

AN ANALYSIS OF DIFFERENT ASPECTS
OF TEST ANXIETY IN CHILDREN

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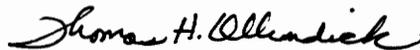
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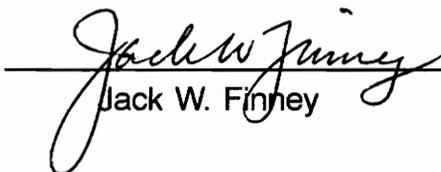
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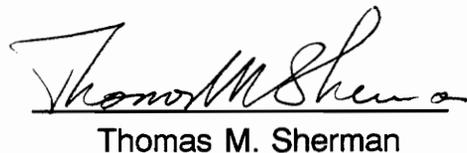
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(ABSTRACT)

Children with high test anxiety are more likely to exhibit performance decrements under evaluative situations, to repeat a grade, and to experience other forms of anxiety and depression than children with low test anxiety. Two types of test anxiety have been proposed for adults: Type A, a circumscribed anxiety only in testing situations, and Type B, test anxiety with concurrent general anxiety and worry in other areas. The primary purpose of this study was to apply the concept of Type A and Type B test anxiety to children and adolescents. An attempt was made to determine what factors differentiate Type A and Type B test anxiety in children and adolescents. A second purpose of this study was to investigate gender and age differences in test anxiety and its correlates.

574 subjects from fourth, seventh, and tenth grade classrooms in Montgomery County Public Schools participated in the study. These subjects were divided into four categories: Type A (hi test/lo general anxiety), Type B (hi test/hi general anxiety), lo test/hi general anxiety, and lo test/lo general anxiety. Subjects were administered questionnaires on test anxiety, general anxiety, depression, fear, and cognitions. In addition,

school grades, school absences, and achievement and ability test scores were examined.

There were almost four times as many Type B children than Type A children in this sample. Results indicated that there were no differences between children with Type A and children with Type B test anxiety on the above-mentioned measures. However, children with test anxiety, whether Type A or Type B, were more likely to report higher levels of general anxiety, depression, and fear and to experience cognitive interference during test-taking. Children with test anxiety were also more likely to have lower grades in school and to score lower on achievement and ability tests. In this sample, females consistently scored higher on the self-report measures, but no age differences were found. It was suggested that the lack of Type A/Type B differentiation may have been due to the presence of negative affectivity in children, differences between adults and children, or methodological issues. Issues for future research were discussed.

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INTRODUCTION

Test anxiety has been defined as an unpleasant emotional state or feeling, with behavioral and physiological correlates, that is experienced before, during, and after formal testing and in other evaluative situations (Beidel, 1988; Sarason, I.G., 1975; Spielberger, 1977; Wine, 1971). Various studies have indicated that test-anxious children are more likely to show performance decrements under evaluative situations and to repeat a grade in school than non-test-anxious children (Beidel, 1988; Hembree, 1988). Test anxiety is thought to emerge around second grade and to increase across grade levels, but then to decrease in college (Hembree, 1988; Hill, 1972). Further, test anxiety levels are found to be consistently higher in females than in males (Hembree, 1988).

I.G. Sarason (1975) described two types of test anxiety, Type A and Type B. Test Anxiety Type A is circumscribed, with anxiety occurring only in testing situations. Test Anxiety Type B is characterized by anxiety over testing situations along with generalized anxiety and worry in other areas as well as ambivalence over evaluation and achievement. The Type A/Type B status is operationally determined through the presence or absence of concurrent levels of generalized anxiety. Partial support for the Type A/Type B distinction in children comes from a study conducted by Beidel (1988). In a sample of 25 test-anxious third to sixth graders, 60% met DSM-III diagnostic criteria for a phobic or anxiety disorder, including simple phobia, separation anxiety disorder, overanxious disorder, or social

phobia. These children would appear to meet Sarason's Type B criteria. The remainder of the sample (40%) did not meet diagnostic criteria for anxiety disorders and appeared to have a more circumscribed anxiety that was related to taking tests only. In addition, two studies have reported a differential treatment response depending on Type A/Type B status. McMillan & Osterhouse (1972) used the Manifest Anxiety Scale (MAS) and I.G. Sarason (1972) used the Generalized Anxiety Scale (GAS; I.G. Sarason, 1972) to differentiate the two types of test anxiety. Both studies showed that Type As responded more positively to systematic desensitization than Type Bs. Although these subtypes of test anxiety have been identified, research to date has not been directed at comparing the two subgroups on related dimensions in order to further understand the construct of test anxiety in children.

Although childhood test anxiety has been a topic of research for over 35 years, the literature on its etiology is scarce. However, in general, researchers accept the idea that test anxiety results from early learning experiences associated with evaluative situations (Dusek, 1980). S.B. Sarason, Davidson, Lighthall, Waite, & Ruebush (1960), based upon psychoanalytic theory, hypothesized that test-anxious children internalize their parents' negative attitudes toward them when they do not live up to their parents' overly high expectations, develop a high need for achievement, and become overly dependent on adult direction and support under evaluative conditions. Other studies have indicated that parents of test-anxious children were not supportive or constructively helpful to their

children when problem solving (Dusek, 1980). Thus, to date etiological theories focus on parent-child relationships and early learning experiences, but empirical research findings are sparse.

Theories of test anxiety tend to center on information processing and attentional processes. For example, Wine (1971) proposed that highly test-anxious students react to the testing situation by dividing their thoughts between task-relevant and task-irrelevant, self-focused thoughts. She noted that highly test-anxious students actually performed better than low test-anxious students with non-evaluative instructions before a task, but that they performed more poorly than low test-anxious students when highly evaluative (ego-involving) instructions were given. Wine (1979) also examined children in two classroom settings, one immediately preceding an examination and one when an examination was not expected. Highly test-anxious students in the class immediately preceding an exam appeared more preoccupied and withdrawn, spent more time sitting idle, and exhibited attentional constriction to peripheral task cues compared to non-test-anxious students in the same classroom. The non-test-anxious students, on the other hand, were more likely to spend more time on their art tasks, look at other children's work, and pay attention to the teacher. Even when no examination was scheduled for the day, high test-anxious students spent more time working quietly on their art tasks, were more likely to be helped by other children, and looked at other children's work less than low test-anxious children. These observations suggest that high test-anxious children may be less alert to peripheral

task cues and may be more dependent in their relationships with other children than low test-anxious children. Deffenbacher (1978) tested Wine's attentional theory with college sophomores. Highly test-anxious students under perceived high evaluation reported more distraction from autonomic arousal and worrisome thoughts and attended to more task-irrelevant variables. They also solved fewer anagrams than their low test-anxious counterparts under the same evaluative conditions or the highly test-anxious students under perceived nonevaluative conditions. Thus, Deffenbacher's findings support Wine's attentional theory of test anxiety.

Research using cognitive questionnaires lends further support to Wine's theory. Leitenberg, Yost, & Carroll-Wilson (1986) administered a self-report cognitive questionnaire to children in the fourth, sixth and eighth grades. Highly test-anxious children were more likely to endorse four types of cognitive errors on the Children's Negative Cognitive Error Questionnaire (CNCEQ; Leitenberg et al., 1986) than their non-test-anxious counterparts. In general, test-anxious students were more likely to attend selectively to the negative features of an event, to take personal responsibility for negative outcomes incorrectly, to overgeneralize predictions of negative outcomes, and to catastrophize the consequences of negative events. Zatz & Chassin (1985) conducted a similar study using the Children's Cognitive Assessment Questionnaire - Revised (CCAQ-R; Zatz & Chassin, 1985), a retrospective self-report measure administered directly following an exam. Test-anxious students endorsed more off-task thoughts and negative self-evaluation items and

fewer positive self-evaluation items than low and moderately test-anxious children. Interestingly, highly test-anxious students also reported significantly more on-task thoughts and coping self-statements. Zatz & Chassin (1985) explained that self-statements, even when positive in nature, interfere with performance on active tasks such as tests. It is important to note that all cognitions except the on-task thoughts of highly test-anxious students were significantly correlated with impaired performance. Furthermore, performance was impaired only under perceived evaluative conditions.

Indirect support for information processing and attentional theories also comes from the work of Morris & Liebert (1970). They found the Worry component of the Test Anxiety Questionnaire (TAQ; Mandler & Sarason, 1952) to be more highly and negatively related to exam grades than the Emotionality component. The Worry component of the TAQ involves cognitions associated with examinations and the Emotionality component refers to physiological arousal associated with examinations. Thus, it would appear that cognitions affect performance more than the physiological correlates of anxiety. Morris & Liebert found that pulse rate was no more highly related to Emotionality than to Worry. Another study found no differences between the physiological responses to testing situations in high- and low-test-anxious students (Hollandsworth, Glazeski, Kirkland, Jones, & Van Norman, 1979). Rather, highly test-anxious students appeared to label their arousal as debilitating and low test-anxious students appeared to view their arousal as facilitative. Thus, the cognitive interpretations of arousal differentiated

high and low test-anxious students. Hollandsworth et al. also found that the ratio of task-facilitating statements to task-debilitating statements was two to one for low test-anxious students, and approximately one to one for highly test-anxious students.

I.G. Sarason (1984) also adheres to an attentional theory of test anxiety. He administered a Reactions to Tests (RTT) scale and the Test Anxiety Scale to undergraduates. Performance impairment was significantly related to high TAS scores and only to the high cognitive interference factor (Worry) of the RTT. Sarason argues that cognitive interference interferes with task-relevant thoughts and thus causes impaired performance.

One study that examined information processing of highly test-anxious undergraduates uncovered two types of test-anxious students with performance deficits (Naveh-Benjamin, McKeachie, & Lin, 1987). Encoding skills were measured by performance on algorithm tasks. One type of test-anxious student had study skills deficits, poor organizational skills, problems in encoding information, and problems in retrieving information. The other type of test-anxious student had good study, organizational, and encoding skills, but had problems retrieving information, which Naveh-Benjamin et al. attributed to interference of worrisome thoughts. Although they uncovered two types of test-anxious students with performance deficits, they did not address test-anxious students without performance deficits. Tobias (1985) adheres to a similar deficits model. He argues that test-anxious students have information processing capacity deficits that produce interference in performance. Stu-

dents can become self-oriented rather than task-oriented due to affective preoccupations' (akin to the test-anxious student with problems only in retrieval; see Naveh-Benjamin et al., 1987) or they may not have the capacity to deal effectively with the information-processing demands of the task (akin to the test-anxious student with problems in encoding, organizing, etc.; see Naveh-Benjamin et al., 1987).

Paulman & Kennelly (1984) examined the relative effects of test anxiety and exam-taking skills on performance. Highly test-anxious, exam-skilled undergraduates performed as well as their low test-anxious counterparts on a Raven Advanced Progressive Matrices task. However, they performed more poorly on a backward Digit Span task than their low test-anxious counterparts. Low test-anxious, unskilled students exceeded the performance of high test-anxious, unskilled students on both tasks. This study suggests that good exam-taking skills can compensate for debilitating, anxiety-induced effects depending on the task demands, but it also argues that performance decrements, at least with complex tasks, are not due to skills deficits alone.

Although the above-mentioned attentional and information-processing theories of test anxiety appear to be plausible explanations for performance impairment, they do not address those test-anxious students who do not experience performance impairment. It is evident that not all test-anxious individuals perform poorly on tests (Galassi, Frierson, & Sharer, 1981). One study (Bruch, Pearl, & Giordano, 1986) examined high- and low-performing undergraduates and

test anxiety. They found that high-performing, high test-anxious students exhibited superior encoding strategies and test taking skills to low test-anxious, low performers and high test-anxious, low performers. There was no difference in performance between high- and low-test-anxious, high performers. Of all of the studies mentioned, the Bruch et al. study is the only one to indicate that some high test-anxious students perform as well as low test-anxious students under evaluative conditions and do not exhibit problems in encoding or retrieval.

In sum, a review of the literature indicates that there is support for information processing and attentional theories of test anxiety. However, these theories have not accounted for highly test-anxious students who do not exhibit performance decrements. Most studies have focused only on performance impairment. However, one study (Bruch et al.,1986) did find that highly test-anxious students who did not exhibit impaired performance had superior encoding strategies and test-taking skills than those with impaired performance. Generalizability of the results of information processing studies with undergraduates to school children awaits empirical investigation. Furthermore, future research should be directed at differential information processing and cognitive and attentional aspects of Test Anxiety Type A and Type B. It may be that Type A individuals possess good study, organizational, and encoding skills, whereas Type B individuals show deficits in these areas.

In addition to the attentional and information processing studies, researchers have addressed other correlates of anxiety in gen-

eral and test anxiety in particular. For example, Ollendick & Yule (1990) have revealed an association between high scores on the Children's Depression Inventory (CDI; Kovacs, 1981) and heightened levels of general anxiety. In their study of British and American Children between 8 and 10 years of age, children with high CDI scores also scored significantly higher on all of the factors of the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) and on the social evaluative factor of the Fear Survey Schedule for Children - Revised (FSSC-R; Ollendick, 1983). Although an association between depression and anxiety has been documented in several instances, few studies have examined if there is an association between test anxiety and depression. However, it must be noted that researchers have found that there is an inverse relationship between test anxiety and self-esteem and a positive relationship between test anxiety and external locus of control (Hembree, 1988). Depreeuw (1984) found that highly test-anxious undergraduates were more likely to be clinically depressed and have higher Fear Survey Schedule (Geer, 1965) scores than their low test-anxious counterparts. Again, the generalizability of this finding to school children awaits empirical investigation.

The prevalence of test anxiety among school-aged children has been estimated to be from 10% to 25% (King, Ollendick, & Gullone, 1990). Given the debilitating effects of test anxiety, the fact that Beidel found 60% of her test-anxious sample met diagnostic criteria for an anxiety disorder, and the often found association between anxiety and depression, the incidence and implications of the preva-

lence of test anxiety are alarming. Further research on test anxiety must be conducted to uncover preventive and mediating factors of test anxiety. Before this can be done, the construct of test anxiety should be examined more closely. Although research to date has delineated several aspects and dimensions to the construct of test anxiety (physiological, behavioral, and cognitive aspects, Type A and Type B, etc.), there is a paucity of information concerning how these aspects and dimensions are related and how they fit into the conceptualization of the construct of test anxiety. Furthermore, research to date primarily has investigated test anxiety as a unidimensional construct even though Sarason delineated two subtypes of test anxiety as early as 1975.

The primary purpose of this study was to attempt to integrate and extend these earlier findings. That is, an attempt was made to determine what factors differentiate Type A and Type B test anxiety in children and adolescents. A secondary purpose of this study was to investigate gender and age differences in test anxiety and its correlates. Because this study was a preliminary investigation into the differentiation of Type A and Type B test anxiety, the present study did not examine study skills or information processing skills. Rather, the investigation was limited to a focus on attentional and emotional correlates. It was intended that a follow-up study would investigate study skills and information processing skills and would look more closely at the attentional and emotional correlates through the use of behavioral and physiological measures.

METHOD

Subjects

Subjects were recruited through the Montgomery County Public Schools. In order to examine potential age-related differences in children's reactions to tests, three age groups drawn from three grade levels (4th, 7th, and 10th, respectively), were selected for comparison. The Test Attitude Inventory (TAI; Spielberger, 1977) was used to determine levels of test anxiety. The upper and lower 33% distributions in each grade, by gender, were selected for analysis. High test-anxious students were operationally defined as students who fell in the upper 33% distribution (by gender) of TAI scores in their grade level. Low test-anxious students were operationally defined as students who fell in the lower 33% distribution (by gender) of TAI scores in their grade level. Test Anxiety Type A and Test Anxiety Type B were differentiated through scores on the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). A median split by grade and gender was used with the RCMAS scores. Type Bs were operationally defined as test-anxious subjects who fell in the upper 50% distribution (by gender) of the RCMAS and Type As were operationally defined as test-anxious subjects who fell in the lower 50% distribution (by gender). Low test-anxious students who fell above the cutoff score on the RCMAS were used to control for differences due to general anxiety alone.

From Montgomery County Public Schools, 574 subjects out of a pool of approximately 1,468 (39.10%) participated in the study.

There were 85 girls and 65 boys in the fourth grade (Mean age = 9.61, S.D. = .57), 126 girls and 69 boys in the seventh grade (Mean age = 12.53, S.D. = .58), and 122 girls and 93 boys in the tenth grade (Mean age = 15.63, S.D. = .66). 14 subjects were excluded from statistical analyses due to response bias on the questionnaires.

Although a 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 3 (grade level) multiple analysis of variance (MANOVA) was proposed, the number of subjects in each cell was too small to permit full statistical analysis by grade level. Even with a liberal cutoff of the upper and lower 33% distribution of TAI scores and a median split of RCMAS scores, the number of subjects in the 12 cells ranged from 2 to 39. Overall 385 of the 570 subjects qualified for inclusion. Moreover, it was expected that each of the four TAI/RCMAS categories would have approximately the same number of subjects. However, a one-sample chi square test revealed that the number of subjects significantly differed among the four groups. The obtained chi square (127.74, $df=3$) was significant at the .001 level. There were almost four times as many subjects in the Type B group than in either the Type A group or the lo TAI/hi RCMAS group. Independent samples chi square tests revealed significant differences only between fourth and tenth grade subjects. The obtained chi square (14.113, $df=3$) was significant at the .01 level. There were proportionally more Type Bs in the fourth grade and more Type As and lo TAI/hi RCMAS subjects in the tenth grade. Collapsed across grade levels, there were 41 Type A (hi TAI/lo RCMAS) subjects (23 females, 18 males), 158 Type B (hi TAI/hi RCMAS) subjects (97 females, 61 males), 41 lo TAI/hi RCMAS

subjects (23 females, 18 males) and 145 lo TAI/lo RCMAS subjects (94 females, 51 males). (see Table 1)

Measures

Appendix A contains copies of all measures used in this study.

Self-Report Measures

Test Anxiety Inventory (TAI; Spielberger, 1977). This 20-item self-report measure is designed to measure test anxiety as a situation-specific personality trait. Respondents indicate on a four-point scale how often they experience what is described by each item. The TAI measures total test anxiety, the Worry (cognitive) component of test anxiety, and the Emotionality (physiological) component of test anxiety. Test-retest reliabilities for the TAI reported for high school, college, and graduate students ranged from .80 to .81 for two-week to one-month intervals. The test-retest reliability for a group of high school students after six months was .62. Internal consistency (alpha coefficients) has ranged from .92 to .96 for the total score, .83 to .91 for the Worry subscale, and .85 to .91 for the Emotionality subscale (Spielberger, 1977). The discriminant validity of the Emotionality and the Worry subscales awaits empirical investigation (DeVito, 1984). The TAI has been used extensively with high school and college populations, for which there is normative data. It has also been used successfully with middle school populations although normative data for this age group are lacking (Spielberger, 1977).

TABLE 1

Distribution of Subjects by Group

<u>RCMAS</u>	<u>Grade</u>	<u>TAI</u>					
		High			Low		
		F*	M*	Total	F*	M*	Total
	4	27	20	47	2	3	5
High	7	39	20	59	7	8	15
	10	31	21	52	9	12	21
	Total	97	61	<u>158</u>	18	23	<u>41</u>
	4	4	3	7	27	18	45
Low	7	6	5	11	37	15	52
	10	13	10	23	30	18	48
	Total	23	18	<u>41</u>	94	51	<u>145</u>

F = female, M = male

Test Anxiety Scale for Children (TASC; Sarason et al., 1960).

This 30-item, widely used scale inquires about children's reactions to testing situations and other evaluative contexts. The designated cutoff scores for high test anxiety are 12 for boys and 16 for girls. The designated cutoff scores for low test anxiety are 7 for boys and 10 for girls. Sarason et al. (1960) established the concurrent validity of the TASC by comparing it to Teacher Rating Scales (TRS; Sarason et al., 1960). Correlations between the TASC and TRS were found to be significant at p levels of .001 to .05 (average $r=.20$) (Sarason et al., 1960). Internal consistency of the TASC in a sample of 438 fifth and sixth graders was found to be .85 (Zatz & Chassin, 1985), and its test-retest reliability for fifth and sixth graders has been found to be .70 over four months (Wilson, 1975).

The TASC was used as a concurrent measure of test anxiety. It was necessary to administer the TASC to the younger children in our sample since the TAI has not been used with such children. A correlation of $r=.85$ between the TASC and the TAI was obtained for the fourth graders, providing initial support for use of the TAI with younger children.

Children's Manifest Anxiety Scale - Revised (RCMAS; Reynolds & Paget, 1981, Reynolds & Richmond, 1978). This 37 item scale measures chronic levels of anxiety and has a lie scale. Three anxiety factors have emerged for this scale: Physiological, Worry/Oversensitivity, and Concentration. Test-retest reliabilities were .87 after a one week interval and .59 after a six week interval for emotionally disturbed children; moreover, the scale has been

shown to have construct, concurrent, content, and predictive validity (Reynolds & Richmond, 1978). Discriminative validity awaits empirical investigation (Strauss, 1988). This scale is appropriate for use with all school-aged children.

Children's Depression Inventory (CDI; Kovacs, 1981). This scale has 27 items that describe various depressive symptoms (e.g., sad mood, appetite loss, sleep disturbance) in children. Children choose one of three sentences ranging from normal to clinically significant that describes them best in the past two weeks. Internal consistency (alpha coefficients) has ranged from .80 to .94. Test-retest reliabilities in a sample of 108 normal children were .82 after two weeks, .66 after four weeks, and .67 after six weeks (Saylor, 1988). The CDI has been shown to have construct, criterion, and concurrent validity (Saylor, Spirito, & Bennett, 1984). This scale is appropriate for use with all school-aged children.

Fear Survey Scale for Children - Revised (FSSC-R; Ollendick, 1983). 80 potentially fear-producing items (e.g., death, snakes, getting a shot) are listed in this scale. Children report their level of fear on a three-point scale (i.e., none, some, or a lot). Internal consistency (alpha coefficients) has ranged from .92 to .95. Test-retest reliabilities have ranged from .81 to .89 for one week and from .58 to .62 for three months. The FSSC-R is inversely related to locus of control ($r = -.60$) and self-concept ($r = -.69$) and positively related to trait anxiety ($r = .46$) in normal children (Ollendick, 1988). Five factors have emerged from the scale: Fear of Failure and Criticism, Fear of the Unknown, Fear of Injury and Small

Animals, Fear of Danger and Death, and Medical Fears (Ollendick, King, & Frary, 1989). This scale is appropriate to use with all school-aged children.

Children's Cognitive Assessment Questionnaire - Revised (CCAQ-R; Zatz & Chassin, 1985). This questionnaire assesses children's cognitions during testing by retrospective self-reports. It has five subscales: On-Task Thoughts, Off-Task Thoughts, Positive Self-Evaluations, Negative Self-Evaluations, and Coping Self Statements. Internal consistencies (alpha coefficients) for fifth and sixth graders were .68 (on-task), .82 (off-task), .87 (positive self-evaluations), .88 (negative self-evaluations), and .81 (coping statements). This scale has been used only with third to sixth graders. In this study it was administered to all subjects immediately following an imaginal test-taking situation.

Subjective Units of Distress (SUDS) This is a scale designed for use in this study with the number "1" indicating not at all anxious and the number "10" indicating highly anxious. Subjects were to indicate their level of anxiety during the imaginal test-taking situation.

Academic Measures

School grades. Grades were used to measure academic performance. Grades from math, English, and science (i.e., classes that all of the students of the three grade levels shared) were converted to a 4.0 GPA scale. An "A" was equivalent to a 4.0, a "B" to a 3.0, etc. The grades were obtained from the 1990-91 school year report cards.

Ability and achievement tests. The scores of the most recent ability (Cognitive Ability Test, or, COGAT) and achievement tests (Iowa Test of Basic Skills, or, ITBS) were used to operationally define the children's level of ability and achievement. Although these instruments are not a "pure" measure of ability or achievement, they have been used in numerous studies of test anxiety (e.g., Zatz & Chassin, 1983; 1985). These test scores were obtained only for fourth and seventh grade students; tenth grade students had not recently completed such standardized tests. Ability-achievement discrepancies could not be obtained because they were in a separate, confidential file that was not included in the consent form.

School attendance. Studies have shown that children who are highly test-anxious or school phobic, of which test anxiety may be a contributing factor, often miss school to avoid taking a test (Beidel, 1988; King, Ollendick, & Gullone, 1990). School attendance records for the past two years were used to document school absences.

Procedure

A letter (see Appendix B) was sent to the superintendent of Montgomery County Schools describing the research project and requesting permission to conduct the project in the school system. Following permission from the superintendent, the principal of each school with a fourth, seventh, or tenth grade was contacted. 7 out of 10 elementary schools with fourth graders participated, 4 out of 4 middle schools with seventh graders participated, and 4 out of 4 high schools with tenth graders participated (see Appendix C for a

list of participating schools). A letter was sent home with all students in the targeted classes to their parents. The letter included a description of the procedures, a consent form for their children to participate, and a release of information in order to obtain the children's grade and achievement reports (see Appendix B).

The experimenter or project staff went into the fourth, seventh, and tenth grade classrooms to administer the first packet of questionnaires (TAI, TASC, RCMAS, CDI) to those students for whom parental permission was obtained. Within one week, the experimenter or project staff returned to the classroom to administer the second packet of questionnaires (FSSC-R, CCAQ-R, SUDS). The CCAQ-R was administered after the subjects were instructed to imagine a test-taking situation (see Appendix D for the scripts used during testing). During each session, the test administrator read standard instructions for each questionnaire to the students and answered questions they may have had while they completed the questionnaires. The test administrator also read each question aloud and went through examples with the fourth graders to be certain that the students understood what was requested of them. The sessions lasted approximately 30 to 45 minutes each. Both packets were administered within a two-week time period.

School records for the 1990-1991 school year were obtained for all subjects. The records included the most recent grade reports, ability and achievement scores, and record of school attendance for the past two years. Due to student relocation, differences in record keeping, and lost records, some of this data was not available.

HYPOTHESES

The primary hypotheses were in regard to Test Anxiety Type A and Type B.

Type B test-anxious students were expected to have higher RCMAS, CDI, and FSSC-R scores than Type A test-anxious students and low test-anxious students (with or without general anxiety). Low test-anxious students with high levels of general anxiety were predicted to have higher scores on these measures than Type A test-anxious students, who were expected to score higher on these measures than low test-anxious students without general anxiety. Similar results were expected for the factor scores of these measures.

Type B test-anxious students were expected to have higher SUDS and TAI total and factor scores than Type A test-anxious students, who were expected to have higher scores than low test-anxious students with general anxiety, who were expected to score higher than low test-anxious students without general anxiety.

Both subtypes of test anxiety were predicted to have significantly lower grades and more absences than their low test-anxious counterparts with or without general anxiety. Differences between the two subtypes of test anxiety on these dependent variables were also explored. It was expected that Type Bs would have lower grades and more absences than Type As.

High test-anxious children were expected to show more task-debilitating cognitions (negative self-evaluations and off-task thoughts), but also more on-task thoughts and coping self-state-

ments than their low test-anxious counterparts. Given the exploratory nature of cognitions in Type A and Type B test-anxious children, no specific hypotheses concerning the differential cognitions of Type As and Type Bs were predicted.

Exploratory analyses of age-related effects were also conducted. Due to the lack of literature on test anxiety Types A and B in children, no specific hypotheses regarding age-related effects were put forth, however. Furthermore, due to the limited number of subjects per cell by grade level, age-related effects could not be analyzed statistically for Type A and Type B test anxiety. Instead, age-related effects on the combined types of test anxiety and gender were examined.

RESULTS

Internal Consistencies

Internal consistencies were determined for each of the measures and their factor scores. For the TAI, coefficient alphas were .93 for the total score, .82 for the Worry factor, and .87 for the Emotionality factor. The coefficient alpha obtained for the TASC was .91. For the RCMAS, coefficient alphas were .89 for the total score, .68 for the Physiological factor, .82 for the Worry/Oversensitivity factor, .72 for the Concentration factor, and .75 for the lie scale. A .90 coefficient alpha was obtained for the CDI. For the FSSC-R, the coefficient alphas were .96 for the total score, .90 for the Failure and Criticism factor, .88 for the Unknown factor, .87 for the Injury and Small Animals factor, .89 for the Danger and Death factor, and .74 for the Medical factor. Coefficient alphas for the factors of the CCAQ-R were .75 for On-Task Thoughts, .77 for Off-Task Thoughts, .85 for Positive Self-Evaluations, .89 for Negative Self-Evaluations, and .77 for Coping Self Statements.

Test Anxiety X General Anxiety X Gender Analyses

Separate analyses were conducted on the total scores of the measures, then the factor scores, and lastly the school measures and standardized tests. For each of these categories, a multiple analysis of variance (MANOVA) was conducted, then univariate analyses were performed. Only results consistent with the MANOVA effects were reported in the univariate analyses.

Total Scores

A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) multiple analysis of variance (MANOVA) was conducted on the total scores of the TAI, RCMAS, CDI, FSSC-R, and SUDS. There were significant main effects attributable to the level of test anxiety ($F=133.81$, $df=5/291$, $p<.001$), the level of general anxiety ($F=84.64$, $df=5/291$, $p<.001$), and gender ($F=18.35$, $df=5/291$, $p<.001$). The interaction of test anxiety and gender was also significant ($F=2.65$, $df=5/291$, $p<.05$). None of the other interactions were significant. Means and standard deviations are provided in Table 2.

Subsequent univariate 2 X 2 X 2 analyses of variance (ANOVAs) were conducted on the total scores of these measures. Only effects consistent with the results of the MANOVA were reported. Unless otherwise noted, significant main effects for level of test anxiety, level of general anxiety, and gender indicated that high test-anxious, high generally anxious, and female subjects scored significantly higher on the dependent measures than their counterparts. For the TAI, significant main effects for level of test anxiety ($F=1395.15$, $df=1/295$, $p<.001$), level of general anxiety ($F=11.35$, $df=1/295$, $p<.001$), and gender ($F=39.17$, $df=1/295$, $p<.001$) were found. The interaction of test anxiety and gender also was significant ($F=12.94$, $df=1/295$, $p<.001$). A simple main effects analysis revealed that there were significant differences between males and females with both levels of test anxiety. When graphically displayed, the differences between the genders grew more disparate as they moved from low to high test anxiety (See Fig. 1).

TABLE 2

Means and Standard Deviations of Total Scores(Test Anxiety X General Anxiety X Gender)ANXIETY GROUP (TAI/RCMAS)

<u>MEASURE</u>	<u>High/High</u>		<u>High/Low</u>		<u>Low/High</u>		<u>Low/Low</u>	
	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>
TAI								
<u>M</u>	57.67	49.98	53.39	46.00	29.06	27.83	26.75	24.86
<u>SD</u>	8.44	8.73	7.37	6.32	2.98	2.52	3.93	3.15
RCMAS								
<u>M</u>	20.30	15.10	10.39	6.22	18.00	13.52	6.07	3.86
<u>SD</u>	3.15	4.26	2.98	2.07	2.48	3.26	3.42	2.68
CDI								
<u>M</u>	17.81	15.84	8.04	11.53	14.06	12.17	5.08	3.82
<u>SD</u>	8.19	9.24	5.77	8.47	7.48	7.96	4.22	4.78
FSSC-R								
<u>M</u>	140.85	121.42	135.83	107.75	136.75	107.95	115.45	99.69
<u>SD</u>	29.78	23.84	24.34	22.16	24.39	19.93	19.51	20.83
SUDS								
<u>M</u>	4.62	3.40	4.35	2.94	3.00	2.05	2.60	1.69
<u>SD</u>	2.88	2.48	3.41	1.95	1.22	1.73	1.83	1.14

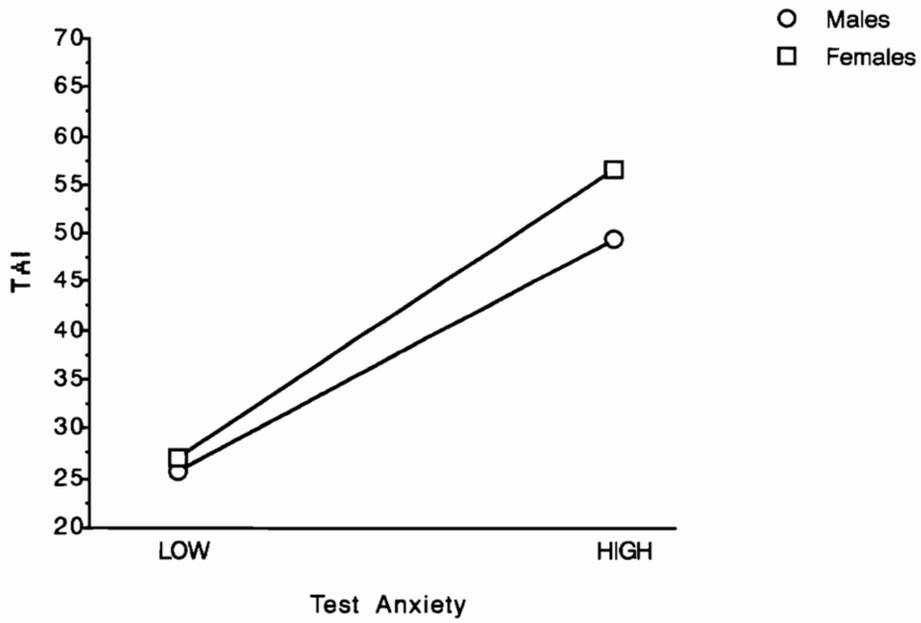


Figure 1. Test anxiety by gender interaction for the TAI.

Significant main effects of test anxiety ($F=638.46$, $p<.001$, $df=1/295$), general anxiety ($F=416.83$, $p<.001$, $df=1/295$), and gender ($F=92.17$, $p<.001$, $df=1/295$) were also found for the RCMAS. The interaction of test anxiety and gender ($F=10.08$, $df=1/295$, $p<.001$) was significant as well. A simple main effects analysis revealed that there were significant differences between males and females only when high in test anxiety (See Fig. 2). On the CDI, significant main effects were found for test anxiety ($F=160.23$, $p<.001$, $df=1/295$) and general anxiety ($F=73.95$, $p<.001$, $df=1/295$) only. The main effect for gender and the interaction between test anxiety and gender were not significant, however. Significant main effects for test anxiety ($F=52.18$, $df=1/295$, $p<.001$), general anxiety ($F=5.05$, $df=1/295$, $p<.025$), and gender ($F=39.04$, $df=1/295$, $p<.001$) were also found for FSSC-R scores. However, a significant interaction between test anxiety and gender was not observed. Lastly, for the SUDS, there was a significant main effect of test anxiety ($F=44.28$, $df=1/295$, $p<.001$) and gender, ($F=17.95$, $df=1/295$, $p<.001$), but no significant main effect of general anxiety or significant interactions between test anxiety and gender.

Factor Analyses

TAI Factors: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the Worry and Emotionality factors of the TAI. There were significant main effects for level of test anxiety ($F=407.00$, $df=2/375$, $p<.001$), level of general anxiety ($F=7.56$, $df=2/375$, $p<.001$), and gender ($F=18.09$, $df=2/375$, $p<.001$). The in-

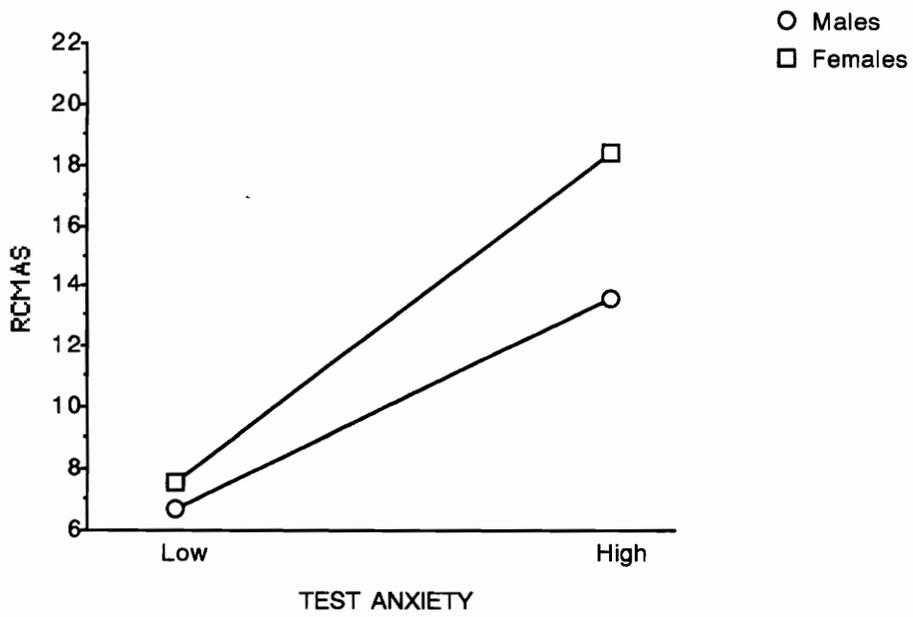


Figure 2. Test anxiety by gender interaction for the RCMAS.

teraction of test anxiety and gender ($F=6.81$, $df=2/375$, $p<.001$) also was significant. Means and standard deviations are listed in Table 3.

The univariate ANOVA on the Worry factor illustrated significant differences for the level of test anxiety ($F=1112.95$, $df=1/376$, $p<.001$), level of general anxiety ($F=11.13$, $df=1/376$, $p<.001$), and gender ($F=56.54$, $df=1/376$, $p<.001$), as well as the interaction between test anxiety and gender ($F=13.56$, $df=1/376$, $p<.001$). An analysis of simple main effects indicated that females scored significantly higher than males when high test-anxious, but there were no differences between the genders when low test-anxious (see Fig. 3). Significant main effects for test anxiety ($F=1112.95$, $df=1/376$, $p<.001$), general anxiety ($F=11.13$, $df=1/376$, $p<.001$), and gender ($F=56.54$, $df=1/376$, $p<.001$), as well as the interaction between test anxiety and gender ($F=13.56$, $df=1/376$, $p<.001$), were found in the univariate analysis of the Emotionality factor as well. A simple main effects analysis revealed that there were significant differences between both genders when high and low test-anxious. When graphically displayed, the difference in scores increased between the genders as they went from low to high test anxiety (See Fig. 4).

RCMAS Factors: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the three anxiety factors of the RCMAS. There were significant main effects for level of test anxiety ($F=11.55$, $df=4/366$, $p<.001$), level of general anxiety ($F=141.96$, $df=4/366$, $p<.001$), and gender ($F=26.74$, $df=4/366$,

TABLE 3

Means and Standard Deviations of TAI Factors
(Test Anxiety X General Anxiety X Gender)

ANXIETY GROUP (TAI/RCMAS)

<u>MEASURE</u>	High/High		High/Low		Low/High		Low/Low	
	F	M	F	M	F	M	F	M
Worry								
<u>M</u>	21.88	19.29	20.26	18.58	12.06	11.57	10.17	9.94
<u>SD</u>	4.39	4.37	3.77	3.55	2.79	1.50	1.92	1.75
Emotionality								
<u>M</u>	23.88	20.41	22.57	18.17	11.44	10.78	11.15	9.86
<u>SD</u>	4.39	4.08	3.87	3.05	2.03	1.70	2.33	1.69

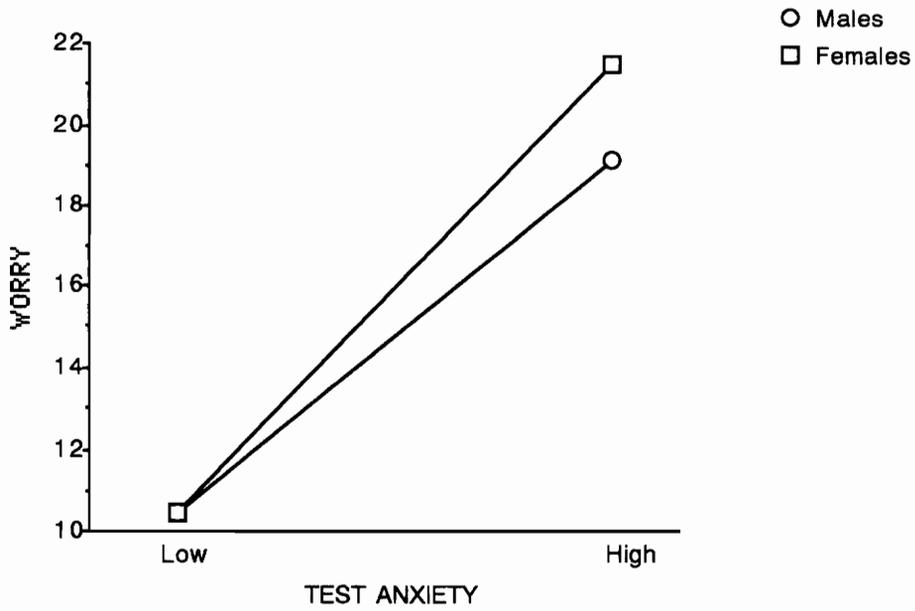


Figure 3. Test anxiety by gender interaction for the Worry factor.

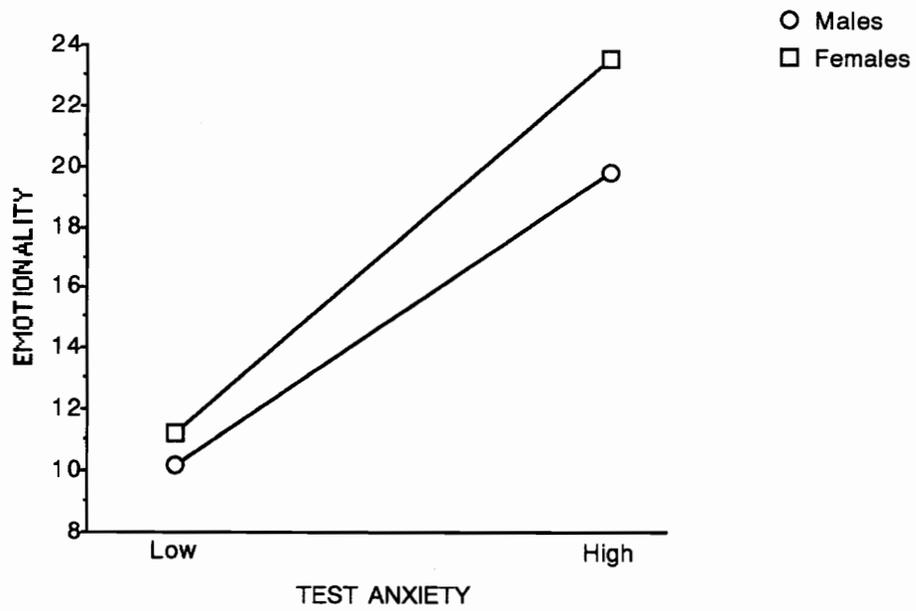


Figure 4. Test anxiety by gender interaction for the Emotionality factor.

$p < .001$). There were no significant interactions. Means and standard deviations are provided in Table 4.

Subsequent univariate analyses were conducted on the three factor scores and the lie scale of the RCMAS. For the Physiological factor, significant main effects for level of test anxiety ($F=215.66$, $df=1/369$, $p < .001$), level of general anxiety ($F=220.19$, $df=1/369$, $p < .001$), and gender ($F=39.82$, $df=1/369$, $p < .05$) were found. Significant main effects of test anxiety ($F=449.50$, $df=1/369$, $p < .001$), general anxiety ($F=289.43$, $df=1/369$, $p < .001$), and gender ($F=110.53$, $df=1/369$, $p < .001$) were found for the Worry/Oversensitivity factor of the RCMAS also. For the Concentration factor, the main effects of test anxiety ($F=235.89$, $df=1/369$, $p < .001$), general anxiety ($F=256.58$, $df=1/369$, $p < .001$), and gender ($F=21.17$, $df=1/369$, $p < .001$) were significant. No significant main effects were found on the lie scale of the RCMAS. Thus, for each of the three factors, there were significant main effects of test anxiety, general anxiety, and gender. However, there were no significant interactions.

FSSC-R Factors: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the five FSSC-R factor scores. Significant main effects were found for level of test anxiety ($F=4.53$, $df=5/330$, $p < .001$), level of general anxiety ($F=10.08$, $df=5/330$, $p < .001$), and gender ($F=12.70$, $df=5/330$, $p < .001$). The interactions of test anxiety and general anxiety ($F=3.87$, $df=5/330$, $p < .002$) and general anxiety and gender ($F=2.45$, $df=5/330$, $p < .033$) were found to be significant as well. No other interactions were

TABLE 4

Means and Standard Deviations of RCMAS Factors(Test Anxiety X General Anxiety X Gender)ANXIETY GROUP (TAI/RCMAS)

<u>MEASURE</u>	High/High		High/Low		Low/High		Low/Low	
	F	M	F	M	F	M	F	M
Physiological								
<u>M</u>	6.59	4.97	3.00	2.67	6.00	4.74	2.36	1.57
<u>SD</u>	1.69	1.91	1.54	1.53	1.75	1.96	1.63	1.35
Worry/Oversensitivity								
<u>M</u>	8.82	6.33	5.17	2.17	7.56	5.04	2.50	1.25
<u>SD</u>	1.63	2.24	1.80	1.47	1.86	2.29	1.21	1.65
Concentration								
<u>M</u>	4.89	3.80	2.22	1.43	4.44	3.74	1.21	1.04
<u>SD</u>	1.41	1.56	1.17	0.75	1.26	1.63	1.27	1.30
Lie								
<u>M</u>	2.14	2.18	2.13	2.24	1.81	1.91	2.81	2.06
<u>SD</u>	2.10	2.13	1.98	2.12	2.17	2.48	2.37	2.10

significant. Means and standard deviations are provided in Table 5.

Univariate analyses of variance (ANOVAs) were conducted on the factor scores of the FSSC-R. For the Failure and Criticism factor, significant main effects of test anxiety ($F=86.56$, $df=1/334$, $p<.001$), general anxiety ($F=30.63$, $df=1/334$, $p<.001$), and gender ($F=30.15$, $df=1/334$, $p<.001$) were found. There were no significant interactions between test anxiety and general anxiety or general anxiety and gender, however. Significant main effects of test anxiety ($F=23.59$, $df=1/334$, $p<.001$), general anxiety ($F=4.81$, $df=1/334$, $p<.03$), and gender ($F=34.82$, $df=1/334$, $p<.001$) were found for the Unknown factor as well. The interaction of test anxiety and general anxiety ($F=3.84$, $df=1/7$, $p<.05$) was also found to be significant, but not the interaction of general anxiety and gender. An analysis of simple effects illustrated that the low test/low general anxious subjects scored significantly lower than the other three groups (see Fig. 5). No other differences were noted. For the Injury and Small Animals factor, the main effects of test anxiety ($F=21.34$, $df=1/334$, $p<.001$) and gender ($F=66.78$, $df=1/334$, $p<.001$) were significant. The main effect of general anxiety and the interactions between test anxiety and general anxiety as well as general anxiety and gender were not significant. The main effects of test anxiety ($F=23.93$, $df=1/334$, $p<.001$), general anxiety ($F=3.79$, $df=1/334$, $p<.05$), and gender ($F=41.29$, $df=1/334$, $p<.001$) were also significant for the Danger and Death factor. However, the interaction between test anxiety and general anxiety and the interaction between general anxiety and gender were not significant. Lastly, significant main

TABLE 5

Means and Standard Deviations of FSSC-R Factors(Test Anxiety X General Anxiety X Gender)ANXIETY GROUP (TAI/RCMAS)

<u>MEASURE</u>	High/High		High/Low		Low/High		Low/Low	
	F	M	F	M	F	M	F	M
Criticism								
<u>M</u>	43.90	39.69	40.11	32.35	39.88	34.77	33.40	28.91
<u>SD</u>	9.42	8.52	5.70	7.23	7.33	8.47	6.55	7.23
Unknown								
<u>M</u>	27.87	23.85	27.67	23.40	29.31	21.77	23.49	20.78
<u>SD</u>	6.79	6.01	7.18	5.97	7.40	4.40	4.54	4.73
Injury and Small Animals								
<u>M</u>	28.23	22.98	29.44	22.00	27.94	21.82	24.45	20.22
<u>SD</u>	7.01	5.17	6.00	5.57	5.80	4.91	4.90	4.32
Danger and Death								
<u>M</u>	25.30	21.79	24.72	17.85	24.38	17.36	21.23	18.47
<u>SD</u>	6.71	5.51	5.93	4.61	6.61	4.17	5.54	5.74
Medical								
<u>M</u>	7.43	5.79	5.78	5.05	7.00	5.32	5.72	4.82
<u>SD</u>	2.41	1.70	1.40	1.23	1.79	1.58	1.82	1.34

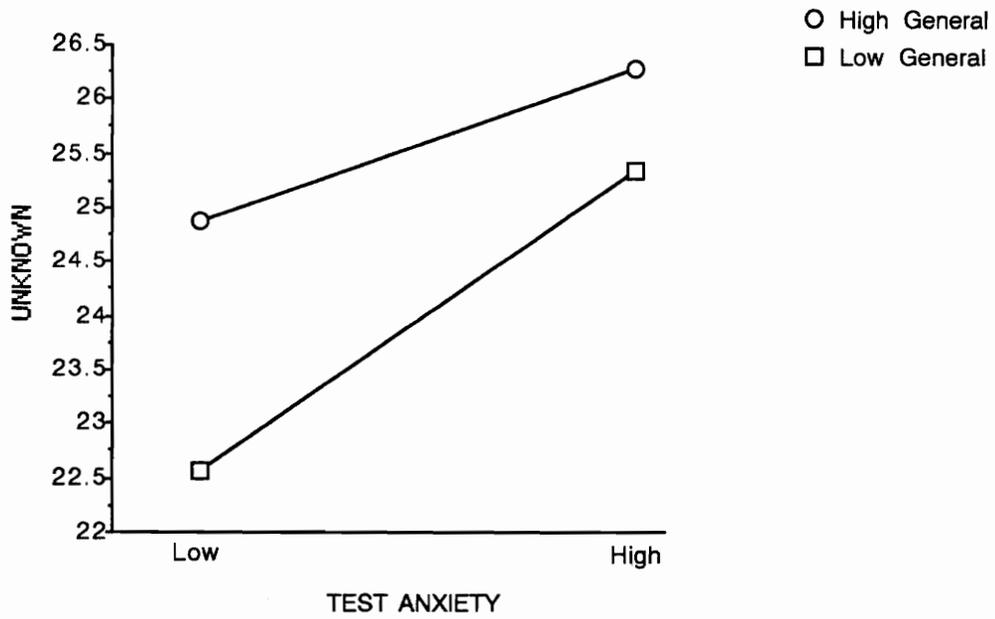


Figure 5. Test anxiety by general anxiety interaction for the Unknown factor.

effects of test anxiety ($F=22.67$, $df=1/334$, $p<.001$), general anxiety ($F=17.86$, $df=1/334$, $p<.001$), and gender ($F=39.76$, $df=1/334$, $p<.001$) were found for the Medical fears factor, but the interactions between test anxiety and general anxiety as well as general anxiety and gender were not significant.

In sum, there were significant main effects of test anxiety and gender for each of the five factors. The main effect of general anxiety was significant for all but the Injury and Small Animals factor. Lastly, there was only one significant interaction between test anxiety and general anxiety, which was observed on the Unknown factor.

CCAQ-R Factors: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the five factor scores of the CCAQ-R. There were significant main effects attributable to the level of test anxiety ($F=21.268$, $df=5/331$, $p<.001$), level of general anxiety ($F=7.67$, $df=5/331$, $p<.001$), and gender ($F=6.816$, $df=5/331$, $p<.001$). There were no significant interactions. Table 6 contains the means and standard deviations.

Subsequent univariate analyses on the factor scores of the CCAQ-R were conducted. For On-Task Thoughts, significant effects were found for test anxiety ($F=12.62$, $df=1/335$, $p<.001$) and gender ($F=10.83$, $df=1/335$, $p<.001$). However, the main effect of general anxiety was not significant. The main effects of test anxiety ($F=159.01$, $df=1/335$, $p<.001$), general anxiety ($F=32.46$, $df=1/335$, $p<.001$), and gender ($F=9.60$, $df=1/335$, $p<.002$) were significant for Off-Task Thoughts. For Positive Self-Evaluations, the main effects of test anxiety ($F=26.21$, $df=1/335$, $p<.001$) and gender ($F=13.68$,

TABLE 6

Means and Standard Deviations of CCAQ-R Factors(Test Anxiety X General Anxiety X Gender)

<u>MEASURE</u>	<u>ANXIETY GROUP (TAI/RCMAS)</u>							
	<u>High/High</u>		<u>High/Low</u>		<u>Low/High</u>		<u>Low/Low</u>	
	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>
On-Task Thoughts								
<u>M</u>	27.83	26.00	25.50	22.42	25.06	22.73	24.83	23.76
<u>SD</u>	4.95	6.11	5.04	4.96	4.65	5.82	5.56	6.41
Off-Task Thoughts								
<u>M</u>	27.55	24.55	22.56	22.47	22.13	21.00	18.28	17.33
<u>SD</u>	5.20	4.92	4.71	3.69	4.95	6.98	4.72	4.87
Positive Self-Evaluations								
<u>M</u>	20.43	24.49	19.83	20.47	23.00	28.14	24.47	25.20
<u>SD</u>	5.67	6.03	4.99	4.66	4.41	6.21	6.91	6.95
Negative Self-Evaluations								
<u>M</u>	22.47	19.92	18.33	18.05	16.63	14.05	13.20	12.78
<u>SD</u>	7.18	6.63	3.46	5.04	4.41	4.42	3.64	2.76
Coping Self Statements								
<u>M</u>	26.17	24.34	24.17	21.11	21.44	21.45	21.45	21.24
<u>SD</u>	4.43	5.51	5.77	5.22	4.60	6.16	6.18	8.19

df=1/335, $p < .001$) were found to be significant. For this factor only, subjects who were low test-anxious and male scored significantly higher than their counterparts. The main effect of general anxiety, however, was not significant. For Negative Self-Evaluations, the main effects of test anxiety ($F=162.67$, $df=1/335$, $p < .001$), general anxiety ($F=15.17$, $df=1/335$, $p < .001$), and gender ($F=6.90$, $df=1/335$, $p < .009$) were all significant. Lastly, the main effects of test anxiety ($F=30.66$, $df=1/335$, $p < .001$) and gender ($F=4.40$, $df=1/335$, $p < .037$) were found to be significant for Coping Self Statements. The main effect of general anxiety was not significant.

In sum, there were significant main effects of test anxiety and gender for each of the five factors. The Positive Self-Evaluations factor was the only factor in which male, low test-anxious subjects scored significantly lower than their counterparts. There also was a significant main effect of general anxiety for the Off-Task Thoughts and Negative Self-Evaluations factors. There were no significant interactions.

School Measures: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the average of the math, science, and English grades for the current year and average absences over the past two years. Significant main effects were found for test anxiety ($F=4.616$, $df=2/251$, $p < .011$) and gender ($F=3.156$, $df=2/251$, $p < .044$). The interaction between test anxiety and gender ($F=3.822$, $df=2/251$, $p < .023$) also was found to be significant. The main effect of level of general anxiety, the interaction between test anxiety and general anxiety as well as general anxiety and gender,

and the three-way interaction were not significant. Means and standard deviations are listed in Table 7.

Subsequent univariate analyses were conducted on the average school grades and absences. Only the main effect of test anxiety was significant for the average of school grades ($F=5.28$, $df=1/252$, $p<.022$). Subjects with low test anxiety had significantly higher grades than subjects with high test anxiety. The main effect of gender and the interaction between test anxiety and gender were not significant. For the average absences, the interaction between test anxiety and gender was found to be significant ($F=4.84$, $df=1/252$, $p<.029$). An analysis of simple main effects illustrated that high test-anxious females had significantly more absences than any of the other three groups. There were no significant differences between the other groups (see Fig. 6). The main effects of test anxiety and gender were not found to be significant.

Standardized Test Scores: A 2 (hi/lo TAI) X 2 (hi/lo RCMAS) X 2 (female/male) MANOVA was conducted on the average achievement test scores and average ability test scores. The main effect of level of test anxiety ($F=15.418$, $df=2/198$, $p<.001$) was found to be significant. There were no significant interactions. Table 8 provides the means and standard deviations.

Subsequent 2X2X2 univariate analyses were conducted on these averages. For the achievement test, a significant main effect of test anxiety ($F=49.84$, $df=1/199$, $p<.001$) was found. Similarly, a significant result was found for the main effect of test anxiety ($F=30.34$, $df=1/199$, $p<.001$) for the ability test.

TABLE 7

Means and Standard Deviations of School Measures
(Test Anxiety X General Anxiety X Gender)

<u>ANXIETY GROUP (TAI/RCMAS)</u>								
<u>MEASURE</u>	High/High		High/Low		Low/High		Low/Low	
	F	M	F	M	F	M	F	M
School Grades								
<u>M</u>	2.79	2.96	2.61	2.36	2.51	2.78	3.26	3.17
<u>SD</u>	0.79	1.69	0.77	1.15	0.70	1.01	0.67	0.80
Absences								
<u>M</u>	7.81	5.41	7.72	4.31	4.60	4.80	6.06	6.16
<u>SD</u>	6.49	4.82	6.66	4.20	2.10	4.00	5.62	5.36

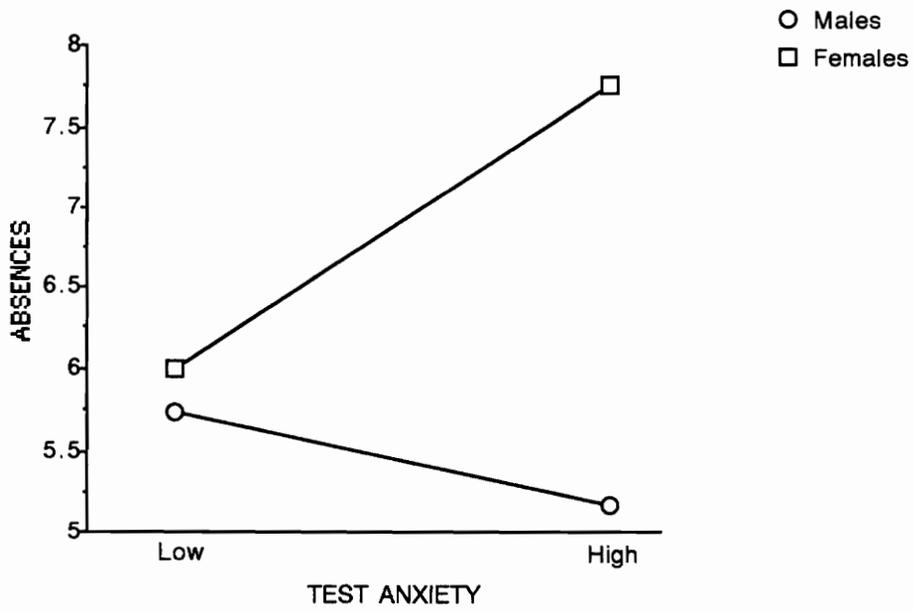


Figure 6. Test anxiety by gender interaction for School Absences.

TABLE 8

Means and Standard Deviations of Standardized Test Scores
(Test Anxiety X General Anxiety X Gender)

<u>MEASURE</u>	<u>ANXIETY GROUP (TAI/RCMAS)</u>							
	<u>High/High</u>		<u>High/Low</u>		<u>Low/High</u>		<u>Low/Low</u>	
	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>
<u>Achievement Tests</u>								
<u>M</u>	55.69	41.61	46.35	30.31	57.52	40.75	69.87	62.18
<u>SD</u>	23.43	32.06	35.25	30.57	37.41	39.01	25.97	34.88
<u>Ability Tests</u>								
<u>M</u>	52.65	43.64	39.39	32.27	53.03	39.46	67.02	60.35
<u>SD</u>	25.68	35.94	35.71	31.17	36.93	41.25	27.85	34.89

Test Anxiety X Gender X Grade Analyses

Grade level was examined to determine age-related effects of test anxiety. Gender was included in this analysis because its interaction with test anxiety was significant in several of the former analyses. Only results consistent with MANOVA effects which contained a grade effect were reported, since test anxiety and gender effects were reported earlier. It will be noted that effects due to general anxiety were not explored in these analyses.

Total Scores

A 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was conducted on the total scores of the TAI, RCMAS, CDI, FSSC-R, and SUDS. There were no significant grade effects. Means and standard deviations are reported in Table 9.

Factor Analyses

TAI Factors: A 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was conducted on the Worry and Emotionality factors of the TAI. The main effect of grade level and all interactions with grade level were not found to be significant. Means and standard deviations are listed in Table 10.

RCMAS Factors: A 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was conducted on the three factors and the lie scale of the RCMAS. A significant main effect of grade level ($F=2.490$, $df=8/736$, $p<.011$) as well as a significant interaction between test anxiety and grade level ($F=3.347$, $df=8/736$, $p<.001$) were found. However, the interaction between grade level and gender was not significant. Table 11 contains the means and standard deviations.

TABLE 9

Means and Standard Deviations of Total Scores
(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
TAI						
<u>M</u>	56.13	57.27	56.25	51.78	50.19	46.08
<u>SD</u>	8.22	8.73	8.16	11.36	5.31	6.78
RCMAS						
<u>M</u>	19.52	17.91	17.52	14.65	12.50	12.13
<u>SD</u>	5.37	4.87	4.85	6.20	5.32	4.80
CDI						
<u>M</u>	15.26	14.73	17.00	16.96	14.31	13.33
<u>SD</u>	7.39	7.81	10.29	10.15	10.38	7.21
FSSC-R						
<u>M</u>	142.94	141.46	133.39	118.59	114.33	119.07
<u>SD</u>	32.12	30.07	24.31	23.45	18.31	28.40
SUDS						
<u>M</u>	4.07	4.74	4.74	3.68	2.96	3.32
<u>SD</u>	2.93	3.06	2.85	2.52	2.12	2.44
MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
TAI						
<u>M</u>	26.45	27.24	27.69	24.43	26.33	26.43
<u>SD</u>	4.76	3.74	3.23	3.26	3.31	3.05
RCMAS						
<u>M</u>	6.21	7.61	9.72	3.67	7.75	8.53
<u>SD</u>	4.16	5.46	5.80	3.51	4.98	5.74
CDI						
<u>M</u>	4.65	6.23	8.39	4.00	5.08	9.17
<u>SD</u>	4.00	6.14	6.10	4.12	5.33	8.82
FSSC-R						
<u>M</u>	115.00	121.05	121.03	99.05	105.50	102.16
<u>SD</u>	24.38	20.29	20.99	23.70	18.78	19.82
SUDS						
<u>M</u>	2.31	2.59	3.12	1.45	1.76	2.18
<u>SD</u>	1.69	1.53	2.05	0.60	1.18	1.84

TABLE 10

Means and Standard Deviations of TAI Factors
(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
WORRY						
<u>M</u>	20.94	21.76	21.61	20.22	18.69	21.61
<u>SD</u>	4.60	4.40	3.94	5.07	4.15	3.94
EMOTIONALITY						
<u>M</u>	23.13	23.91	23.41	20.87	20.92	23.41
<u>SD</u>	4.16	4.23	4.46	4.99	2.78	4.46
MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
WORRY						
<u>M</u>	10.55	10.47	10.49	9.38	11.29	10.49
<u>SD</u>	2.73	2.00	1.85	1.80	1.78	1.85
EMOTIONALITY						
<u>M</u>	10.86	11.20	11.49	10.00	10.13	11.49
<u>SD</u>	2.52	2.34	1.94	1.52	1.68	1.94

Subsequent 2X2X3 univariate analyses were conducted on the factor scores of the RCMAS. For the Physiological factor, a significant interaction between test anxiety and grade level ($F=7.71$, $df=2/371$, $p<.001$) was found. The main effect of grade level was not significant. For the test anxiety by grade level interaction, an analysis of simple main effects revealed that there were no differences between grade levels when low in test anxiety, but fourth graders reported more physiological arousal than tenth graders when high in test anxiety, while seventh graders did not differ from either of these groups (see Fig. 7). For the Worry/Oversensitivity factor, a significant main effect of grade level ($F=3.75$, $df=2/371$, $p<.024$) as well as a significant interaction between test anxiety and grade level ($F=8.59$, $df=2/371$, $p<.001$) were found. Fourth graders scored significantly lower on this factor than seventh or tenth graders. An analysis of simple main effects for the test anxiety by grade level interaction revealed that there were no differences between grade levels when high in test anxiety, but fourth graders scored significantly lower than seventh and tenth graders who did not differ from one another (see Fig. 8). The interaction between test anxiety and grade level ($F=7.09$, $df=2/371$, $p<.001$) was found to be significant for the Concentration factor. The main effect for grade level, however, was not significant. An analysis of simple main effects for the test anxiety by grade level interaction once again revealed that there were no differences between grade levels when high in test anxiety, but fourth graders scored significantly lower than seventh and tenth graders, who did

TABLE 11

Means and Standard Deviations of RCMAS Factors(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
PHYSIOLOGICAL						
<u>M</u>	6.48	5.91	5.39	5.35	4.50	5.39
<u>SD</u>	2.11	2.11	2.19	2.12	2.08	2.19
WORRY/OVERSENSITIVITY						
<u>M</u>	8.26	8.09	7.84	5.74	4.85	7.84
<u>SD</u>	2.22	2.37	2.09	3.02	2.69	2.09
CONCENTRATION						
<u>M</u>	4.77	3.91	4.30	3.57	3.15	4.30
<u>SD</u>	1.75	1.61	1.90	1.93	1.89	1.90
LIE						
<u>M</u>	1.68	2.24	2.32	2.13	2.00	2.32
<u>SD</u>	2.14	1.98	2.05	2.22	2.12	2.05
MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
PHYSIOLOGICAL						
<u>M</u>	2.79	2.89	3.15	1.86	2.54	3.15
<u>SD</u>	2.14	2.14	2.06	2.13	1.98	2.06
WORRY/OVERSENSITIVITY						
<u>M</u>	2.00	3.20	4.41	1.05	2.96	4.41
<u>SD</u>	1.81	2.59	2.76	1.72	2.51	2.76
CONCENTRATION						
<u>M</u>	1.41	1.52	2.15	0.76	2.25	2.15
<u>SD</u>	1.32	1.70	1.89	1.18	1.89	1.89
LIE						
<u>M</u>	2.34	3.16	2.36	1.57	1.29	2.36
<u>SD</u>	2.65	2.25	2.13	2.06	1.55	2.13

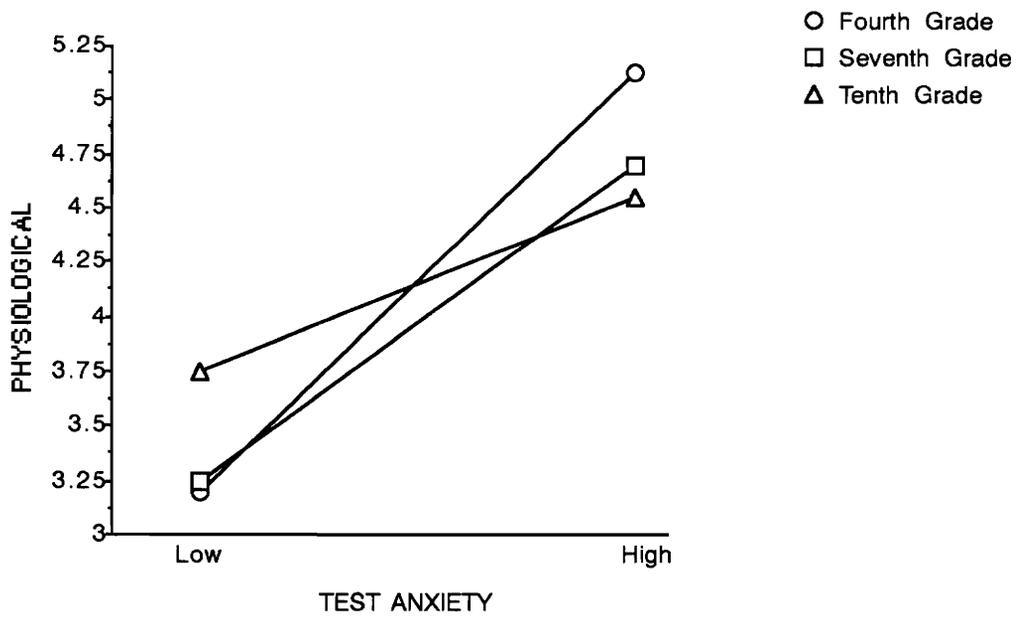


Figure 7. Test anxiety by grade level interaction for the Physiological factor.

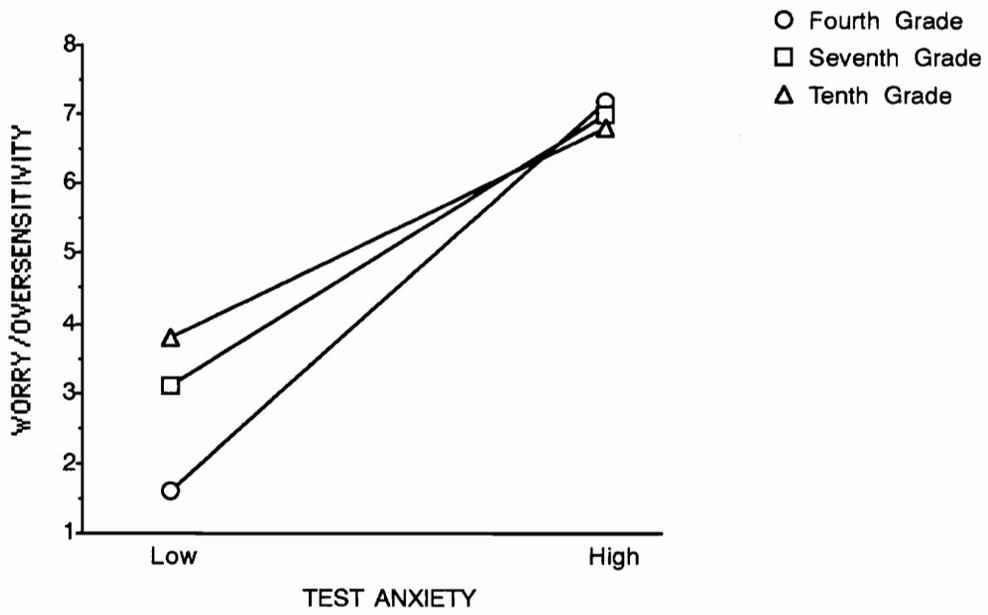


Figure 8. Test anxiety by grade interaction for the Worry/Oversensitivity factor.

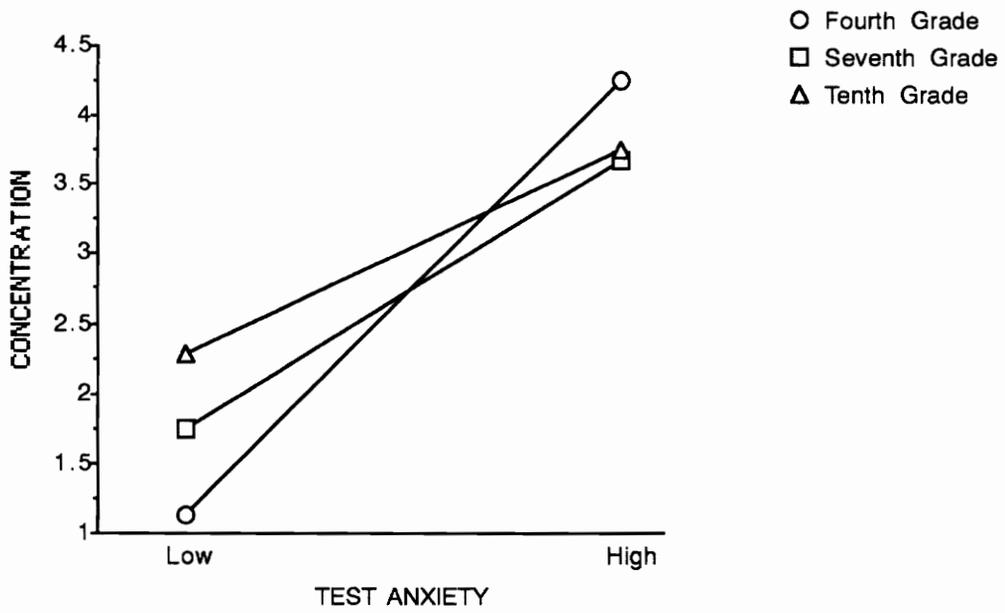


Figure 9. Test anxiety by grade interaction for the Concentration factor.

not differ from one another when low in test anxiety (see Fig. 9). There were no significant effects for the lie scale.

In sum, there was a significant interaction between test anxiety and grade level for each of the three factors, with no differences between the high test anxiety groups, but significantly higher scores by grade level in the low test anxiety groups. The main effect of grade was significant only for the Worry/Oversensitivity factor, with fourth graders scoring significantly lower than seventh or tenth graders.

FSSC-R Factors: For the five FSSC-R factors, a 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was also conducted. Only the main effect of grade level ($F=5.624$, $df=10/664$, $p<.001$) was significant. No significant interactions were found. Means and standard deviations are provided in Table 12.

Subsequent 2X2X3 univariate ANOVAs were conducted on the FSSC-R factor scores. For the Failure and Criticism, Unknown, Injury and Small Animals, and Medical factors, the main effect of grade level was not significant. For the Danger and Death factor, however, the main effect of grade level ($F=6.32$, $df=2/336$, $p<.002$) was significant. Tenth graders scored significantly lower on this factor than fourth and seventh graders.

CCAQ-R Factors: A 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was conducted on the five factor scores of the CCAQ-R. The main effect of grade level ($F=3.377$, $df=10/666$, $p<.001$) was significant. None of the interactions were significant. Table 13 provides the means and standard deviations.

TABLE 12

Means and Standard Deviations of FSSC-R Factors
(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
Failure and Criticism						
<u>M</u>	42.81	43.21	42.42	37.64	36.71	38.32
<u>SD</u>	9.16	9.40	8.92	8.55	7.58	10.19
Unknown						
<u>M</u>	28.84	28.18	26.24	23.59	22.46	24.68
<u>SD</u>	8.05	6.89	5.31	5.69	4.27	7.16
Injury and Small Animals						
<u>M</u>	28.81	28.23	27.76	22.09	21.75	23.89
<u>SD</u>	7.62	7.34	5.91	4.58	3.25	6.72
Danger and Death						
<u>M</u>	26.74	25.90	22.97	22.14	20.96	19.29
<u>SD</u>	6.23	6.62	6.15	5.70	5.80	4.80
Medical						
<u>M</u>	7.42	7.44	6.45	5.95	5.33	5.43
<u>SD</u>	2.36	2.37	2.24	1.59	1.61	1.60
MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
Failure and Criticism						
<u>M</u>	32.81	35.81	34.85	28.19	33.32	30.96
<u>SD</u>	7.97	6.75	6.89	7.28	8.44	7.85
Unknown						
<u>M</u>	23.22	25.05	24.70	20.95	20.82	21.36
<u>SD</u>	5.09	5.92	4.98	6.14	3.65	3.97
Injury and Small Animals						
<u>M</u>	24.30	24.74	26.33	19.38	21.00	21.56
<u>SD</u>	5.57	4.98	5.22	4.41	3.59	5.24
Danger and Death						
<u>M</u>	22.07	22.05	21.27	19.10	19.10	16.28
<u>SD</u>	6.72	5.34	5.57	6.48	5.25	3.53
Medical						
<u>M</u>	5.63	5.95	6.33	4.95	4.86	5.08
<u>SD</u>	1.96	1.96	1.81	1.40	1.42	1.50

TABLE 13

Means and Standard Deviations of CCAQ-R Factors
(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
On-Task Thoughts						
<u>M</u>	26.45	28.67	27.05	24.73	27.36	23.67
<u>SD</u>	4.88	4.40	5.74	6.04	5.64	5.99
Off-Task Thoughts						
<u>M</u>	25.29	27.36	26.59	21.91	25.36	24.59
<u>SD</u>	5.41	4.99	5.89	5.13	4.19	4.17
Positive Self-Evaluations						
<u>M</u>	18.81	21.36	20.82	24.55	24.20	21.70
<u>SD</u>	5.86	5.09	5.91	6.33	4.99	6.10
Negative Self-Evaluations						
<u>M</u>	21.42	21.21	21.87	17.86	20.12	19.81
<u>SD</u>	6.77	6.03	7.88	6.91	5.98	6.06
Coping Self Statements						
<u>M</u>	25.90	26.92	24.87	23.64	25.12	22.04
<u>SD</u>	4.88	4.31	4.79	6.33	5.33	4.69
MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
On-Task Thoughts						
<u>M</u>	23.86	25.32	24.82	23.71	25.45	21.72
<u>SD</u>	6.10	5.32	4.88	6.30	6.80	5.32
Off-Task Thoughts						
<u>M</u>	18.29	18.04	20.63	16.14	20.09	19.32
<u>SD</u>	4.94	5.00	4.65	5.05	5.49	6.28
Positive Self-Evaluations						
<u>M</u>	24.14	23.00	25.66	26.52	26.23	26.04
<u>SD</u>	7.54	5.36	6.91	7.34	6.48	6.86
Negative Self-Evaluations						
<u>M</u>	13.64	12.95	14.66	12.19	13.50	13.80
<u>SD</u>	4.27	3.10	4.36	2.64	2.44	4.44
Coping Self Statements						
<u>M</u>	20.04	21.57	22.46	21.81	23.86	19.28
<u>SD</u>	6.39	5.85	5.78	8.55	8.57	5.53

Subsequent 2X2X3 univariate analyses were conducted on the factor scores of the CCAQ-R. For On-Task Thoughts, a significant main effect of grade level ($F=5.91$, $df=2/337$, $p<.003$) was found. Seventh graders had significantly higher scores than fourth and tenth graders. Similarly, the main effect of grade level ($F=6.02$, $df=2/337$, $p<.003$) was significant for Off-Task Thoughts. In this case, fourth graders had significantly lower scores than seventh and tenth graders. The main effect of grade level was not significant for the factors of Positive Self-Evaluations and Negative Self-Evaluations. For Coping Self Statements, the main effect of grade level ($F=3.02$, $df=1/337$, $p<.050$) was significant. A subsequent comparison of the means did not reveal which grade levels were significantly different from one another.

School Measures: A 2 (hi/lo TAI) X 2 (female/male) X 3 (grade level) MANOVA was conducted on the average math, science, and English grades of the current year as well as the average absences over the past two years. The main effect of grade level and all interactions were not significant. Means and standard deviations are provided in Table 14.

Standardized Test Scores: A 2 (hi/lo TAI) X 2 (female/male) X 2 (4th and 7th grade levels) MANOVA was also conducted on the standardized achievement and ability test scores. The main effect of grade level ($F=4.75$, $df=4/204$, $p<.01$) was significant, as well as the interaction between test anxiety, gender, and grade ($F=3.05$, $df=4/204$, $p<.05$). Table 15 contains the means and standard deviations.

TABLE 14

Means and Standard Deviations of School Measures(Test Anxiety X Gender X Grade)

MEASURE	<u>HIGH TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
School Grades						
<u>M</u>	3.24	2.61	2.52	3.12	2.48	2.93
<u>SD</u>	0.64	0.71	0.82	0.71	1.07	2.61
Absences						
<u>M</u>	7.65	9.22	6.42	6.21	5.58	4.15
<u>SD</u>	6.98	7.07	5.07	5.38	4.78	4.00

MEASURE	<u>LOW TEST ANXIETY</u>					
	<u>F</u>			<u>M</u>		
	<u>4</u>	<u>7</u>	<u>10</u>	<u>4</u>	<u>7</u>	<u>10</u>
School Grades						
<u>M</u>	3.56	3.16	4.18	3.52	2.94	2.32
<u>SD</u>	0.49	0.69	0.86	0.35	0.88	1.33
Absences						
<u>M</u>	7.28	6.89	4.10	6.14	6.56	4.88
<u>SD</u>	7.35	5.27	2.61	4.12	6.70	4.42

TABLE 15

Means and Standard Deviations of Standardized Test Scores
(Test Anxiety X Gender X Grade)

<u>MEASURE</u>	<u>HIGH TEST ANXIETY</u>			
	<u>F</u>		<u>M</u>	
	<u>4</u>	<u>7</u>	<u>4</u>	<u>7</u>
Achievement Tests				
<u>M</u>	63.56	51.84	51.00	56.45
<u>SD</u>	20.08	22.78	26.18	25.39
Ability Tests				
<u>M</u>	55.04	53.56	48.41	65.86
<u>SD</u>	26.20	24.76	27.47	25.75

<u>MEASURE</u>	<u>LOW TEST ANXIETY</u>			
	<u>F</u>		<u>M</u>	
	<u>4</u>	<u>7</u>	<u>4</u>	<u>7</u>
Achievement Tests				
<u>M</u>	76.65	74.61	75.56	74.71
<u>SD</u>	16.64	16.94	16.50	22.85
Ability Tests				
<u>M</u>	74.61	71.32	71.87	77.51
<u>SD</u>	19.16	20.21	21.69	20.65

Subsequent 2X2X2 univariate ANOVAs were conducted on the separate test scores. For both the achievement and ability tests, there were no significant findings.

DISCUSSION

The main purpose of this study was to examine what factors differentiate Type A from Type B test anxiety. Unfortunately, the findings from this study shed little light on this distinction. The results of this study indicate that most children who experience test anxiety also experience general anxiety, rather than test anxiety alone in the absence of general anxiety. That is, most children can be categorized as Type B test-anxious. There are almost four times as many Type B test-anxious children ($n=158$) than there are Type A test-anxious children ($n=41$). Although there were significantly more Type B than Type A children, there were no significant differences between these two groups of children on measures of fear, depression, cognitive interference, school performance, and standardized test performance. It is possible that the distinction between Type A and Type B test anxiety cannot be made as readily with children as it can with adults (Sarason, I.G., 1975). As is obvious, there appears to be little differentiation of emotional distress in the children of this sample. General anxiety appears to be just one of a host of emotional factors associated with test anxiety. The lack of significant differences also may be due to methodological issues related to the representativeness of the sample and assessment issues. Each of these possibilities will be discussed more fully below.

According to the findings of this study, children who are test-anxious, whether Type A or Type B, are also more likely to report

higher levels of general anxiety, fear, and depression. As predicted, children with high test anxiety score significantly higher on the RCMAS, CDI, and FSSC-R than low test anxious subjects. Subjects with test anxiety also score significantly higher on the factor scores of these measures than low test anxious subjects.

Consistent with most research findings, females in this sample also score higher than males on the measures of anxiety, fear, and depression as well as the factor scores of these measures.

Test-anxious students are more likely to experience cognitive interference during test-taking in the form of off-task thoughts, negative self-statements, on-task thoughts, and coping statements, as measured by the CCAQ-R. However, low test-anxious students are more likely to endorse positive self-evaluation items on the CCAQ-R. Perhaps these findings illustrate that high test-anxious children have less self efficacy with regard to their test-taking abilities. Repeated failure experiences may lead highly test-anxious children to believe they lack the ability to perform well (see Hill & Wigfield, 1984). This possibility awaits additional study. Children with test anxiety are also more likely to have lower grades in school and to score lower on achievement and cognitive ability tests. However, it cannot be determined from this study whether test anxiety inhibits performance or performance deficits lead to test anxiety. In addition to these findings, females with high test anxiety are more likely to have school absences than males with high test anxiety. This may be because females in general are more likely to experience and present with somatic complaints when anx-

ious about a test. However, this too awaits empirical investigation. Regrettably, there were no clear-cut age-related differences in relation to test anxiety and its correlates.

There are several possible reasons why the Type A/Type B distinction was not supported in this study. First, studies which examined this distinction in terms of differential treatment focused on adult test anxiety. Childhood test anxiety may not be so clearly differentiated. Perhaps one cannot assume that the construct of test anxiety in children is the same as, or even similar to, that in adults. Negative evaluation may be conceptualized differently in children, leading to a different subjective experience. The younger children especially may not have attained the cognitive and social development necessary to consider fully the implications of negative evaluation.

Another reason for the lack of the Type A/Type B distinction may be that test anxiety is a facet of general anxiety in most children. That is, test anxiety is but one of many possible symptoms of general anxiety, and not a specific disorder that stands alone. If so, in terms of treatment, a broad relaxation and cognitive restructuring program may be more appropriate than systematic desensitization with a hierarchy of highly specific, test-related items.

It is important to note that there were almost four times as many Type Bs as there were Type As. Beidel (1988) suggested that children who are test anxious are 'anxiety-prone' and may be at risk for developing more pervasive anxiety disorders. The findings of this study support her position. However, Beidel only examined the

comorbidity of other anxiety disorders with test anxiety. It is also possible that these children are more prone to depression and to negative affect in general than to anxiety alone. Some studies have indicated that children may experience a general state of emotional distress rather than a specific form of anxiety, fear, or depression. For example, Watson and Clark (1984) argue for a personality trait of negative affectivity in adults. According to these researchers, individuals who are high in negative affectivity are likely to experience emotional distress more often than not and in a variety of situations, whether or not overt stress is present. Wolfe, Finch, Saylor, Blount, Pallmeyer, and Carek (1987) indicate that the concept of negative affectivity applies to children as well. They noted that self-report measures of depression and anxiety are significantly interrelated. These findings suggest that children who exhibit negative views of themselves would be labeled as depressed, socially withdrawn, or anxious by adults when in fact such refined distinctions cannot be made. In this study of test anxiety, highly test-anxious children are not only more likely to have general anxiety, but also to be at risk for fear and depression, thus lending support to the notion of negative affectivity. Interestingly, more tenth graders fell into the more specific Type A test anxiety or high generally anxious alone categories than fourth graders, who tended to fall in the more global Type B category. Thus, it is possible that children experience a more general negative affect which becomes more specific with maturation. This awaits empirical investigation.

Only children's self-reports were utilized in this study, which also may account for the lack of support for the Type A/Type B distinction. Most of the measures in this study are highly correlated with each other and contain some items in common. For example, the TAI, RCMAS, CDI, and CCAQ-R all contain items associated with worry, concentration difficulties, physiological symptoms, somatic complaints, hopelessness, and loneliness. Such overlap may prevent elucidation of more distinct emotional states that are associated only with Type A or Type B test anxiety. Moreover, many studies have advocated a multimethod assessment of children. Perhaps a more extensive assessment battery is needed to determine what differentiates Type A and Type B test anxiety. For example, children's self reports may not elucidate this distinction as clearly as physiological and behavioral measures or teacher reports and parent reports. Behavioral measures might lend clarification of whether children behave differently in testing versus other evaluative situations and whether the items endorsed on self-reports are more indicative of one emotional disorder than another, for example, depression rather than anxiety.

Another possible reason for the lack of differentiation is that the variables studied may not be the differentiating factors. Other variables worthy of examination would be measures of study skills, information-processing, self-efficacy, social skills, attributions, perceived evaluative threat, and family variables. As mentioned earlier, study skills and information-processing variables have been shown to be related to test-anxious children's academic perfor-

mance. These factors may also be related to the Type A/Type B distinction. Children with deficient study skills may be Type A test-anxious whereas children with deficient information-processing skills may be Type B test-anxious, for their handicap could possibly be more pervasive. Given that test-anxious students endorse more negative self-statements during testing, studies of self-efficacy may elucidate the Type A and Type B distinction. Perhaps Type As perceive evaluative threat only in formal testing situations, but Type Bs perceive evaluative threat in many academic and interpersonal situations. Once evaluative threat is perceived, the children may then lose their sense of self-efficacy. Moreover, poor social skills may contribute to a child's low sense of self-efficacy, thereby contributing further to anxiety in evaluative situations. It is also possible that Type A and Type B test-anxious children have different attributional styles, either in general or in specific test-taking situations only. The attributional style may vary based on whether or not a situation is perceived as involving evaluative threat. Lastly, since early family experiences have been implicated as a causal factor of test anxiety, early and current parent-child interactions should be studied.

It is also possible that the Type A/Type B distinction did not emerge because the sample of this study may not have been representative, due to the voluntary nature of the project. Approximately 40% of the 4th, 7th, and 10th graders participated. One could argue that severely test-anxious children elected not to participate for fear of negative evaluation. Thus, a large proportion of the Type As,

who may have been more representative of Type As in general, may not have been included in this study.

Clearly one area that merits further investigation is the relationship between test anxiety and other anxieties. It stands to reason that there is some sort of differentiation to be made between test anxiety Type A and Type B by virtue of the differential response to treatment found in previous research. First, however, it must be verified that children, like adults, show a differential treatment response based on the Type A/Type B distinction. Regardless of whether the Type A/Type B distinction emerges for children, the construct of test anxiety needs to be examined more closely. In addition, longitudinal studies should be conducted to determine whether test anxiety develops apart from other disorders in children or as part and parcel of the development of negative affect. The test-anxious children in this sample indicated problems in the areas of general anxiety, fears, depression, and cognitive distortions. Thus, test anxiety may serve as a good indicator to teachers, parents, and professionals of a more pervasive emotional problem in children.

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APPENDIX A

Self-Report Measures

TAI

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. **1=almost never 2=sometimes 3=often 4=almost always**

1. I feel confident and relaxed while taking tests
2. While taking examinations I have an uneasy, upset feeling
3. Thinking about my grade in a course interferes with my work on tests
4. I freeze up on important exams
5. During exams I find myself thinking about whether I'll ever get through school
6. The harder I work at taking a test, the more confused I get
7. Thoughts of doing poorly interfere with my concentration on tests
8. I feel very jittery when taking an important test
9. Even when I'm well prepared for a test, I feel very nervous about it
10. I start feeling very uneasy just before getting a test paper back
11. During tests I feel very tense
12. I wish examinations did not bother me so much
13. During important tests I am so tense that my stomach gets upset
14. I seem to defeat myself while working on important tests
15. I feel very panicky when I take an important test
16. I worry a great deal before taking an important examination
17. During tests I find myself thinking about the consequences of failing
18. I feel my heart beating very fast during important tests
19. After an exam is over I try to stop worrying about it, but I just can't
20. During examinations I get so nervous that I forget facts I really know

TASC

Directions: Read each question carefully. Blacken the circle with the number **1** if you think it is true about you. Blacken the circle with the number **2** if you think it is not true about you. **1** is yes, true about you. **2** is no, not true about you.

1. Do you worry when the teacher says that she is going to ask you questions to find out how much you know?
2. Do you worry about being promoted, that is, passing from your current grade to the next grade at the end of the year?
3. When the teacher asks you to get up in front of the class and read aloud, are you afraid that you are going to make some bad mistakes?
4. When the teacher says that she is going to call upon some boys and girls in the class to do arithmetic problems, do you hope that she will call upon someone else and not you?

skip number 5

6. Do you sometimes dream at night that you are in school and cannot answer the teacher's questions?
7. When the teacher says that she is going to find out how much you have learned, does your heart begin to beat faster?
8. When the teacher is teaching you about arithmetic, do you feel that other children in the class understand her better than you do?
9. When you are in bed at night, do you sometimes worry about how you are going to do in class the next day?
10. When the teacher asks you to write on the blackboard in front of the class, does the hand you write with sometimes shake a little?
11. When the teacher is teaching you about reading, do you feel that other children in class understand better than you do?
12. Do you think you worry more about school than other children?
13. When you are at home and you are thinking about your arithmetic lesson for the next day, do you become afraid that you will get the answers wrong when the teacher calls on you?
14. If you are sick and miss school, do you worry that you will do more poorly in your schoolwork than other children when you return to school?

15. Do you sometimes dream at night that other boys and girls in your class can do things you cannot do?
16. When you are home and you are thinking about your reading lesson for the next day, do you worry that you will do poorly on the lesson?
17. When the teacher says that she is going to find out how much you have learned, do you get a funny feeling in your stomach?
18. If you did very poorly when the teacher called on you, would you probably feel like crying even though you would try not to cry?
19. Do you sometimes dream at night that the teacher is angry because you do not know your lessons?
20. Are you afraid of school tests?
21. Do you worry a lot before you take a test?
22. Do you worry a lot while you are taking a test?
23. After you have taken a test, do you worry about how well you did on the test?
24. Do you sometimes dream at night that you did poorly on a test you had in school that day?
25. When you are taking a test, does the hand you write with shake a little?
26. When the teacher says that she is going to give the class a test, do you become afraid that you will do poorly?
27. When you are taking a hard test, do you forget some things you knew very well before you started taking the test?
28. Do you wish a lot of times that you didn't worry so much about tests?
29. When the teacher says that she is going to give the class a test, do you get a nervous or funny feeling?
30. While you are taking a test, do you usually think you are doing poorly?
31. While you are on your way to school, do you sometimes worry that the teacher may give the class a test?

RCMAS

Directions: Read each question carefully. Put a circle around the word **YES** if you think it is true about you. Put a circle around the word **NO** if you think it is not true about you.

- | | | |
|-----|----|--|
| YES | NO | 1. I have trouble making up my mind. |
| YES | NO | 2. I get nervous when things do not go the right way for me. |
| YES | NO | 3. Others seem to do things easier than I can. |
| YES | NO | 4. I like everyone I know. |
| YES | NO | 5. Often I have trouble getting my breath. |
| YES | NO | 6. I worry a lot of the time. |
| YES | NO | 7. I am afraid of a lot of things. |
| YES | NO | 8. I am always kind. |
| YES | NO | 9. I get mad easily. |
| YES | NO | 10. I worry about what my parents will say to me. |
| YES | NO | 11. I feel that others do not like the way I do things. |
| YES | NO | 12. I always have good manners. |
| YES | NO | 13. It is hard for me to get to sleep at night. |
| YES | NO | 14. I worry about what other people think about me. |
| YES | NO | 15. I feel alone even when there are people with me. |
| YES | NO | 16. I am always good. |
| YES | NO | 17. Often I feel sick in my stomach. |
| YES | NO | 18. My feelings get hurt easily. |
| YES | NO | 19. My hands feel sweaty. |
| YES | NO | 20. I am always nice to everyone. |
| YES | NO | 21. I am tired a lot. |
| YES | NO | 22. I worry about what is going to happen. |
| YES | NO | 23. Other children are happier than I. |
| YES | NO | 24. I tell the truth every single time. |
| YES | NO | 25. I have bad dreams. |
| YES | NO | 26. My feelings get hurt easily when I am fussed at. |
| YES | NO | 27. I feel someone will tell me I do things the wrong way. |
| YES | NO | 28. I never get angry. |
| YES | NO | 29. I wake up scared some of the time. |
| YES | NO | 30. I worry when I go to bed at night. |
| YES | NO | 31. It is hard for me to keep my mind on my school work. |
| YES | NO | 32. I never say things I shouldn't. |
| YES | NO | 33. I wiggle in my seat a lot. |
| YES | NO | 34. I am nervous. |
| YES | NO | 35. A lot of people are against me. |
| YES | NO | 36. I never lie. |
| YES | NO | 37. I often worry about something bad happening to me. |

CDI

Name _____ Age _____ Date _____

DIRECTIONS: Kids sometimes have different feelings and ideas. This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, go on to the next group. There is no right or wrong answer. Just pick the sentences that best describe the way you have been recently. Put a mark like this - X - next to your answer. Put the X on the line next to the sentence that you pick.

Here is an example of how this form works. Try it. Put a mark next to the sentence that describes you best:

- ___ I read books all the time
 ___ I read books once in a while
 ___ I never read books

Remember, pick out the sentence that describes your feelings and ideas in the past two weeks.

1. ___ I am sad once in a while
 ___ I am sad many times
 ___ I am sad all the time
2. ___ Nothing will ever work out for me
 ___ I am not sure if things will work out for me
 ___ Things will work out for me O.K.
3. ___ I do most things O.K.
 ___ I do many things wrong
 ___ I do everything wrong
4. ___ I have fun in many things
 ___ I have fun in some things
 ___ Nothing is fun at all
5. ___ I am bad all the time
 ___ I am bad many times
 ___ I am bad once in a while
6. ___ I think about bad things happening to me once in a while
 ___ I worry that bad things will happen to me
 ___ I am sure that terrible things will happen to me
7. ___ I hate myself
 ___ I do not like myself
 ___ I like myself

8. All bad things are my fault
 Many bad things are my fault
 Bad things are not usually my fault
9. I do not think about killing myself
 I think about killing myself but I would not do it
 I want to kill myself
10. I feel like crying everyday
 I feel like crying many days
 I feel like crying once in a while
11. Things bother me all the time
 Things bother me many times
 Things bother me once in a while
12. I like being with people
 I do not like being with people many times
 I do not want to be with people at all
13. I cannot make up my mind about things
 It is hard to make up my mind about things
 I make up my mind about things easily
14. I look O.K.
 There are some bad things about my looks
 I look ugly
15. I have to push myself all the time to do my schoolwork
 I have to push myself many times to do my schoolwork
 Doing schoolwork is not a big problem
16. I have trouble sleeping every night
 I have trouble sleeping many nights
 I sleep pretty well
17. I am tired once in a while
 I am tired many days
 I am tired all the time
18. Most days I do not feel like eating
 Many days I do not feel like eating
 I eat pretty well
19. I do not worry about aches and pains
 I worry about aches and pains many times
 I worry about aches and pains all the time
20. I do not feel alone
 I feel alone many times
 I feel alone all the time

21. ___ I never have fun at school
___ I have fun at school only once in a while
___ I have fun at school many times
22. ___ I have plenty of friends
___ I have some friends but I wish I had more
___ I do not have any friends
23. ___ My school work is all right
___ My school work is not as good as before
___ I do very badly in subjects I used to be good in
24. ___ I can never be as good as other kids
___ I can be as good as other kids if I want to
___ I am just as good as other kids
25. ___ Nobody really loves me
___ I am not sure if anybody loves me
___ I am sure that somebody loves me
26. ___ I usually do what I am told
___ I do not do what I am told most times
___ I never do what I am told
27. ___ I get along with people
___ I get into fights many times
___ I get into fights all the time

FSSC-R

NAME: _____ AGE: _____ DATE: _____

DIRECTIONS: A number of statements which boys and girls use to describe the fears they have are given below. Read each fear carefully and put an X on the line in front of the words that describe your fear. There are no right or wrong answers. Remember, find the words which best describe how much fear you have.

- | | | | |
|---|-------------------------------|-------------------------------|--------------------------------|
| 1. Giving an oral report | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 2. Riding in the car or bus | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 3. Getting punished by mother | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 4. Lizards | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 5. Looking foolish | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 6. Ghosts or spooky things | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 7. Sharp objects | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 8. Having to go to the hospital | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 9. Death or dead people | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 10. Getting lost in a strange place | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 11. Snakes | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 12. Talking on the telephone | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 13. Roller coaster or carnival rides | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 14. Getting sick at school | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 15. Being sent to the principal | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 16. Riding on the train | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 17. Being left at home with a sitter | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 18. Bears or wolves | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 19. Meeting someone for the first time | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 20. Bombing attacks--being invaded | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 21. Getting a shot from the nurse or doctor | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 22. Going to the dentist | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 23. High places like on mountains | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 24. Being teased | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 25. Spiders | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 26. A burglar breaking into our house | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 27. Flying in a plane | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 28. Being called on by the teacher | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 29. Getting poor grades | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 30. Bats or birds | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 31. My parents criticizing me | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 32. Guns | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 33. Being in a fight | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 34. Fire--getting burned | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 35. Getting a cut or injury | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 36. Being in a big crowd | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 37. Thunderstorms | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 38. Having to eat some food I don't like | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 39. Cats | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 40. Failing a test | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |
| 41. Being hit by a car or truck | <input type="checkbox"/> None | <input type="checkbox"/> Some | <input type="checkbox"/> A lot |

42. Having to go to school	None	Some	A lot
43. Playing rough games during recess	None	Some	A lot
44. Having my parents argue	None	Some	A lot
45. Dark rooms or closets	None	Some	A lot
46. Having to put on a recital	None	Some	A lot
47. Ants or beetles	None	Some	A lot
48. Being criticized by others	None	Some	A lot
49. Strange looking people	None	Some	A lot
50. The sight of blood	None	Some	A lot
51. Going to the doctor	None	Some	A lot
52. Strange or mean looking dogs	None	Some	A lot
53. Cemeteries	None	Some	A lot
54. Getting a report card	None	Some	A lot
55. Getting a haircut	None	Some	A lot
56. Deep water or the ocean	None	Some	A lot
57. Nightmares	None	Some	A lot
58. Falling from high places	None	Some	A lot
59. Getting a shock from electricity	None	Some	A lot
60. Going to bed in the dark	None	Some	A lot
61. Getting car sick	None	Some	A lot
62. Being alone	None	Some	A lot
63. Having to wear clothes different from others	None	Some	A lot
64. Getting punished by my father	None	Some	A lot
65. Having to stay after school	None	Some	A lot
66. Making mistakes	None	Some	A lot
67. Mystery movie	None	Some	A lot
68. Loud sirens	None	Some	A lot
69. Doing something new	None	Some	A lot
70. Germs or getting a serious illness	None	Some	A lot
71. Closed places	None	Some	A lot
72. Earthquakes	None	Some	A lot
73. Russia	None	Some	A lot
74. Elevators	None	Some	A lot
75. Dark places	None	Some	A lot
76. Not being able to breathe	None	Some	A lot
77. Getting a bee sting	None	Some	A lot
78. Worms or snails	None	Some	A lot
79. Rats or mice	None	Some	A lot
80. Taking a test	None	Some	A lot

CCAO-R

Children think many different things while they are taking a test. Here are some things that children may or may not think during a test. Read each sentence and decide how often you thought it while you were taking your _____ test. If you NEVER thought it, circle the number 1. If you SOMETIMES thought it, circle the number 2. If you thought it MOST OF THE TIME, circle the number 3. If you thought it ALL THE TIME, circle the number 4. You should only pick one answer for each sentence. There are no right or wrong answers.

WHILE I WAS TAKING THE TEST, I THOUGHT . . .

- | | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 1. . . . guess if you have to. |
| 1 | 2 | 3 | 4 | 2. . . . I have a bad memory for things like this. |
| 1 | 2 | 3 | 4 | 3. . . . try to calm down. |
| 1 | 2 | 3 | 4 | 4. . . . forget about how the others are doing. |
| 1 | 2 | 3 | 4 | 5. . . . work as quickly as possible. |
| 1 | 2 | 3 | 4 | 6. . . . my mind keeps wandering. |
| 1 | 2 | 3 | 4 | 7. . . . follow the instructions. |
| 1 | 2 | 3 | 4 | 8. . . . try to relax. |
| 1 | 2 | 3 | 4 | 9. . . . I am hungry. |
| 1 | 2 | 3 | 4 | 10. . . . stop daydreaming. |
| 1 | 2 | 3 | 4 | 11. . . . don't think so poorly of yourself. |
| 1 | 2 | 3 | 4 | 12. . . . I'm bright enough to do this. |
| 1 | 2 | 3 | 4 | 13. . . . I wonder what the examiner is going to find out about me. |
| 1 | 2 | 3 | 4 | 14. . . . I wish I were home. |
| 1 | 2 | 3 | 4 | 15. . . . I wish I were playing with my friends. |
| 1 | 2 | 3 | 4 | 16. . . . work as carefully as possible. |
| 1 | 2 | 3 | 4 | 17. . . . I am nervous and worried. |
| 1 | 2 | 3 | 4 | 18. . . . I catch on quickly to tests like this. |
| 1 | 2 | 3 | 4 | 19. . . . I keep on daydreaming. |
| 1 | 2 | 3 | 4 | 20. . . . tests like this are harder for me than the others. |
| 1 | 2 | 3 | 4 | 21. . . . I don't do well on tests like this. |
| 1 | 2 | 3 | 4 | 22. . . . skip the hard ones and come back to them later. |
| 1 | 2 | 3 | 4 | 23. . . . read each question carefully. |
| 1 | 2 | 3 | 4 | 24. . . . I wish this were over. |
| 1 | 2 | 3 | 4 | 25. . . . I'm doing worse than the others on this. |
| 1 | 2 | 3 | 4 | 26. . . . pretty soon I'll get to do something else. |
| 1 | 2 | 3 | 4 | 27. . . . answer the easy ones first. |
| 1 | 2 | 3 | 4 | 28. . . . there's no need to get upset about this. |
| 1 | 2 | 3 | 4 | 29. . . . I'm pleased with how I'm doing. |
| 1 | 2 | 3 | 4 | 30. . . . I can't seem to sit still. |
| 1 | 2 | 3 | 4 | 31. . . . I'm doing better on this than the others. |
| 1 | 2 | 3 | 4 | 32. . . . I'm doing poorly on this. |
| 1 | 2 | 3 | 4 | 33. . . . one step at a time. |
| 1 | 2 | 3 | 4 | 34. . . . the others probably think I'm too dumb to do this. |
| 1 | 2 | 3 | 4 | 35. . . . my answers to this aren't good enough. |
| 1 | 2 | 3 | 4 | 36. . . . answer every question. |
| 1 | 2 | 3 | 4 | 37. . . . my grade will be higher than the other kids. |
| 1 | 2 | 3 | 4 | 38. . . . I understand how to do this. |

- | | | | | |
|---|---|---|---|--|
| 1 | 2 | 3 | 4 | 39. ... I do well on tests like this. |
| 1 | 2 | 3 | 4 | 40. ... I'm too dumb to do this. |
| 1 | 2 | 3 | 4 | 41. ... I must be making many mistakes. |
| 1 | 2 | 3 | 4 | 42. ... my answers to this are correct. |
| 1 | 2 | 3 | 4 | 43. ... just do the best that you can. |
| 1 | 2 | 3 | 4 | 44. ... worrying won't help anything. |
| 1 | 2 | 3 | 4 | 45. ... I can't do this - I give up. |
| 1 | 2 | 3 | 4 | 46. ... I'm fast enough to finish this test. |
| 1 | 2 | 3 | 4 | 47. ... get back working on the test. |
| 1 | 2 | 3 | 4 | 48. ... this test is easy for me to do. |
| 1 | 2 | 3 | 4 | 49. ... stop worrying about how you'll do. |
| 1 | 2 | 3 | 4 | 50. ... check your answers over. |

APPENDIX B

Letters and Consent Form



COLLEGE OF ARTS AND SCIENCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061-0436

DEPARTMENT OF PSYCHOLOGY
(703) 231-6581

September 24, 1990

Dr. Harold K. Dodge
 Superintendent of Schools
 Montgomery County Schools
 200 Junkin Street
 Christiansburg, VA 24073

Dear Dr. Dodge:

Last spring, Judy Rutherford and I talked about a project examining test anxiety in children and adolescents in the school system. At that time, she suggested that I "hold" the project until the fall of this year. I recently spoke with her and am writing you at this time to explore your interest in the project.

As you know, children become more subject to formal testing as they enter middle school and proceed to high school. Interestingly, however, test anxiety is more likely to develop during the elementary school years and to escalate during the middle and senior high school years. Anxiety over testing situations can affect daily academic performance and performance on standardized tests such as achievement tests and the SATs. In conjunction with Ms. Peg Warren, a graduate clinician at Virginia Tech, I would like to initiate a study on test anxiety in the Montgomery County school system.

I write you at this time to further determine your interest, potential support, and approval. Basically, we would administer the following relatively brief questionnaires to classes at the fourth-, seventh-, and tenth-grade levels (about 100-120 students at each grade level): 1) the Test Anxiety Scale for Children, 2) the Test Attitude Inventory, 3) the Fear Survey Schedule for Children-Revised, 4) the Child Depression Inventory, 5) the Children's Manifest Anxiety Scale for Children, and 6) the Children's Cognitive Assessment Questionnaire-Revised (copies of each are attached). These questionnaires are well-standardized and appropriate for the respective age ranges. The questionnaires may be completed in 1 session of an hour and 20 minutes or two sessions of about 40 minutes each. Ms. Warren will administer the questionnaires to the classes.

Within a few days of the in-class assessment, it would be desirable for the classroom teacher to complete a Teacher Rating Scale (copy also attached) for each student. This takes about five minutes per child and provides information about the student's reactions to tests in the classroom as perceived by the teacher. Finally, we would request information about how the youth are doing in school (grades, achievement test scores).

Based on the specific findings, we would be in a good position to better understand the nature of test anxiety and its effects on academic performance. If appropriate and desired, we would be available to meet with educational staff, provide an estimate of the prevalence of test anxiety, and explore with them what could be done for children and adolescents with test anxiety. In short, I think it would be a project that would benefit us, your staff, and your students.

I would be willing to meet with you, or your designate, to discuss this project further. In the interim, thank you for your consideration of this request.

Sincerely,



Thomas H. Ollendick, Ph.D.
Professor and Director
of Clinical Training

clk
encs.
xc: Judy Rutherford



COLLEGE OF ARTS AND SCIENCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

*Blacksburg, Virginia 24061-0436*DEPARTMENT OF PSYCHOLOGY
(703) 231-6581

November 26, 1990

Steven Staples, Ed.D.
 Assistant Superintendent
 for Curriculum & Instruction
 Montgomery County Public Schools
 P. O. Box 29
 Christiansburg, VA 24073

Dear Steve:

It was good talking with you recently and hearing of your continued interest in our project on test anxiety for the Montgomery County School System. As I recall our conversation, you would have interest in supporting the project during the second semester when some of the external demands of review committees, etc., are completed. We look forward to working with you and initiating the project after the first semester is over. Actually, this will be a good time for us and your students (inasmuch as many of them will have recently completed semester examinations..

In our telephone conversation of October 23rd, you mentioned a few concerns regarding the project. In order, I should like to comment on them and determine if they address the issues raised. First, you inquired as to which teachers would complete the Teacher Rating Scales referred to in paragraph 4 of my September 24th letter to Dr. Dodge. This was raised as an issue because of the multiple teachers for any one student at the middle and high school levels. We no longer view this form as critical to the project and have decided to delete it. Obviously, this will be a welcome change to you and your faculty! Second, you inquired as to who would review the academic records to obtain information about grades, absenteeism, and achievement test scores. The issue here centered around how much time this would take and whether the teachers (or other school staff) would have the time to complete this process. As I mentioned on the phone, we would propose that a member of our project staff obtain this information. This will mean that we will need clearance to do so. One way in which we have addressed this in past projects is to indicate that we are obtaining this information for a school-endorsed project; that is, in our capacity as assisting you and the school system in determining the nature and scope of test anxiety in your students, you authorize us to obtain this information for our project. Confidentiality will, of course, be guaranteed. Third, you suggested that the project be implemented across the system and not in just one school (e.g., Christiansburg, Blacksburg). This is acceptable to us, and we would propose doing the project in all 4th, 7th, and 10th grades in the system. This will require more resources (staff, materials, time) on our part, but we will be prepared to meet this

challenge. In this way, too, the project can be endorsed system-wide and include all students in these grades in the project. In the past, in our long-term follow-up project of at-risk youth, we handled this by sending a letter to parents from the superintendent's office informing them of the project and its value to the system. In this fashion, as I understand it, individual parent permission is not required. What do you think? This would be ideal, and requested from our standpoint. Fourth, you inquired about the reading level of some of the questionnaires. We share this concern for some of the questionnaires, especially at the fourth-grade level. As a result, we propose reading the items to the boys and girls in the fourth grade. This will be necessary at least for the Test Attitude Inventory and the Children's Cognitive Assessment Questionnaire. The questionnaires should pose few problems for the 7th and 10th graders (with few exceptions), since the reading level of the items is estimated to be between the third and fourth grade level. Finally, you raised the issue of class time to complete the project. We are, of course, aware that our project will require time away from instruction. Unfortunately, we have no easy solution for this dilemma. The project will require two sessions of 40 minutes each to complete. As a suggestion, I wonder if the questionnaires might be administered during Health/Physical Education classes in the middle and high schools (by one of our staff). I suggest this because we could offer feedback on the project and present a discussion on stress (i.e., test anxiety) and its relationship to emotional and physical health to the class. This might make it more appealing to the teachers involved. At the elementary level, we could offer a similar "talk" to the class. Teachers at that level might recommend appropriate times for their classes to complete the questionnaires. Inasmuch as possible, we will be as flexible as we can be and attempt to work within the confines of the system.

I hope these comments begin to address your stated concerns. I would like to firm up as many of the details as possible over the next several weeks so that we can be in a position to commence the project early in the second semester. Of course, all of this depends on your final approval of the project.

Thank you once again for your attention to this request. I trust your Thanksgiving holiday was a pleasant one.

Sincerely,



Thomas H. Ollendick, Ph.D.
Professor and Director
of Clinical Training

clk
xc: Peg Warren, Project Coordinator



Montgomery County Public Schools

FAX 703-381-6127

200 JUNKIN STREET, P.O. BOX 29 CHRISTIANSBURG, VIRGINIA 24073

February 7, 1991

Thomas H. Ollendick, Ph.D.
 Professor and Director of Clinical Training
 Department of Psychology
 Virginia Tech
 Blacksburg, VA 24061

Dear Dr. Ollendick:

I have reviewed your request to use Montgomery County students in a survey and am pleased to grant you permission for this study as requested. Your project may be conducted at each school which houses grades 4, 7 and 10.

Strict adherence to the policies of the Montgomery County School Board require that the following conditions be met during this study:

- 1) No student names, school names or identifiers should be used without prior **WRITTEN** permission from the parents, students and the superintendent of schools.
- 2) Any publication, announcement, or use of the results of this survey beyond those described in your written request for permission will require additional **WRITTEN** permission from the superintendent of schools **PRIOR** to use.
- 3) All research must be cleared through the building principal **PRIOR** to beginning any study in a school. If multiple sessions are needed, each session should be cleared with the principal in advance and the researcher(s) should check in and out of the school through the principal's office for each session.
- 4) All research must be planned and conducted in an effort to **MINIMIZE** lost instructional time for the students involved.
- 5) Any other restrictions applied by the administration of the site school(s) should be strictly adhered to by all members of the research team.

I am pleased that you will be working with students in Montgomery County and appreciate your interest in the school division. If I can be of further service during your study, please do not hesitate to call on me.

Sincerely,

Steven R. Staples, Ed.D
 Assistant Superintendent,
 Curriculum & Instruction

cc: Dr. Dodge, Superintendent of Schools
 Doris McElfresh, Director of Elementary Education

Letter to Parents

Dear Parent or Guardian,

In collaboration with Montgomery County Schools, we (Peg Warren and Thomas H. Ollendick, Ph.D.) are conducting a project on how children react to testing situations and examinations. As you know, children and adolescents participate in a number of testing experiences, both in school and upon entry into the job market upon completion of their school years. While some children and adolescents become anxious or upset before, during, and after a test, others appear to experience no problems. Compared to children who do not experience anxiety, children who do become anxious about tests may not do as well on the tests, may be more likely to repeat a grade in school, and, in some instances, may show other signs of distress, such as fear or depression. Unfortunately, the research to date does not clearly indicate why children and adolescents differ in their reactions to tests. We hope to clarify the situation and would greatly appreciate your child/adolescent's participation.

To participate in this research, your son/daughter will be required to fill out some questionnaires. The questionnaires are available at your child's school office if you should like to review them, or, upon your request, we can send you copies of the questionnaires. Ms. Warren will come to your child's classroom and hand out the questionnaires to be completed. The children will complete the questions in class. This will take one session of an hour and twenty minutes or two 40-minute sessions. The questionnaires will deal with your son or daughter's reaction to testing situations and general mood. Please note that all information obtained will be kept strictly confidential. Furthermore, we will want to look at your child's grades and achievement scores to see if his/her performance is affected by their reactions to tests. If your child/adolescent appears to be having severe problems with testing situations, we will notify you and would be happy to provide you with a list of referral sources for treatment of the problems if you desire.

If you agree to allow your son or daughter to participate, please sign the consent form attached to this letter. Then have your

child/adolescent bring the form to class. Your child/adolescent's participation in this research will give us valuable information and, as mentioned, will be very much appreciated. This project has been approved by the Human Subjects Research Committee and the Institutional Review Board of Virginia Polytechnic Institute and State University. If you have any questions, please feel free to call me, Peg Warren, at the Psychology Department at Virginia Tech at 231-8148, Dr. Thomas Ollendick at the Psychology Department at Virginia Tech (231-6451), Dr. Helen J. Crawford (231-5874), Human Subjects Committee Chair, or Dr. Ernest R. Stout (231-5281), Institutional Review Board Chairperson. We will be happy to talk with you.

Sincerely,

Peg Warren
Graduate Clinician

Thomas H. Ollendick, Ph.D.
Professor of Psychology

Consent Form

The purpose of this study is to investigate the differences in students' reactions to testing situations and factors related to their different reactions. Participation in this study involves your child/adolescent's completion of some questionnaires which assess reactions to testing situations, general anxieties, and depression. It should take a total of one hour and twenty minutes to fill out the questionnaires in the classroom, during one or two sessions. In addition, your child/adolescent's grade reports and achievement scores will be obtained from the school. All information obtained will remain strictly confidential. Only Ms. Warren, Dr. Thomas Ollendick, and project staff will have direct access to the information.

It is possible, but unlikely, that some of the questions may be uncomfortable to answer because they deal with emotions associated with various situations. Your child/adolescent is free to discontinue participation in the research at any time without penalty. This research could be beneficial to you if your child has severe problems in testing situations. If the questionnaires indicate that this is the case, Ms. Warren will notify you and provide you with a list of referral sources for treatment of your child's problems upon request. Furthermore, your son/daughter's participation will be beneficial to us in our attempts to understand the nature and extent of test anxiety in children and adolescents.

This research has been approved by the Human Subjects Research Committee and the Institutional Review Board of Virginia Polytechnic Institute and State University. Any questions you may have about the project should be directed to Peg Warren (231-8148), principal investigator; Dr. Thomas H. Ollendick (231-6451), faculty advisor; Helen J. Crawford (231-5874), Human Subjects Committee Chair; Ernest R. Stout (231-5281), Institutional Review Board Chairperson.

"I hereby agree to voluntarily participate in the research project described above and under the conditions described above. Furthermore, I hereby grant permission to Montgomery County Schools to release the grade reports and achievement test results of my son/daughter to Peg Warren and Thomas H. Ollendick, Ph.D. for the purpose of their research at Virginia Tech Psychology Department."

Parent's or guardian's signature

Parent's or Guardian's name (please print)

Child's signature

Child's name (please print)

APPENDIX C

Scripts

Introduction of Study to Students

Hi everyone. My name's _____. I'm a psychology student at Virginia Tech. It looks like some kids get nervous or upset taking tests and others don't. Well, we want to find out how to help kids to not be nervous or scared about tests. That's why we need your help. We'd like to ask you questions about how you feel about tests, school, and life in general. Your answers will help us find out how to help kids who get really anxious or scared about tests.

This is what will happen if you help us out: Either I or one of my friends will come to your school and hand out some papers with questions on them. **(4th only:** We will read the questions out loud while you answer them). You will answer the questions and we'll come back on a second day to do the same thing with some different questions. **If you know the date of questionnaire administration, tell them when we will do the first and second set of questions.** Now, I want you to know that we won't tell anyone what your answers are unless it looks like you're having some pretty big problems that someone can help you with. And if you don't want to answer a question, or if you want to quit because the questions upset you too much, you don't have to answer the questions. Also, you should know that you will get out of class to answer the questions for this project.

Okay, I'm going to pass out this letter to your parents and a form to sign. The letter explains what I just told you. You can read it, too. It also has Peg Warren's name on it and a phone number where they can reach her if they have any questions. Peg Warren is the one who organizes this project. Then there's a consent form, which is like a permission slip. We need you and your parents to sign it and your parents to give me permission to ask you questions. You can't participate in this unless you bring in the consent form signed by you and your parents.

Also, if you bring in the consent form, your name will go in a few drawings for some prizes. You'll have a chance to win anything from a meal at Pizza Hut to some free movies.

Find out & tell them where to hand in consent forms, by what date/day, and where they can get extras.

Do you have any questions? I hope you all will do this for us. It will really help us a lot. Thank you!!!

SESSION ONE SCRIPT
READ EVERY QUESTION TO 4TH GRADERS!!

“Hi everybody. My name is _____. I’m going to be asking you some questions -- questions different from the usual school questions because these are about how you feel, so they have no right or wrong answers. First I’ll hand out the questions. Don’t do anything with them until I tell you what to do -- I’ll go through these with you step by step.”

Hand out packets to each child, including pencils for those who need them, make sure every child has a packet with everything in it:

“Who doesn’t have a packet of questionnaires? Okay, gently take the paper clip off your packet of papers and put it to one side -- make sure you don’t lose it. Who doesn’t have a paper on top that says First Session? Okay, on the first page that says First Session, which looks like this (**point to yours**), PRINT your name on the first line where it says name. Underneath that, write how old you are where it says age, then write what grade you are in where it says grade, (**say 4th, 7th, 10th, whatever grade they’re in**). Then next to that are the letters B and G. Please circle B if you are a boy, and G if you are a girl. Okay, underneath that write what school you go to where it says school. Great! Please don’t write anything on the last line, that’s for us to fill out.”

4th only: “Now I’d like you to put that paper face down, on your desk if there’s space. Who doesn’t have a green sheet underneath it that has the letters TASC at the top, right here (**point to your copy where the title is**)? Good. PRINT your name at the top in the little box where it says ‘name.’ Like I said, these questions are about how you feel, so there are no right or wrong answers. People think and feel differently. Your answer depends on how you think and feel. Listen carefully to each question as I go through them with you and answer it yes or no by deciding how you think and feel. If it’s yes, blacken in the circle next to the question with the number one in it. One means yes. If it’s no, blacken in the circle next to the question with the number two in it. (**Write 1=yes, 2=no on the blackboard**). See at the top they give you examples of how to blacken in the circles? Mark the circles like the circle is marked under where it says ‘correct marks’. The circle with a 3 in it is

blackened. For this set of questions, we will only use the numbers one and two. One is yes, two is no. Decide how you think and feel and blacken 1 for yes, 2 for no. If you don't understand a question, ask me about it."

"Now let's start by everybody putting their finger on the first question. Number 1 says, 'Do you worry when the teacher says that she is going to ask you questions to find out how much you know?' Right next to this question is the number 1 with 10 circles after it. If the answer is yes for you, blacken in the first circle, with the one in it, or if the answer is no for you, blacken in the second circle, with the two in it." **Repeat that question, and continue this procedure with the other questions until you feel they get the hang of it.**

When they're through with the TASC, have them put that face down on top of the paper they filled out earlier.

"Okay, now the next green paper should have the letters TAI at the top here (**point**). Who does not have that? PRINT your name in the box at the top where it says 'name.' On this set of questions, you still answer how you think and feel, but instead of saying yes or no, you will blacken the circle with a one in it if you never think or feel the way the question asks, blacken the circle with a two in it if you sometimes think or feel the way the question asks, blacken the circle with a three in it if you often think or feel the way the question asks, and blacken the circle with a four in it if you almost always feel the way the question asks. See the directions? 'A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. (**Read & write on the board:**) 1 is never, 2 is sometimes, 3 is often, and 4 is almost always. Okay, put your finger on the first question (**read it and go through the same procedure as above.**)

When they're through with the TAI, have them put that face down on top of the other papers they've completed.

"Okay, now the next green paper should have the letters RCMAS-MONT at the top. Who does not have that? PRINT your name in the box at the top where it says 'name.' This is like the first one we did

where one is yes, and two is no (**point to 1=yes, 2=no on the board**). Let's go through the directions . . . 'Read each question carefully. Blacken the circle with the number 1 if you think it is true about you. blacken the circle with the number 2 if you think it is not true about you. 1 is yes, true about you, and 2 is no, not true about you.' (**Same as with the TASC. Have them put it face down on top of the others when through.**)

"Okay, this last set of questions should have the letters CDI-MONT at the top. PRINT your name in the box at the top where it says 'name.' Let's go through the directions: 'Kids sometimes have different feelings and ideas. This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, go on to the next group. There is no right or wrong answer. Just pick the sentences that best describe the way you have been recently. Darken the circle with the number of the sentence that describes you best. Here is an example of how this form works. Try it. Blacken the circle with the number of the sentence that describes you best. Now pay attention: I want you to skip number one and put your answer to the example on number two. (**Give them time to answer the example**). Now skip number three and answer the fourth question, (**read question #4**) at number four at the answer part.' **Go through the same procedure as with the rest, but NOTE that the first question is at #4. Make sure they answer on line number four for the first question.**

At the end: "You all did a great job. Now, please keep the papers you just finished in a neat pile on your desk. Put the paper clip and your pencil on top. I'm going to come around the room to collect everything."

Use paper clip for each student's packet !! Keep things separate.

SESSION TWO SCRIPT

READ EVERY QUESTION TO 4TH GRADERS!!

“Hi everybody. My name is _____. I’m going to be asking you some more questions like those we asked earlier. First I’ll hand out the questions. Don’t do anything with them until I tell you what to do -- I’ll go through these with you step by step just like last time.”

Hand out packets to each child, including pencils for those who need them, make sure every child has a packet with everything in it:

“Who doesn’t have a packet of questionnaires? Who doesn’t have a page on top that says Second Session? On that first page that says Second Session, which looks like this (**point to yours**), PRINT your name on the first line where it says name. Underneath that, write how old you are where it says age, then write what grade you are in where it says grade, (**say 4th, 7th, 10th, whatever grade they’re in**). Then next to that are the letters B and G. Please circle B if you are a boy, and G if you are a girl. Okay, underneath that write what school you go to where it says school. Great! Please don’t write anything on the last line, that’s for us to fill out.”

“Now gently remove the paper clip and put that first paper face down, on your desk if there’s space. Then you should have a green paper with the letters CCAQ at the top. Who does not have that? Good. PRINT your name in the box at the top where it says ‘name.’ Just like before, these questions are about how you think and feel, so there are no right or wrong answers. People think and feel differently. Your answer depends on how you think and feel. But before we go through the questions, I want you to just sit back and listen to me. . .”

Imagery: “I’d like you to imagine, or pretend, that you are taking an important test that you really want to do well on. It might help to think of a test that you took recently, like maybe this week or last week. Think about the questions on the test that you really want to do well on and how you felt while you tried to answer them . . . Pretend the questions are being asked right now and you have to think about them and write down your answers . . . Really concentrate on taking the test and make it as real for you as possible. Think of the questions and how you feel trying to answer them . . .”

Now that you’re imagining that you are taking a test, I’d like you

to tell me how you feel. On your paper in front of you, for number one it says 'Right now, taking this test, I feel . . .'. 1 means not at all nervous, anxious or upset, 5 means that you feel pretty nervous, anxious, or upset, and 10 means that you feel very nervous, anxious, or upset. So on a scale of one to ten, from one being not at all nervous to ten being very nervous, please blacken the number that best describes how you feel--remember, imagine that you are actually taking the test right now. . ."

"Okay, the first set of questions has four kinds of answers. **Say and write this on the board** 1 is never, 2 is sometimes, 3 is most of the time, and 4 is all the time. Look at the directions at the top of the paper. 'Read each sentence and decide how often you thought it while you were taking your test. If you NEVER thought it, blacken the circle 1. If you SOMETIMES thought it, blacken the circle 2. If you thought it MOST OF THE TIME, blacken the circle 3. If you thought it ALL THE TIME, blacken the circle 4. You should only pick one answer for each sentence. I'd like you to answer the questions as if you just took the test that you pretended you were taking, the test that was important that you really wanted to do well on. Make sure you answer the questions on both sides of the form. Please put your pencils down and look up when you are through."

When they have finished CCAQ, "Please put the first set of questions on top of the "Session Two" sheet that you completed. Okay, now the next green paper should have the letters CCAQ, continued kind of towards the middle of the page -- does everybody see the letters CCAQ? Okay, continue to answer the questions about what you thought when taking the test, starting with Number 37. When you have finished these next few questions, please put your pencils down and look up."

When they have finished CCAQ, continued: Okay, watch what I do . . . I want you to take both papers in front of you, keep them together, and flip them over so that you have a green paper with FSSC-MONT 1 at the top, like this. Who does not have FSSC-MONT₁ at the top (make sure it's one and not FSSC-two)? **Check to see that the children have it right.** PRINT your name in the box at the top where it says 'name.' Okay, this set of questions uses three kinds of answers. **Say and write this on the board if possible:** 1 is none, 2 is some, and 3 is a lot. Let's look at the directions, 'A number of statements which boys and girls use to de-

scribe the fears they have are given below. read each fear carefully and mark the circle with the number of the word that best describes how much fear you have. 1 is none, 2 is some, and 3 is a lot. Remember, find the words which best describe how much fear you have.' Please answer both sides of both green forms. Put your pencils down and look up when you have finished."

At the end: "You all did a great job. Now, please keep the four papers you just finished in a neat pile on your desk. Put the paper clip and your pencil on top. I'm going to come around the room to collect everything."

Use paper clip for each student's packet !! Keep things separate.

APPENDIX D

List of Schools and Participants

Schools and Participants

SchoolParticipants**FOURTH GRADE**

Elliston-Lafayette Elementary School	3/26=11.54%
Gilbert Linkous Elementary	54/92=58.70%
Bethel Elementary	12/19=63.16%
Belview Elementary	16/34=47.06%
Riner Elementary	12/50=24.00%
Harding Avenue Elementary	25/55=45.45%
Shawsville Elementary School	29/44=65.91%

TOTAL: 151/320=47.19%

SEVENTH GRADE

Christiansburg Middle School	56/211=26.54%
Auburn Middle and High	20/60=33.33%
Shawsville Middle and High	36/92=39.13%
Blacksburg Middle School	84/250=33.60%

TOTAL: 196/613=31.97%

TENTH GRADE

Auburn High	4/79=5.06%
Christiansburg High School	131/200=65.50%
Blacksburg High School	70/193=36.27%
Shawsville Middle and High	22/63=34.92%

TOTAL: 227/535=42.43%

GRAND TOTAL: 574/1,468=39.10%

CURRICULUM VITA

Name: Margaret Koch Warren

Birthdate: January 17, 1967

Professional Address: Department of Psychology
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061
(703) 231-6581

Home Address: Rural Route 2, Box 86 H
Newport, VA 24128

Education:

August, 1989 to present: M.S. Candidate in Psychology
Department of Psychology
Virginia Polytechnic Institute
and State University

Thesis Title: An Analysis of
Different Aspects of Test
Anxiety in Children

Thesis Chair:
Thomas H. Ollendick, Ph.D.

August, 1985 to May, 1989: B.S.F.S. Degree in Comparative and
Regional Studies
School of Foreign Service
Georgetown University

Clinical Experience:

Mental Health Clinician, Mental Health Services of the New River Valley, Montgomery County Clinic, Christiansburg, Virginia
June, 1991 to present. Assessment and treatment of a diversity of clinical problems with children and adults at an outpatient mental health clinic.

Supervisor: Dennis Cropper, Ph.D.

Intern with School Psychologist, Montgomery County Public Schools, Montgomery County, Virginia. August, 1991 to present.

Counseling of emotionally disturbed children in the elementary, middle, and high schools on an individual and group basis.

Supervisors: Thomas H. Ollendick, Ph.D. and Barbara Reasor, M.A.

Graduate Clinician, Psychological Services Center and Child Study Center, Virginia Polytechnic and State University, Blacksburg, Virginia, 1989-1991. Assessment and treatment of a diversity of clinical problems with children and adults at an outpatient clinical training facility. Included Attention-Deficit Disorder evaluations and parent training groups for parents of children with Attention-Deficit Disorder.

Supervisors: Jack W. Finney, Ph.D., Ross Greene, Ph.D., Russell T. Jones, Ph.D., and Carolyn Pickett, Ph.D.

Telephone Counselor, Families and Children in Trouble hotline.

Washington, D.C. Crisis counseling for the general public via telephone.

Research Experience:

Graduate Researcher, Virginia Polytechnic Institute and State University, Psychology Department, Blacksburg, Virginia. Assisted with various research projects on Post-Traumatic Stress Disorder in children who were victims of car accidents, Separation Anxiety Disorder in college students, the relationship between Depression and Conduct Disorder in adolescent psychiatric inpatients, and Test Anxiety and its correlates in children and adolescents. Conducted diagnostic interviews with children and

adolescents, trained students to conduct diagnostic interviews, coordinated and mass-tested undergraduates and school-children, and conducted or assisted in data analysis.

Teaching Experience:

Introductory Psychology Laboratory Instructor, August, 1989 -May, 1990. Virginia Polytechnic Institute and State University, Blacksburg, Virginia. Graduate Teaching Assistantship. Lectured on supplementary reading materials and facilitated discussion.

Professional Affiliations:

Student Affiliate, American Psychological Association, Division 12

A handwritten signature in black ink, appearing to read "M. J. Eckert" or similar, written in a cursive style.