of Florida’s K-12 budget, the cost to take the FCAT per student is $16.57 (Florida Department of Education, 2004).
CHAPTER THREE

METHODS

School Description and Sample

The sample (N=51) was obtained from one 3rd, 4th, and 5th grade classroom. The students’ ages ranged from 8-12 years old. The students in the 3rd grade will be taking the FCAT for the first time, the 4th grade students will be taking the FCAT for the 2nd time along with the Writing+ portion for the first time, and the 5th grade students will be taking the FCAT for the third time. A high performing elementary school was chosen to participate in this study from the Leon County Public School System in Florida. This school was selected based on the consistently high scores achieved in FCAT results, school accountability grades, and adequate yearly progress reports (AYP) since the mandated No Child Left Behind Act.

The FCAT results are based on percentages of students in each school that scored a 3 and above (3.5 on the Writing+) on the Reading, Mathematics, Writing+, and Science portions of the FCAT. A score of a 3, 4, or 5 in the Reading and Mathematics portion of the FCAT means that a student has performed on grade level and is proficient or advanced in the material tested.

The repercussions for low scores on the reading portion of the FCAT in 3rd grade involves going to summer school for reading, which if satisfactorily passed, allows the student to be promoted to 4th grade. Fourth graders cannot be promoted into 5th grade unless they pass the narrative and expository section of the Writing+ with a 3.5 or higher. All students taking the FCAT in elementary school must pass at least 2 sections, consisting of the NRT, benchmarks, and FCAT scores, in order to be promoted to the next grade level. Students with low scores will also receive an Academic Improvement Plan (AIP) and tutoring.

Students that score a 3.5 or higher on the Writing+ essay have scored at or above the minimum passing level. In 2007, 90% of third graders at this school scored at or above those scores, forth graders at this school had 93% achieve at or above the passing scores, and the fifth graders achieved a 93% passing rate at grade level or above. The mean scale scores on all sections of the FCAT range from a 100 to a 500 for each grade level. This school had scores in the mid-to-upper 300’s.
The school accountability grades for this school for the 2004-2007 school years were also high. This school received an A rating each of the four years, which was determined by the percentages of students who scored at or above grade level in the year 2007 due to 89% of students making learning gains in reading and 86% making gains in the mathematics portion of the FCAT.

The Adequate Yearly Progress Report (AYP) for 2006-2007 indicated that this school made AYP with 100% of the criteria in reading and mathematics being met. This school has 16% of students on free or reduced lunch with a minority rate of 32% (FDOE, 2008).

**Design**

This study will use two dependent variables; a standardized test, the Children’s Test Anxiety Scale (CTAS), to establish base line levels of test anxiety prior to FCAT administration and the FCAT Response Scale as a measure to assess test anxiety felt during the FCAT to be given following the FCAT experience. Responses on baseline and post-experience test anxiety measures will be analyzed and described by grade, race, and gender.

**Instrumentation**

The Children’s Test Anxiety Scale (CTAS; see Appendix B) was developed and validated for use in measuring test anxiety for students in grades 3 through 6, which is equivalent to children in the 8-12 age range. The CTAS measures generalized test anxiety and is based on three interrelated components found in recent literature regarding children’s test anxiety manifestation: thoughts, autonomic reactions, and off-task behaviors. It is a 30 item self report measure that asks each student questions relating to their thoughts, autonomic reactions, and off-task behaviors during testing situations with four response options in a Likert scale format.

The scoring of the CTAS can be obtained by summing the Likert scale responses of each student for each of the 30 total items as well as for each subscale of *thoughts, autonomic reactions, and off-task behaviors*. The four Likert scale response options are 1-*almost never*, 2-*some of the time*, 3-*most of the time*, and 4-*almost always*. The lowest total generalized test anxiety score possible would be 30, a low to mid-range score would range from 31-60, a mid to high-range score would range from 61-90, and the highest possible score would be 120. In order to examine levels of generalized test anxiety on each of the three subscales, scores can be added
for *thoughts*, with scores ranging between 13-52, *autonomic reactions*, with scores ranging between 8-32, and *off-task behaviors*, with scores ranging between 9-36. Each students subscale score will be divided by the number of questions possible for each subscale to get a mean response and the total score will be divided by 30 in order to find a mean score of generalized test anxiety for each student. The scores will range from a 1.0-4.0, i.e., a student with a 2.83 mean total CTAS score, would evidence general test anxiety responses between *some of the time* and *most of the time*. This measure will be given to students up to two weeks before the FCAT administration.

The FCAT Response Scale (see Appendix C) was developed for use in the current study to measure test anxiety experienced during the FCAT. This measure will be given to the students the week after FCAT testing. The same questions relating to *thoughts*, *autonomic reactions* and *off-task behaviors* in the CTAS were adapted to the FCAT Response Scale by changing the response format organization. Three questions were formulated with each one relating to a topic of *thoughts*, *autonomic reactions*, or *off-task behaviors* in the past tense.

The students will be asked to circle which items they experienced while taking the FCAT for each category. The question relating to *thoughts* will contain 13 items, the question relating to *autonomic reactions* will have 8 items, and the question relating to *off-task behaviors* will have 9 items. Students will be asked to circle any of the items they experienced while taking the FCAT instead of having them rate each item on a Likert scale like on the previous measure, the CTAS. The scores for each student will be summed for each of the three questions. This will be turned into a percentage based on the number of items that were circled by the number of possible items. A final addition to the FCAT Response Scale is a free response question where students may write what they thought or felt about taking the FCAT in their own words.

**Procedure**

Data will be collected on the Children’s Test Anxiety Scale (CTAS) two weeks prior to the administration of the FCAT. The teachers from each classroom selected will send the Parental Consent Form home with the students in their class. Each student whose parent consents for them to participate in the study will be given the survey during normal classroom hours.

The researcher will read the instructions out loud to the class as well as present a practice example. In order to prompt students to think about the FCAT when responding to the generic
test questions found on the CTAS, an introduction statement read by the researcher will include the phrases, “I am here today to find out what students think about the Florida Comprehensive Assessment Test (FCAT)” and “This survey will ask you how you feel when you think about taking tests, especially the Florida Comprehensive Assessment Test (FCAT)”. If there are no questions, the students will be given permission to complete the survey, which should take under 10 minutes for all students to finish. The students will also be given the FCAT Response Scale the week after the FCAT using the same procedures as above.

Analysis

All data collected will be put into a chart for comparative analysis. Each student will receive a number and be placed into a chart by grade, gender, and race. Each student’s responses will be logged by thoughts, autonomic reactions, off-task behaviors, and total CTAS score as well as by thoughts, autonomic reactions, off-task behaviors, and total responses on the FCAT Response Scale. As the CTAS and the FCAT Response Scale are scored differently, results will be descriptive and the measures will be correlated to examine any associations present between student test anxiety and the FCAT. Charts will also be prepared reflecting the means and standard deviations for both the CTAS and the FCAT Response Scale questions. An item analysis will be used to categorize responses on the essay question within the FCAT Response Scale.
CHAPTER FOUR
RESULTS

Two measures were used to collect data for subjects. The Children’s Test Anxiety Scale (CTAS) was given to subjects two weeks prior to the first day of FCAT administration. The FCAT Response Scale was given the week after FCAT testing was complete. The independent variables in this study were recorded for grade level, gender and race. The independent variable of race was not analyzed, as expected, in this study due to a 35 subjects being White and only 8 being Black, 2 being Asian, and 2 reporting as Other.

Table 1 shows the two-way analysis of variance of the total CTAS scores. There was not a significant difference in test anxiety before the FCAT between grades $F(2, 48) =.043, p=.958$, or gender, $F(2, 48) =2.68, p=.109$. Nor was there a significant difference among grades by gender, $F(2, 48) =.128, p=.880$.

Table 1: Two-way ANOVA results for total CTAS scores

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>.019</td>
<td>2</td>
<td>.010</td>
<td>.043</td>
<td>.958</td>
</tr>
<tr>
<td>Gender</td>
<td>.599</td>
<td>1</td>
<td>.599</td>
<td>2.684</td>
<td>.109</td>
</tr>
<tr>
<td>Grade x Gender</td>
<td>.057</td>
<td>2</td>
<td>.029</td>
<td>.128</td>
<td>.880</td>
</tr>
<tr>
<td>Total</td>
<td>190.614</td>
<td>48</td>
<td>.029</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.

The descriptive statistics for the CTAS prior to the FCAT (see Table 2) showed that the subjects’ ($N= 48$) mean generalized test anxiety responses was 1.94 (between 1-almost never, 2-some of the time). Females at every grade level were slightly more anxious than males. It had been theorized that test anxiety might increase due to older students having taken the FCAT previously. This was not apparent on the CTAS given prior to the FCAT.
Table 2: Descriptive statistics for CTAS

<table>
<thead>
<tr>
<th>Grade</th>
<th>Gender</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd</td>
<td>Female</td>
<td>2.04</td>
<td>.51</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.91</td>
<td>.40</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.97</td>
<td>.44</td>
<td>12</td>
</tr>
<tr>
<td>4th</td>
<td>Female</td>
<td>2.08</td>
<td>.43</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.77</td>
<td>.50</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.97</td>
<td>.47</td>
<td>17</td>
</tr>
<tr>
<td>5th</td>
<td>Female</td>
<td>2.05</td>
<td>.28</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.80</td>
<td>.58</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.89</td>
<td>.50</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>Female</td>
<td>2.06</td>
<td>.40</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.82</td>
<td>.50</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.94</td>
<td>.46</td>
<td>48</td>
</tr>
</tbody>
</table>

A two-way analysis of variance of the total FCAT Response Scale scores (see Table 3) showed there was a significant difference in post anxiety scores by gender. Females were significantly more anxious post-FCAT than males, $F (2, 45) = 6.20, p = .017$. Grade differences were not significant. Therefore, the null hypothesis for gender is rejected. The null hypothesis for grade fails to be rejected. There was no significant difference among grades by gender, $F (2, 45) = .430, p = .654$. 
The descriptive statistics for the FCAT Response Scale (see Table 4) show that the subjects’ \( N=45 \) circled a total mean of 29% of the anxiety items available for the three categories of *thoughts*, *autonomic reactions*, and *off-task behaviors*.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Gender</th>
<th>Mean %</th>
<th>Standard Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd</td>
<td>Female</td>
<td>41</td>
<td>.24</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>22</td>
<td>.13</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>32</td>
<td>.21</td>
<td>13</td>
</tr>
<tr>
<td>4th</td>
<td>Female</td>
<td>35</td>
<td>.15</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>22</td>
<td>.12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>.15</td>
<td>16</td>
</tr>
<tr>
<td>5th</td>
<td>Female</td>
<td>29</td>
<td>.14</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>23</td>
<td>.16</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>25</td>
<td>.16</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>Female</td>
<td>35</td>
<td>.18</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>22</td>
<td>.14</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>29</td>
<td>.17</td>
<td>45</td>
</tr>
</tbody>
</table>

\(*p < .05.\)
A Pearson correlation was run between responses on the CTAS and those on the FCAT Response Scale (see Table 5). The results showed that the two measures were highly correlated. Scores among subjects were significantly similar on the two instruments as measured pre and post FCAT administration.

Table 5: CTAS and FCAT Response Scale correlation

<table>
<thead>
<tr>
<th></th>
<th>CTAS</th>
<th>FCAT Response Scale</th>
<th>Sig (1-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTAS</td>
<td>1.000</td>
<td>.760</td>
<td>.000</td>
</tr>
</tbody>
</table>

An item analysis of the responses selected by all subjects on the FCAT Response Scale (see Table 6) show that the category that had the most responses selected was the category of *thoughts*. The second highest category was *off-task behaviors* and the category with the lowest responses was *autonomic reactions*.

Table 6: Item analysis of responses selected for FCAT Response Scale

<table>
<thead>
<tr>
<th>Thoughts</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle all the things you were thinking when you took the FCAT:</td>
<td>164</td>
</tr>
<tr>
<td>Wondered if your answers were right</td>
<td>29</td>
</tr>
<tr>
<td>Wondered if you would pass</td>
<td>28</td>
</tr>
<tr>
<td>Thought about what your grade will be</td>
<td>27</td>
</tr>
<tr>
<td>Thought about what would happen if you failed</td>
<td>16</td>
</tr>
<tr>
<td>Worried about doing something wrong</td>
<td>15</td>
</tr>
<tr>
<td>Worried about failing</td>
<td>12</td>
</tr>
<tr>
<td>Worried about what your parents would say</td>
<td>11</td>
</tr>
<tr>
<td>Worried about how hard the test was</td>
<td>9</td>
</tr>
<tr>
<td>Thought you were going to get a bad grade</td>
<td>6</td>
</tr>
<tr>
<td>Thought you got most of your answers wrong</td>
<td>4</td>
</tr>
<tr>
<td>Thought it was hard to remember the answers</td>
<td>3</td>
</tr>
<tr>
<td>Thought you should have studied more</td>
<td>2</td>
</tr>
<tr>
<td>Thought about how poorly you were doing</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 6: Item analysis of responses selected for FCAT Response Scale-continued

<table>
<thead>
<tr>
<th>Off-Task Behaviors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle all the things you remember doing when you took the FCAT:</td>
<td>161</td>
</tr>
<tr>
<td>Checked the time</td>
<td>38</td>
</tr>
<tr>
<td>Looked around the room</td>
<td>22</td>
</tr>
<tr>
<td>Stared</td>
<td>20</td>
</tr>
<tr>
<td>Looked at other people</td>
<td>18</td>
</tr>
<tr>
<td>Tapped your feet</td>
<td>18</td>
</tr>
<tr>
<td>Felt nervous</td>
<td>15</td>
</tr>
<tr>
<td>Found it hard to sit still</td>
<td>14</td>
</tr>
<tr>
<td>Played with your pencil</td>
<td>9</td>
</tr>
<tr>
<td>Tried to finish up fast</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autonomic Reactions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle all the things you felt when you took the FCAT:</td>
<td>90</td>
</tr>
<tr>
<td>You felt warm</td>
<td>16</td>
</tr>
<tr>
<td>Your heart beat fast</td>
<td>15</td>
</tr>
<tr>
<td>Your head hurt</td>
<td>14</td>
</tr>
<tr>
<td>Your belly felt funny</td>
<td>13</td>
</tr>
<tr>
<td>You felt scared</td>
<td>10</td>
</tr>
<tr>
<td>Your face felt hot</td>
<td>9</td>
</tr>
<tr>
<td>Your hand was shaking</td>
<td>9</td>
</tr>
<tr>
<td>You had to go to the bathroom</td>
<td>4</td>
</tr>
</tbody>
</table>

Analysis of question number four, the free response portion of the FCAT Response Scale (see Table 7), showed a total of 49 positive thoughts or feelings and a total of 51 negative thoughts and feelings. Third and fourth grades were more negative than positive in their responses, but this reversed in the fifth grade with more positive responses than negative.

Table 7: Analysis of question four on the FCAT Response Scale

<table>
<thead>
<tr>
<th></th>
<th>Positive Responses</th>
<th>Negative Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Grade Females</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>3rd Grade Males</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>4th Grade Females</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>4th Grade Males</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 7: Analysis of question four on the FCAT Response Scale-continued

<table>
<thead>
<tr>
<th></th>
<th>5th Grade Females</th>
<th>5th Grade Males</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Total</td>
<td>9</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>5th Grade Females</td>
<td>6</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>5th Grade Males</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

All students circled responses on the FCAT Response Scale relating to at least one aspect of test anxiety (thoughts, autonomic reactions, and off-task behaviors) and only one student did not respond to question number four, where students’ could write in their own words about what they thought or felt about taking the FCAT. Many students used this section to write multiple thoughts and feelings regarding the FCAT, some positive and some negative. Even though the total numbers of positive and negative responses were found to be almost equal in this study, most subjects wrote down thoughts and feelings that reflected both in question four. Some examples of this can be seen by one subject response which stated “I really don’t like the FCAT. I personally think its child abuse. At least it’s good for the brain,” another said “I thought it would be scary and I was nervous but it turned out to be easy,” and another response which stated “I thought it was easy but I was still very stressed and nervous”.

The majority of positive phrases seemed to be cloaked with apprehension regarding the FCAT and no subjects expressed a liking for the FCAT or its procedures. More positive responses indicated that the subjects felt “the FCAT turned out to be pretty easy”, “much better about taking the FCAT once it got started”, “when I got used to it I wasn’t as nervous”, “at the end I felt relief”, and “it was fun because we had parties after it”. Most comments focused on how the FCAT was easier than expected indicating a sense of anxiety leading up to the FCAT, but being relieved after taking it, with one comment mentioning this aspect directly by stating, “when the teacher said put your pencils down and close your books everyone went ahhhhhhhh”. Most of the students with positive responses also mentioned they felt like they would perform well on the FCAT, with comments like “think I did good on the FCAT”, and “know my grade will be good”. One student even mentioned how their guidance counselor said that the
“FCAT is a celebration of knowledge” and was another way to show what they have learned, which for this student seemed to help due to the low amount of test anxiety items circled and no negative comments mentioned on the free response question on the FCAT Response Scale.

Negative responses relating to thoughts indicated that the subjects felt “scared”, “nervous”, “worried about grade”, “worried if I would finish”, “it took a long time”, and “time would run out fast”. Some students even mentioned feeling extreme autonomic reactions, such as “in the middle of taking it, I got a headache and felt like I was going to throw up”, “head was dizzy at times”, and feeling “hot” and “sweaty” during the FCAT. Some off-task behaviors mentioned during the FCAT were “checked time”, “hard to sit still”, tapped feet”, “looked around the room”, and “looked at other people”.

A few phrases indicated that students were anxious regarding consequences of possible failure such as, “if I don’t pass I will get in trouble”, “nervous since I didn’t study a lot and never got held back”, “wanted to know if I failed would parents yell or spank me”, and “thought about how low grade was and if I would struggle in 6th grade or have a hard time back in the same grade” next year. Not only were negative thoughts and feelings mentioned by almost all subjects in some degree, but one student mentioned being “still very stressed and nervous” indicating that maybe these negative feelings would not abate until they receive their FCAT results, which occurs approximately two to three months after testing depending on which section as some take longer to grade.
CHAPTER FIVE
DISCUSSION

Results regarding elementary students’ test anxiety showed no significant effects of test anxiety experienced by grade level and gender in regards to general test anxiety on the CTAS. This finding is in keeping with Wren and Benson’s (2004) study where two hundred and sixty-one students reported on generalized test anxiety using the CTAS and no statistical significance was found regarding students grade level.

In this study there were significant effects found by gender on the FCAT Response Scale, with females experiencing higher levels of test anxiety than males. This finding supports other test anxiety studies where females are higher in test anxiety than males regardless of grade level (Cizek & Burg, 2006; Wren & Benson, 2004).

Although all subjects did not experience statistically significant amounts of test anxiety on both the CTAS and FCAT Response Scale, responses on the FCAT Response Scale indicated that students’ were affected by certain aspects of test anxiety by the administration of the FCAT. The high numbers of responses for some items on the FCAT Response Scale (see Table 6) show that the subcategory of thoughts was what caused the most anxiety for these subjects.

The limitations of this study are noteworthy. This study was conducted in a high performing elementary school in a high socioeconomic status area with a limited number of subjects, all of whom had a high performing teacher who was the team leader for that grade. The level and types of responses may not be apparent in other, more diverse and representative samples. Since the highest correlation between student test anxiety is the anxiety of their teachers, responses might significantly differ based on different teachers level of training, experiences, and feelings of anxiety, especially in relation to standardized testing. Also, the forms of positive and negative responses seen on the free response section of the FCAT Response Scale in this study might vary greatly in another more representative sample.

Future studies should examine the effects of generalized test anxiety on larger amounts of elementary aged students. Most test anxiety research in the literature focuses on older students who may have not had the No Child Left Behind Act in place before they started 3rd grade,
meaning they have not been required to take as many standardized tests as students have in recent years. Test anxiety should be further researched in varying socioeconomic status areas, in students of varying races and ages, in students with differing parental expectations of academic achievement, in studies looking at varying aspects of classroom teachers (such as years of classroom experience, levels of anxiety in relation to student testing and student teacher interaction effects), and in relation to each state’s standardized assessment test, such as the FCAT in all Florida public schools. Many recent test anxiety studies are using outdated measures to research test anxiety, such as the Test Anxiety Inventory for Children and Adolescents (TAICA) which was developed in the 60’s. These studies should be updated by using a newer and more reliable scale to measure test anxiety, such as the CTAS.

Although negative thought processes in anxious persons have been found during pressure felt in testing, it is hard to determine if these tendencies are only brought about in testing situations only (Wine, 1971). Future studies should also examine other aspects in a student’s life, such as each student’s level of self-efficacy, to see if negative thought processes are brought out by the testing situation only or another underlying factor, i.e., problems relating to the student’s home environment.

Students in the 3rd-5th grade age group are typically in the concrete operations period and have not yet mastered all mental operations that might be required of them in standardized testing situations, which might increase their level of anxiety. In order to reduce the negative effects of test anxiety in children in elementary and secondary schools, early detection is needed along with intervention (Lowe & Lee, 2007). It would be advantageous to students if test anxiety was found and addressed before a significant amount of testing in elementary school occurs in order to help each student reach his or her full potential and possibly lower rates of issues seen in older students, such as school dropout rates.

Combining research on test anxiety reduction would also be beneficial to students. The most effective interventions appear to result from combining cognitive and behavioral treatments (Cizek & Burg, 2006; Ergene, 2003; Henbree, 1988). An example of this can be seen in the current study when the school guidance counselor told a student that “FCAT is a celebration of knowledge” and was another way to show what they have learned. This student had a low percentage of test anxiety items circled and had no negative comments on the free response section of the FCAT Response Scale.
It has been established that individuals can be instructed to become more attentive to specific stimulus dimensions and be less attentive to others (Wine, 1971) that might be distracting to test anxious individuals, such as from the negative effects evidenced by thoughts, autonomic reactions, and off-task behaviors. Also, evidence points to high test anxious individuals being responsive to other social cues, such as verbal reinforcement, modeling cues, persuasion, and other evaluative instructional manipulations that can help direct their attention to more task relevant variables (Wine, 1971). Since the “facilitative effect” of test anxiety has been shown to improve performance on tests, finding out which levels of anxiety would be beneficial to students to keep them motivated and performing well would also be useful in future test anxiety literature.

Further research could also look into the benefits of training for teachers to help them recognize signs of test anxiety in their students and apply student specific reinforcement and instructional manipulations, especially with newer teachers or those who find themselves to be anxious themselves in regards to student testing. Typically, students in this age group are attentive to authority and respond well to adult instruction. If teachers were aware of which students might be more susceptible to test anxiety before any standardized testing occurs, they might be able to negate any negative aspects of test anxiety students might experience over the years related to increases in standardized testing.
APPENDIX A

PARENT LETTER
Dear Parent:

I am a graduate student under the direction of Professor Ann Mullis, Ph.D., in the College of Human Sciences at Florida State University. I am conducting a research study to evaluate third, fourth, and fifth grade student’s perceptions of text anxiety in relation to the Florida Comprehensive Assessment Test (FCAT).

Your child's participation will involve filling out a survey in class that should take about five minutes. Your participation, as well as that of your child, in this study is voluntary. If you or your child chooses not to participate or to withdraw from the study at any time, there will be no penalty and it will not affect your child’s grade. The results of the research study may be published, but your child's name will not be used. Information obtained during the course of the study will remain confidential, to the extent allowed by law. All surveys will be kept locked in a cabinet in the researchers office and will be destroyed within one year after the study has been completed.

Although there may be no direct benefit to your child, the possible benefit of your child's participation is that your child’s teacher will have a better understanding regarding the general feelings of the student’s in his/her classroom regarding FCAT test anxiety. In case of excessive test anxiety, students will be given information to bring home on how to contact their school counselor as well as how to contact the Florida State University Family Institute for further assistance.

If you have any questions, please feel free to contact me at (850) 644-4565 or you may also contact my major professor, Dr. Ann Mullis, at (850) 644-3553. If you have any further questions concerning this research study, your child's participation in the study, or if you feel you or your child have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

Sincerely,

Marie Soffer

* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

I give consent for my child ________________________________ to participate in the above study.

Parent's Name: ________________________________

Parent's Signature: ________________________________ Date: ________________

If you have any questions about you or your child’s rights as a participant in this research, or if you feel you or your child have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.
APPENDIX B

CHILDREN’S TEST ANXIETY SCALE (CTAS)
Test Attitude Survey

Circle the answers that best describe or tell about you.

1. I am a ……boy  girl
2. Circle your grade……3rd  4th  5th
3. I am……American Indian  Asian  Black
   Hispanic/Latino  White  Other

SAMPLE—Please read the following statement and decide if it describes the way you are while you are taking tests. If the statement is almost never or never like you, you should circle 1. If the statement describes the way you are most of the time, circle 3. If the statement is almost always or always like you, circle 4.

<table>
<thead>
<tr>
<th>ALMOST NEVER</th>
<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
</table>

While I am taking tests…
I think about doing other things.  1  2  3  4

The rest of the items describe how some students may think, feel, or act while they are taking tests. Please read each statement carefully and decide if the statement describes how you think, feel, or act during a test. Then circle the answer that best describes the way you are while taking a test. If you are not sure which answer to circle, read the statement again before circling your answer. Remember that there are no “right” or “wrong” answers on this survey. Please give truthful answers.
### While I am taking tests…

<table>
<thead>
<tr>
<th></th>
<th>ALMOST NEVER</th>
<th>SOME OF THE TIME</th>
<th>MOST OF THE TIME</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I wonder if I will pass.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>My heart beats fast.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>I look around the room.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>I feel nervous.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5.</td>
<td>I think I am going to get a bad grade.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6.</td>
<td>It is hard for me to remember the answers.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>I play with my pencil.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>My face feels hot.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9.</td>
<td>I worry about failing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.</td>
<td>My belly feels funny.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11.</td>
<td>I worry about doing something wrong.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12.</td>
<td>I check the time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13.</td>
<td>I think about what my grade will be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14.</td>
<td>I find it hard to sit still.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15.</td>
<td>I wonder if my answers are right.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
While I am taking tests…

16. I think that I should have studied more. 1 2 3 4
17. My head hurts. 1 2 3 4
18. I look at other people. 1 2 3 4
19. I think most of my answers are wrong. 1 2 3 4
20. I feel warm. 1 2 3 4

While I am taking tests…

21. I worry about how hard the test is. 1 2 3 4
22. I try to finish up fast. 1 2 3 4
23. My hand shakes. 1 2 3 4
24. I think about what will happen if I fail. 1 2 3 4
25. I have to go to the bathroom. 1 2 3 4

While I am taking tests…

26. I tap my feet. 1 2 3 4
27. I think about how poorly I am doing. 1 2 3 4
28. I feel scared. 1 2 3 4
29. I worry about what my parents will say. 1 2 3 4
30. I stare. 1 2 3 4

Thank you for your help!
Name: _______________________________________________

1) Circle all the things you were thinking when you took the FCAT:

Wondered if you would pass
Thought you should have studied more
Thought you were going to get a bad grade
Thought you got most of your answers wrong
Thought it was hard to remember the answers
Worried about how hard the test was
Worried about failing
Thought about what would happen if you failed
Worried about doing something wrong
Thought about how poorly you were doing
Thought about what your grade will be
Worried about what your parents would say
Wondered if your answers were right

Circle all the things you felt when you took the FCAT:

Your heart beat fast
You felt warm
Your face felt hot
Your hand was shaking
Your belly felt funny
You had to go to the bathroom
Your head hurt
You felt scared

Circle all the things you remember doing when you took the FCAT:

Looked around the room
Found it hard to sit still
Felt nervous
Looked at other people
Played with your pencil
Tried to finish up fast
Checked the time
Tapped your feet  Stared

4) In your own words, write what you thought or felt about taking the FCAT:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Thank You!
APPENDIX D

HUMAN SUBJECTS APPROVAL LETTER
APPROVAL MEMORANDUM

Date: 2/4/2008

To: Marie Soffer
311 Cardinal Court
Tallahassee, FL 32304

Dept.: FAMILY & CHILD SCIENCE

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Elementary aged student’s levels of test anxiety in relation to the Florida Comprehensive Assessment Test (FCAT)

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on 1/9/2008. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by 1/8/2009 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. The principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB000000446.

cc: Ann Mullis
HSC No. 2007.1059
APPENDIX E

LEON COUNTY SCHOOLA APPROVAL LETTER
January 11, 2008

Ms. Marie Soffer
311 Cardinal Court
Tallahassee, FL 32304

Dear Ms. Soffer:

The Leon County Schools Research Review Board has determined that the findings of your proposed study could be pertinent to our efforts and so we are approving your request to conduct the research mentioned above.

Your research request is approved for the period of January through December 2008. Should you desire to extend your research efforts after this period of time, you must submit (a) a progress report, (b) preliminary results of your research, and (c) a request for renewed approval for continuation. Any significant changes or amendments to the procedures or design of this study must be approved by resubmitting the request for research to the Research Review Board.

Approval by the Research Review Board does not in itself constitute permission to carry out the research. You may now contact principals of the schools in your study. The principal has the final decision relative to research at each school. It is your responsibility to return the enclosed “Principal’s Consent for Research Participation,” signed by the principal(s) of the school(s) to be involved, prior to the start of any research. Receipt of this form by this office will complete the approval process.

Since your research study involves direct contact with students, the background check policy requires the research applicant(s) to be fingerprinted for clearance. It is the responsibility of the applicant(s) to complete all required documentation prior to the beginning of the study.

Leon County Schools is approving your research partly due for the potential benefit of information to the district; therefore, it is important that you send this office an executive summary with purpose, methods, results and discussion when your study is complete. We will place information from your study in our research library and annotated listing of conducted research. We look forward to receiving your results.

Please feel free to phone me (850.487.7817) if I may be of further assistance.

Sincerely,

Michelle Gayle, Ph.D.,
Director Division of Evaluation and Chairperson, Research Review Board

C: Margaret Fulton and administrators at Glichrist and Oakridge elementary schools

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REFERENCES


BIOGRAPHICAL SKETCH

**Personal**
Name: Marie Eileen Soffer
Date of birth: May 24, 1981
Hometown: Davie, Florida

**Education**
Summer 2008  
M. S. in Family and Child Sciences  
College of Human Sciences; Florida State University  
Major: Child Development  
Member of Kappa Omicron Nu Honor Society

Spring 2005  
B.S. in Family and Child Sciences  
College of Human Sciences; Florida State University  
Major: Child Development  
Graduated cum laude; Member of Kappa Omicron Nu Honor Society  
100+ hours of community service

**Work Experience**
Program Associate  August 2001-Present
Music Education/Music Therapy Department & The National Institute for Infant and Child Medical Music Therapy at Florida State University, Tallahassee, FL

Receptionist  August 1999-July 2001
Westgate Chiropractic, Weston, FL

Camp Counselor & Party Captain  May 1997-August 1999
Blockbuster Golf and Games, Sunrise, FL

**Research Experience**
