

THE EFFECT OF TEST ANXIETY ON READING COMPREHENSION  
IN SECOND GRADE STUDENTS

THESIS

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## Abstract

The purpose of this study was to determine if there is a correlation between test anxiety and reading comprehension on a standardized test in two heterogeneously grouped second grade classes. Also considered were the relationships of test anxiety and reading comprehension on educationally handicapped subjects and subjects with no handicapping condition and the differential effects of test anxiety on male and female subjects.

Fifty-five second grade students from a small city school district in Western New York served as subjects for the study. Fifteen of the 55 subjects were classified as educationally handicapped.

The Iowa Test of Basic Skills (I.T.B.S.) was administered to all the students. On the morning that the I.T.B.S. reading test was to be given, each student also completed the Test Anxiety Scale for Children (TASC). All questions of the TASC were read to the students so reading ability was not a factor.

The Pearson Product Moment Method was used to determine if there was a relationship between test anxiety scores and reading comprehension. To determine if there was a significant difference between the reading comprehension scores for female subjects and for male subjects, a t test was used.

The results of this study indicated there was no significant relationship between reading comprehension and test anxiety. There was also no significant difference between test anxiety for male subjects and test anxiety for female subjects. The data did reveal a significant difference between reading comprehension of subjects with a handicapping condition and subjects with no handicapping condition.

The results of this study contradict previous research which has been conducted in the area of test anxiety. Further research is needed.

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## Chapter I

### Statement of the Problem

The advancement of students in the educational system is greatly influenced by how well a student performs on tests throughout the academic years. However, studies have indicated that elementary school children suffer from fears involving school; the greatest fear is test failure or test anxiety. Because of this fear of the testing environment, many students may not perform to their fullest potential.

Testing is an integral part of every child's school years. Most children accept this, however many have difficulty coping with it. A test anxious child may pay more attention to his own anxiety than to the task, thus impairing his performance on the test.

Anxiety can evoke specific responses on a test. According to Mandler and Sarason (cited in Zuckerman & Spielberger, 1976) these responses include feelings of inadequacy and helplessness, anticipation of punishment or loss of status and esteem and implicit attempts at leaving the test situation.

Children are given a variety of tests throughout the school year. Progressive tests measure what a child has learned over a short period of time. A terminal test measures knowledge gained over a longer period. Most often, a terminal test is used to determine a child's IQ, class or grade placement and handicapping condition. Gaudry and Bradshaw (1970) found that high anxious children scored better on progressive tests

than terminal tests. An increase in the emphasis on terminal testing places high anxious students at a disadvantage.

Expectations of children are very high. Even though a child may do best on a test, he may still feel that the results have disappointed his parents or teachers. This increases the feeling of anxiety for the child and can lead to defeatism. S. B. Sarason (cited in I. G. Sarason, 1980) considers test anxiety to be a personality characteristic that begins during preschool years and slowly stabilizes during school years. High levels of anxiety in an evaluation procedure result when a child's achievements do not meet his parents' expectations. In different studies, Hill, I. G. Sarason and Wine (cited in I. G. Sarason, 1980) determined that a variety of cognitive and attentional processes exist that interfere with effective task performance when test anxiety is experienced.

Cowen, Zax, Klein, Izzo and Trost (1965) found that higher anxiety had an adverse effect on both verbal and total IQ. Also adversely affected were concepts in reading comprehension, vocabulary and arithmetic. They found that high anxious children report more often to the nurse's office, possibly indicating a greater somatic and physical discomfort in the school situation.

Merryman (1974) reported that different levels of comprehension were affected by anxiety. His study showed that low anxious and moderate anxious children did significantly better than the high anxious group on literal comprehension. On inferential comprehension, the low anxious group did significantly better than the high anxious and moderate anxious groups.

Reading rate is another area that can be affected by anxiety. Gifford and Marston (1966) reported that high anxiety was associated with slower reading rate. Research by Chansky (1958) supported this and found that the more anxious students read more slowly, understand less and recall less than students who have lower anxiety levels.

Sex differences and anxiety have also been studied. I. G. Sarason (1963) found that female subjects suffered from higher levels of anxiety than did male subjects. In contrast to Sarason's study, Payne, Smith and Payne (1983) reported no marked sex differences.

Since children with learning disabilities are often mainstreamed into a classroom setting and must also be involved in testing situations, it is important to look at anxiety among this group. Patten (1983) determined that self esteem and general anxiety are negatively related in learning disabled children. Also to be considered, is the size of the group in which the learning disabled child is expected to function. Adank (cited in Patten, 1983) found that the more individualized the program, the less anxious the child would feel.

#### Purpose

The purpose of this study was to determine if there is a significant correlation between test anxiety and reading comprehension on a standardized test for second grade students in a heterogeneous group.

The questions to be answered were:

1. Is there a statistically significant correlation between the test anxiety level and reading comprehension in second grade students?

2. Is there a significant difference between the test anxiety scores for male subjects and the test anxiety scores for female subjects?

3. Is there a significant difference between the test anxiety scores of educationally handicapped subjects and subjects with no handicapping condition?

4. Is there a significant difference between the reading comprehension scores for female subjects and the reading comprehension scores for male subjects?

5. Is there a significant difference between the reading comprehension scores for subjects with a handicapping condition and subjects with no handicapping condition?

#### Need for the Study

Every child will react to test anxiety in his own way. Many children feel a sense of helplessness which arises from the inability to cope with a situational demand in a satisfactory manner. Very often these feelings of helplessness are caused by unrealistically high standards. In almost every class, there is a child whom the teacher thinks is capable of doing above-average work, but is virtually terror stricken at exam time (I. G. Sarason, 1980).

Classroom teachers, administrators and parents place emphasis on testing, particularly standardized IQ tests, usually given once during the school year. I. G. Sarason (1972) noted that when instructions have an evaluative or achievement-orienting flavor, children who are high test anxious tend to perform at low levels. Spielberger (1966) noted that although children "knew" answers on a test, they often became choked up during a test situation and were unable to answer questions.

### Definition of Terms

Test Anxiety: A set of responses to a class of stimuli that have been associated in the individual's experience of evaluation or testing. This usually brings about feelings of inadequacy, helplessness, worry, fear and anticipation of punishment (Sieber, 1980).

Test Anxiety Scale for Children (TASC): A multidimensional scale consisting of 30 "yes," "no" items including specific questions about tests, anticipatory reactions to a test expected the next day and being called upon to answer in front of the class.

Educationally Handicapped: Those students who are currently receiving additional help through learning centers or resource rooms. These children scored below expected grade level criterion on standardized reading tests.

### Limitations of the Study

It is unlikely that administering a test to only two groups can give a complete picture of the anxiety level of all second graders. However, since this was conducted on two heterogeneous groups, it can be considered a suitable sampling.

### Summary

The purpose of this study was to determine the relationship of test anxiety and reading comprehension of second grade students. Also considered were the relationships of test anxiety and reading comprehension on educationally handicapped subjects and the differential effects of test anxiety on male and female subjects.

## Chapter II

### Review of the Literature

#### Purpose

The purpose of this study was to determine if there is a correlation between test anxiety and reading comprehension on a standardized test in two heterogeneously grouped second grade classes. It was also the intent of this study to determine if there is a difference between the mean test anxiety scale scores of educationally handicapped subjects and subjects with no handicapping condition; and if there is a significant difference between males and females for both the test anxiety scores and reading test scores at the second grade level.

The literature reviewed in this chapter is organized in the following manner: historical background, test anxiety, reading and academic achievement, test anxiety and sex differences and test anxiety and the educationally handicapped.

#### Historical Background

For many years researchers felt that only adults could suffer from feelings of anxiety, even though the Freudian hypothesis stated that the initial phase of primary anxiety occurs at birth (Levitt, 1980). This theory was supported by Sarason (cited in Gaudry & Spielberger, 1971) who observed that the development of anxiety occurs from the earliest years of life in the family setting.

Traditionally, theoreticians have regarded anxiety as a, "general, unitary-trait of proneness to respond anxiously to various situations and stimuli" (Levitt, 1980, p. 153).

The effects of anxiety are evident in students. Gaudry and Spielberger (1971) found high anxious persons lacked self confidence, had a low self image and were self disparaging. They also showed a high incidence of day dreaming. Their classmates had little difficulty identifying these high anxious students and tended to react to them negatively.

Test anxiety was introduced in the early 1950's by Mandler and Sarason to account for the effects of anxiety on performance in test situations (cited in Zuckerman & Spielberger, 1976). Alpert and Haber (cited in Shaha, 1982) found that grade point average and examination scores were predicted by test anxiety.

Many researchers find test anxiety is difficult to define because of its many facets. However, Sieber (1980) used the following definition, "a set of responses to a class of stimuli that have been associated in the individual's experience of evaluation or testing" (p. 18). To further define this, Spielberger (cited in Sarason, 1980) introduced the state-trait model of anxiety. State anxiety is the transitory state of anxiety. It occurs when an individual perceives stimuli of a real or imagined test and responds with certain emotions and behaviors. Trait anxiety refers to a relatively stable personality characteristic. A person has the disposition to perceive as threatening a wide range of stimuli that are associated with tests.

Test anxiety does not affect all children in the same way. Bradshaw and Gaudry (1971) determined that under certain conditions the level of anxiety a child feels may depend on a single experience of success or failure on a test. Students who were given a test above their level and failed had a higher level of test anxiety than the group of students who were given an easier test. The subject matter can also influence the anxiety level. Although the subjects in Cox's (1964) study obtained negative correlations between test anxiety and math, there was a small positive correlation between test anxiety and reading.

#### Test Anxiety, Reading and Academic Achievement

Academic performance can be assessed in a variety of ways, including grade point average, performance on a standardized test and a standardized reading test. All of these can be less reliable depending on the amount of anxiety a student experiences during the testing situation.

Lunneborg (cited in Gaudry & Spielberger, 1971) administered three anxiety scales; Test Anxiety Scale for Children (TASC), Children's Manifest Anxiety Scale (CMAS) and the General Anxiety Scale for Children (GASC) to 213 boys and girls in grades 4, 5 and 6. The scores on these scales were correlated with reading and arithmetic achievement scores obtained from the Metropolitan Achievement Test. For the total group, the correlations between anxiety and achievement measures for each grade were negative (range  $-0.18$  to  $-0.32$ ) and statistically significant. This would indicate that high anxiety was associated with poor achievement in reading and arithmetic.

A study by Cowen, et al. (1965) using 394 students in grade three, calculated the correlation between the CMAS scores and various achievement

measures. These achievement measures included grade point average at the end of the third grade year and five SRA tests; Reading Comprehension, Vocabulary, Arithmetic Reasoning, Computation and Concepts. Of ten correlations involving SRA scores, all were negative, ranging from  $-.06$  to  $-.03$ .

Although test anxiety can affect students of all ages and in different subject areas, Sarason, Hill and Zimbardo (cited in Stevenson & Odom, 1965) reported a stronger negative correlation between the level of anxiety and scores on a reading test than anxiety and scores on an arithmetic test for children in grades two through four. In a later study by Hill and Sarason (cited in Stevenson & Odom, 1965), it was reported that when older elementary children were subjects, the correlation between anxiety and arithmetic was approaching the correlation between reading and anxiety level. It is assumed that the reason for this is that arithmetic in earlier grades is less dependent on reading level.

Sarason (cited in Gaudry & Spielberger, 1971) found that the correlation between anxiety level and achievement is negative and the correlation tends to become greater with increasing grade level in elementary school. Hill and Sarason (cited in Dusek, 1980) confirmed this theory. They found no significant relationship between TASC scores and IQ test performance at the first grade level. There was a low but significant correlation by the middle of the elementary school years, ( $-.2$  in the third and fourth grades). These correlations increased to  $-.3$  to  $-.4$  by the fifth and sixth grades. These data also indicated that high anxious students who reduced their anxiety level throughout the elementary years showed an increase in IQ scores. A longitudinal study by Hill

and Sarason (1966) confirmed that the relationship between anxiety and test performance increased in the negative direction over the entire elementary school period.

Cotler and Palmer (1971) reported that the measures of relative academic achievement level and test anxiety combined were significantly related to the reading performance of elementary school children. Frost (cited in Gaudry & Spielberger, 1971) using 310 eleven-year old subjects found that anxiety measures were negatively correlated with vocabulary, reading comprehension, mechanical arithmetic and problem arithmetic.

Research conducted by Merryman (1974) on fifth grade students found that the low anxious, moderate anxious and high anxious students differed significantly on measures of literal comprehension. The low anxious and moderate anxious groups did significantly better than the high anxious group. On inferential comprehension, the low anxious group did significantly better than the high anxious and moderate anxious group.

All students have an area of strength and an area of weakness. For many students the fact that the test is timed can cause anxiety, not because they do not know the material, but because they are afraid they will be unable to finish.

Gifford and Marston (1966) used 31 fourth grade boys to determine if there was a correlation between reading rate and test anxiety. Each child was given the TASC. From the results of the TASC, children were separated into a low anxious and high anxious group. For all high anxious subjects the mean reading time was 75.4 seconds. For all low anxious subjects, the mean reading time was 52.1 seconds.

Chansky (1958) found a negative and low correlation between anxiety and reading speed and anxiety and reading comprehension. These correlations suggested that more anxious students read more slowly, understand less and recall less one week after reading than do less anxious students.

In contrast to the studies by Chansky (1958) and Gifford and Marston (1966), Merryman (1974) grouped subjects into low anxious, moderate anxious and high anxious according to the CMAS. Although his findings were not statistically significant, they showed that the high anxious group did not have a higher mean rate than the low and moderate anxious groups.

Elementary school students were the subjects for Zweibelson's (1956) study which determined that test anxiety may be related to and effect group test results. A standardized group test may have threatening factors which may interfere with test performance. The research conducted by Gaudry and Bradshaw (1970) showed a highly significant negative correlation between anxiety level and school test scores for seventh and eighth grade students.

The results of a study conducted by I. G. Sarason (1963) indicated that the correlation between the Test Anxiety Scale and the School and College Ability Test was significantly negative. Studies by Sarason and Sarason and Mandler (cited in Sarason, 1963) confirmed this theory, noting that test anxiety was negatively correlated with aptitude test scores. However, it was not correlated with course grades throughout the college years.

The task being tested can greatly effect the degree of anxiety a student experiences. Sarason and Palola (1960) concluded that test anxiety was related to a greater degree to the subject's performance than

was general anxiety. Highly motivating instructions detrimentally affected the performance of high anxious subjects. Waite, Sarason, Lighthall and Davidson (cited in Phillips, Martin and Meyers, 1972) found that low anxious subjects learned more on a paired associate learning task, when high and low anxious children were matched according to intelligence.

The results of research conducted by Gaudry and Fitzgerald (1971) found that high anxiety was associated with somewhat higher performance for the most capable students and lower performance for students who were less capable. With students divided into five ability levels, high anxiety was associated with the greatest performance deficit at the second highest level.

College students, as well as elementary school children, can be affected by test anxiety. In a study conducted at the college level by Galassi, Frierson and Sharer (1981), it was reported that low test anxious students experience more positive and less negative thoughts than high test anxious students during the testing situation. High test anxious students interpret the testing situation as a way to predict their own failure or poor performance.

Some researchers feel that anxiety can not only work in a negative manner, but in a positive manner to improve a student's achievements. Traweek (cited in Tobias, 1977) administered a program on arithmetic fractions to fourth grade students. Although there was no difference on general anxiety, the results indicated that successful students were significantly more test anxious than unsuccessful students.

In a study conducted by Knight and Sassenrath (cited in Tobias, 1977), a constructed response instructional program dealing with test construction

was used for a college student population. Anxious students worked faster and made fewer errors than less anxious students.

An individual may respond to anxiety with effective problem solving and thus experience the anxiety as part of a positive experience. Or he may respond with ineffective problem solving and experience the anxiety as distress, confusion and failure. According to research conducted by I. G. Sarason (1980), anxiety that does not lead to effective problem solving reduces the chance for developing these skills.

#### Test Anxiety and Sex Differences

Another aspect of test anxiety to consider is the difference in the anxiety level between boys and girls. I. G. Sarason (1963) administered two anxiety scales; Test Anxiety Scale (TAS) and the Need for Achievement Scale (NAS) to 460 eleventh and twelfth grade students. These students had already taken the School and College Ability Test (SCAT). The results of these tests demonstrated a significant negative correlation between TAS and SAT in eleventh grade students. This negative correlation was stronger for female eleventh grade subjects than for male subjects. The correlation for twelfth grade females was also greater than for males.

In noting the results of this study, Sarason offered one possible explanation for the higher anxiety level in female subjects. The higher anxiety level could in part be due to the view that males find it more unacceptable to admit to anxiety than females do. Another possible explanation for the differences in test scores could be that high TAS subjects are more anxious because of lower intellectual levels.

Payne, Smith and Payne (1983) also studied sex differences in relationship to test anxiety. The subjects for this study consisted of 171

fourth grade and 187 eighth grade students, subdivided by sex and race. The results of this research showed no marked sex differences in correlation coefficient for eighth grade students. In the fourth grade group, however, there was a positive correlation for black students. The correlation was significantly more positive for black males than for black females.

Castaneda, McCandless and Palermo (1956) administered an 11-item L scale to determine the subject's tendency to falsify his responses to the anxiety items, and a form of Taylor's Adult Anxiety Scale adapted for fourth, fifth and sixth grade students. There was a general tendency for girls to receive higher scores on the anxiety scale, as well as on the L scale.

Cotler and Palmer (1971), using a series of matched paragraphs, determined that overachieving high test anxious boys made more errors than overachieving high test anxious girls. Underachieving high test anxious boys and underachieving low test anxious boys also made more errors than girls in the same categories. The only area in this study in which girls made more errors than boys was in the overachieving low test anxious group.

A number of studies have been conducted at the college level to determine the effect of test anxiety and sex differences. Twenty-four males and 18 females served as subjects for Endler (cited in Head and Lindsey, 1983). A negative correlation was found between anxiety and final grade point average for females, but not for males.

A small negative correlation was found by Rankin (cited in Head and Lindsey, 1983) between the college Henmon Nelson Test of Mental Ability

and the ETS Verbal Cognitive Test and Taylor's Manifest Anxiety Scale. Female students tended to have lower ability scores and higher anxiety scores.

DeVito and Kubis (1983) determined there were two measures of test anxiety; the correlation between dependency with actual test anxiety and the correlation between recalled test anxiety. Of these coefficients, only the correlation between recalled test anxiety and dependency for females was significant. No correlation coefficient reached the .05 level for male subjects.

Results of a study conducted by Phillips (1962) showed an increase in anxiety resulted in lower achievement for females and slightly higher achievement for males. Also an increase in anxiety among females resulted in lower intelligence scores for females in middle and lower social classes. In contrast, an increase in anxiety among males resulted in higher intelligence scores in the lower class, but made little difference in the middle class.

A number of studies including, Hill and Sarason, 1966; Phillips, 1978; and Sarason, Davidson, Lighthall, Waite and Ruebush, 1960 (all the above cited in Gottfried, 1982) reported that females suffered from a higher level of test anxiety. Possible explanations for this is that males have a greater defensiveness for admitting to anxiety. The different sex role expectations allow girls to admit anxiety more readily and the questions asked on an anxiety instrument may contain more items pertinent to anxiety in females.

Some researchers have found sex differences in test anxiety to be contradictory. Lin and McKeachie (cited in DeVito and Kubis, 1983)

reported no sex differences in mean test anxiety in three of four sample tests. Stanford, Dember and Stanford (1963) also found no important differences between anxiety and grades for male and female subjects using the Achievement Anxiety Scale for children. Hill (cited in Phillips, Martin and Meyer, 1972) found no significant differences in learning. However, he did find more inadequate personality functioning in boys associated with high test anxiety.

#### Test Anxiety and the Educationally Handicapped

Evidence has suggested that learning disabled children might experience a greater degree of test anxiety than nondisabled children. Studies by Bryan, Donahue and Pearl, 1981; Bryan, Donahue, Pearl and Strum, 1981; and Bryan, Werner and Pearl, unpublished, determined that learning disabled students are likely to be more conforming (cited in Bryan, Sonnefeld & Grabowski, 1983). Relatively low self esteem was found in learning disabled students in research completed by Halechko, 1976; Hunter and Johnson, 1971; Larson, Parker and Jorjorian, 1973; Rosser, 1974 and Serafica and Harway, 1979 (cited in Bryan, Sonnefeld & Grabowski, 1983). Learning disabled students are frequently confronted with academic failure which is likely to increase test anxiety.

Bryan, Sonnefeld and Grabowski (1983) studied the effects of test anxiety on learning disabled students using 61 subjects. Of these 61, 21 males and 9 females had been diagnosed as learning disabled by the school district. Three tests were administered to the students; the TASC, the Sarason Lie Scale for Children (LSC) and Understandability Scale. The results of the study indicated that learning disabled students are more likely to be more test anxious than are nonlearning disabled

students. It is unclear from this study to what extent the anxiety produces or results from school failure.

Negative correlations have been found between anxiety and school achievement and anxiety and self-esteem. These indicate that the higher the level of anxiety, the lower the level of achievement and self-esteem (Patten, 1983).

The statistical results of the study conducted by Patten (1983) reinforced the interrelatedness of anxiety, academic achievement and self-esteem in learning disabled students. Self-esteem and general anxiety have a significant negative relationship. Difficulty concentrating, remembering things and handling problem solving tasks are common behavioral characteristics of many learning disabled students. These characteristics are accentuated by low self-esteem.

Research by Pearl, Bryan and Donahue (1980) with learning disabled students suggested that these children may react to school failure with impaired performance. They are more likely to believe that their success occurred because a task was easy rather than that their failure was caused by a difficult task. These attributes may cause a child to be unable to perform fully to his abilities on school tasks.

The low self-concept that is often associated with learning disabled children frequently leads to higher test anxiety and academic failure in learning disabled children than in nondisabled. Performance on a standardized test of self concept and WISC Full Scale IQ for normal and learning disabled students was studied by Black (1974). The results of this research indicated learning disabled students scored significantly lower on the Children's Self Concept Test than did nondisabled students.

Learning disabled students with test-documented reading retardation view themselves more negatively than learning disabled students with normal reading scores.

### Summary

This chapter focused on some of the research that has been conducted on test anxiety. It dealt with the areas of test anxiety and how it affects children's reading and academic achievement. Also discussed was test anxiety and the learning disabled student and test anxiety and sex differences. The research states that test anxiety is associated with achievement and can affect some groups more than others.

Test anxiety does not affect all children in the same way. The degree of anxiety felt by a student often depends on previous success or failure in a testing situation. Students who have had previous success on a test will not feel as anxious as a student who has suffered failure.

Research on test anxiety has included subjects from the primary grade through college age students. Most results indicated that anxiety had a debilitating effect on students regardless of their age, and anxiety increased as students progressed into higher grades.

Females tend to score higher on anxiety scales than males. Some possible reasons for this include the view that males find it difficult to admit to anxiety, that different sex role expectations allow females to admit anxiety more readily, that questions asked on an anxiety instrument may contain more items pertinent to anxiety in females and in some instances a subject is more anxious because of lower intellectual levels.

Evidence has suggested that children with learning disabilities might experience a greater degree of test anxiety. Learning disabled students are frequently confronted with academic failure which is likely to increase test anxiety. The higher the level of anxiety the lower the level of achievement and self-esteem.

## Chapter III

### Design of the Study

#### Purpose

The purpose of this study was to determine if there is a significant correlation between test anxiety and reading comprehension on a standardized test for second grade students in a heterogenous group. The questions to be answered were:

1. Is there a statistically significant correlation between the test anxiety level and reading comprehension in second grade students?
2. Is there a significant difference between the test anxiety scores for male subjects and the test anxiety scores for female subjects?
3. Is there a significant difference between the test anxiety scores of educationally handicapped subjects and subjects with no handicapping condition?
4. Is there a significant difference between the reading comprehension scores for female subjects and the reading comprehension scores for male subjects?
5. Is there a significant difference between the reading comprehension scores for subjects with a handicapping condition and subjects with no handicapping condition?

#### Methodology

##### Subjects

Fifty-five second grade students from a small city school district in Western New York served as subjects for the study. Of the 55 students

15 were classified as educationally handicapped. The educationally handicapped students were those attending a learning center or resource room.

### Instruments

1. Iowa Test of Basic Skills (ITBS), Level Eight, was used to indicate the reading level of each subject.
2. Test Anxiety Scale for Children (TASC) was used to measure the test anxiety level of each subject.

### Procedure

The students were informed prior to the testing date that they would be taking the Iowa Test of Basic Skills. On the morning that the reading subtest was to be given, the students were given the Test Anxiety Scale for Children. This test was administered as a group test to each class participating in the study. All questions were read to the students so reading ability would not be a factor on the anxiety scale.

### Data Analysis

The results of the Test Anxiety Scale for Children were used to indicate which students were high anxious and which were low anxious.

The Pearson Product Moment Correlation was used to determine if there was a relationship between test anxiety scores and reading comprehension and test anxiety and achievement.

The t test was used to indicate if there was a ~~correlation~~ <sup>significant difference</sup> between the mean performance of boys and girls and the mean performance of learning disabled and nonlearning disabled students.

### Summary

The Test Anxiety Scale for Children was administered to 55 students in grade two to determine their test anxiety level. The Iowa Test of Basic Skills was used to indicate the reading comprehension level of all students. The Pearson Product Moment method was used to determine the relationship between the reading comprehension scores and anxiety scores. A t test indicated if there was a ~~correlation~~ between anxiety scores and comprehension for males and females, and educationally handicapped students.

## Chapter IV

### Findings and Interpretation of Data

#### Purpose

The purpose of this study was to determine if there is a correlation between test anxiety and reading comprehension on a standardized test in two heterogeneously grouped second grade classes.

#### Questions

1. Is there a statistically significant correlation between the test anxiety level and reading comprehension in second grade students?
2. Is there a significant difference between the test anxiety scores for male subjects and the test anxiety scores for female subjects?
3. Is there a significant difference between the test anxiety scores of educationally handicapped subjects and subjects with no handicapping condition?
4. Is there a significant difference between the reading comprehension scores for female subjects and the reading comprehension scores for male subjects?
5. Is there a significant difference between the reading comprehension scores for subjects with a handicapping condition and subjects with no handicapping condition?

Analysis of Data

The mean, median, standard deviation and skewness are presented in Table 1 for the variables anxiety and reading comprehension scores.

Table 1  
Anxiety and Reading Comprehension Scores  
for Students in Grade Two

	Mean	Median	s.d.	Skewness
Anxiety	11.855	12.000	7.145	-.088
Reading Comprehension	46.618	47.000	10.974	-.286

Null Hypothesis 1

There is no significant relationship between reading comprehension scores and test anxiety for the total group of second grade students. The Pearson Product Moment method was used. The data presented in Figure 1 and Table 2 indicate there was no significant relationship between reading comprehension and test anxiety, therefore the data failed to reject the null hypothesis.

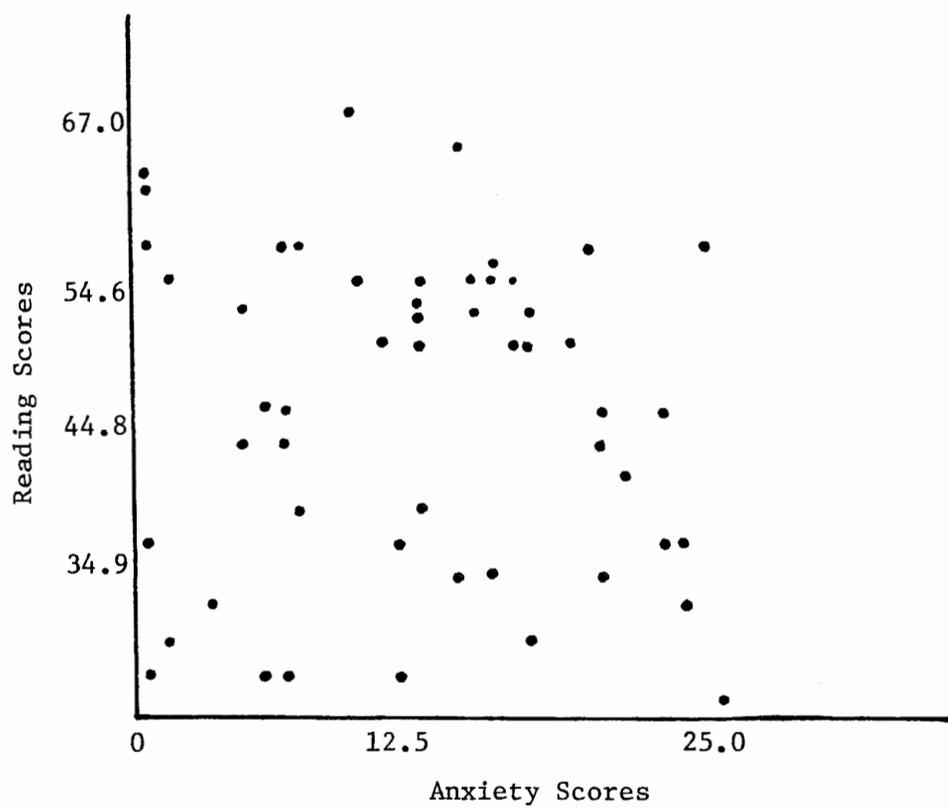


Figure 1. Relationship between reading comprehension scores and anxiety scores

Table 2

Relationship between Reading Comprehension  
Scores and Anxiety Scores

Scores	Mean	SD	R	RSQ
Reading Comprehension	46.62	10.97	-.076	-.066
Anxiety	11.85	7.15		

## Null Hypothesis 2

There is no significant difference between the test anxiety scores for male subjects and the test anxiety scores for female subjects. A t test determined that there was no significant difference. Therefore, the data failed to reject the second null hypothesis. (See Table 3.)

Table 3

Analysis of Test Anxiety Scores for Males and  
Test Anxiety Scores for Females

Group	N	Mean	SD	SE
Male	27	10.963	7.198	1.385
Female	28	12.714	7.117	1.345

Difference in <u>t</u> test		Mean	SE	t	df	Prob
Anxiety Score		-1.751	1.930	-.91	53	.368

## Null Hypothesis 3

There is no significant difference between the test anxiety score of educationally handicapped students and students with no handicapping condition. A  $t$  test determined there was no significant difference.

Therefore the data failed to reject the third null hypothesis.

(See Table 4.)

Table 4

Analysis of Test Anxiety Scores of Educationally Handicapped Students and Students with no Handicapping Condition

Variable	Status	N	Mean	s.d.	SE
Anxiety Score	Handicapped	15	12.133	8.417	2.173
	No Handicap	40	11.750	6.724	1.063
Difference in $t$ test					
	Mean	SE	t	df	Prob
Anxiety Score	.383	2.183	.18	53	.861

## Null Hypothesis 4

There is no significant difference between the reading comprehension scores of male students and reading comprehension of female students.

A  $t$  test determined there was no significant difference. Therefore the data failed to reject the fourth null hypothesis. (See Table 5.)

Table 5  
 Analysis of Reading Comprehension Scores of  
 Male Students and Female Students

Variable	Group	N	Mean	s.d.	SE
Reading Comprehension	Male	27	45.370	11.321	2.179
	Female	28	47.821	10.695	2.021
Difference in <u>t</u> test					
	Mean	SE	t	df	Prob
Reading Comprehension	-2.451	2.969	-.83	53	.431

#### Null Hypothesis 5

There is no significant difference between the reading comprehension scores of students with a handicapping condition and students with no handicapping condition. A t test determined there was a significant difference. Therefore, the fifth null hypothesis was rejected. There was a significant difference between the reading comprehension scores of students with a handicapping condition and students with no handicapping condition. (See Table 6.)

Table 6

Analysis of Reading Comprehension Scores of Students  
with a Handicapping Condition and Students  
with no Handicapping Condition

Variable	Status	N	Mean	s.d.	SE
Reading Comprehension	Handicapped	15	3.400	9.912	2.559
	No Handicap	40	50.075	9.302	1.471
Difference in <u>t</u> test					
	Mean	SE	t	df	Prob
Reading Comprehension	-12.675	2.866	-4.42	53	.000

#### Summary

The subjects for this study were second grade students in two heterogeneously grouped classes. All students took level eight of the Iowa Test of Basic Skills. The reading battery was used to determine the reading comprehension level for all students.

The Pearson Product Moment method was used to determine if there was a correlation between reading scores and anxiety scores. The data did not show a significant relationship. A t test was used to determine if there was a significant difference for null hypotheses two, three, four and five. The data failed to reject the hypotheses two, three and four. It was found that there was a significant difference between the reading comprehension scores of students with a handicapping condition and students with no handicapping condition as stated in null hypothesis five.

## Chapter V

### Conclusions and Implications

#### Purpose

The purpose of this study was to determine if there is a significant correlation between test anxiety and reading comprehension on a standardized test in two heterogeneously grouped second grade classes. Also considered were the relationships of test anxiety for male and female students, and for students with a handicapping condition and students with no handicapping condition.

#### Conclusions

The results of this study indicated there was no significant correlation between reading comprehension and test anxiety.

The lack of a significant difference between reading comprehension and test anxiety found in this study contradicts research which has been conducted in the area of test anxiety. Lunneborg (cited in Gaudry & Spielberger, 1971) found the correlation between anxiety and achievement measures to be negative and statistically significant. Research conducted by Cotler and Palmer (1971) determined that the measures of relative academic achievement level and test anxiety combined were significantly related to the reading performance of elementary school children. Chansky (1958) found a low, negative correlation between test anxiety and reading comprehension.

No significant difference was found between test anxiety level and reading comprehension for males and females. Research by Payne, Smith and Payne (1983) supported these findings. Their research showed no marked sex differences for eighth grade students. Lin and McKeachie (cited in DeVito & Kubis, 1983) reported no sex differences in mean test anxiety in three of four sample tests. Stanford, Dember and Stanford (1963) also found no important differences between test anxiety and grades earned in the classroom for male and female subjects.

There have also been studies which contradict the findings of this study for test anxiety and reading comprehension for male and female subjects. Castaneda, McCandless and Palermo (1956) found a general tendency for female students to receive higher scores on anxiety scales. Rankin (cited in Head & Lindsey, 1983) found female students tended to have lower ability scores and higher anxiety scores.

No significant difference was found for the test anxiety level of students with a handicapping condition and students with no handicapping condition. These findings contradict research conducted by Bryan, Sonnefeld and Grabowski (1983) who found that learning disabled students are more likely to be more test anxious than nonlearning disabled students.

The significant difference that was found in this study for reading comprehension between educationally handicapped students and students with no handicapping condition was supported by research conducted by Pearl, Bryan and Donahue (1980) who found learning disabled students may react to school failure with impaired performance. The low self-concept which is often associated with learning disabled children frequently leads to higher test anxiety and academic failure in learning disabled students than in nondisabled students.

### Observations and Additional Findings

Although there was no significant relationship in number of subjects who were classified as high anxious, of the 55 subjects, 17 were highly anxious according to the anxiety scale results.

Six male subjects exhibited visible signs of anxiety although they scored at the low anxious level on the anxiety scale.

### Implications for Classroom Practice

This study was conducted on second grade students. Research by Sarason (cited in Gaudry & Spielberger, 1971) indicated that the correlation between anxiety and academic achievement increases as a student progresses in school. Therefore, it would be important for teachers to be aware of a student's test anxiety throughout the student's school years.

Students are often grouped according to test results. It would be valuable for teachers to teach students effective test taking strategies so they are grouped appropriately.

For those children who do suffer from test anxiety, incorporating a program for anxiety reduction may prove to be beneficial. Didget (1983) determined that an anxiety reduction program produced a significant drop in anxiety level and a trend toward improved reading achievement. This type of program could be introduced to an entire class to help not only those students who are test anxious according to an anxiety scale, but also those who are anxious and do not admit it on a written anxiety scale.

### Implications for Further Research

The contradictions found between this study and much of the previous research on test anxiety warrant further investigation. Since only one anxiety scale was used, a different anxiety scale or a variety of scales

could be used on a single population in a future study. Reading comprehension was the only academic area compared to test anxiety; it would be valuable to investigate the relationship between test anxiety and overall achievement.

Although there was no significant relationship in the number of subjects who were classified as high anxious, of the fifty-five subjects, seventeen were highly anxious according to the anxiety scale results. Determining effective ways to reduce this anxiety and discovering the causes would be important to educators.

Six male subjects exhibited visible signs of anxiety although they scored at the low anxiety level on the anxiety scale. Although this is a small number, it may indicate that more research is needed to reevaluate the reliability and validity of this test anxiety instrument.

#### Summary

The results of this study differ to a degree from previous research conducted in the area of test anxiety. This study indicated that a child's reading level can not be predicted by his anxiety level. There was no significant correlation between test anxiety and reading comprehension. This research also indicated no significant difference for anxiety and comprehension between male students and female students and students who are educationally handicapped and students with no handicapping condition. There was no significant difference between reading comprehension of educationally handicapped children and children with no handicapping condition.

Further research is necessary in the area of test anxiety. Teachers need to help those high anxious students cope with feelings of anxiety.

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