THE IMPACT OF THE TEXAS ASSESSMENT OF KNOWLEDGE AND

SKILLS (TAKS) ON TEACHER STRESS AND ANXIETY AS REPORTED

BY MIDDLE SCHOOL CLASSROOM TEACHERS IN A SELECTED

SCHOOL DISTRICT IN EDUCATION SERVICE CENTER,

REGION 20, TEXAS

A Dissertation

by

DAYNE RALSTON DENNING

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2005

Major Subject: Educational Administration

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Approved as to style and content by:

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ABSTRACT

The Impact of the Texas Assessment of Knowledge and Skills (TAKS) on Teacher

Stress and Anxiety as Reported by Middle School Classroom Teachers in a Selected

School District in Education Service Center, Region 20, Texas. (May 2005)

Dayne Ralston Denning, B.S., The University of Texas at El Paso;

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Chair of Advisory Committee: Dr. Clifford Whetten

The purpose of this study was to examine the impact of teacher stress and

anxiety as reported by middle school classroom teachers in a selected school district in

Education Service Center, Region 20, Texas. The selected district included 13 middle

schools where a total of 825 teachers were surveyed.

Survey responses were analyzed using descriptive and inferential statistics. An

analysis of variance (ANOVA) was performed to determine if there were significant

differences ($p > 0.05$) in response to questions involving selected demographic variables.

Findings in the study included the following:

1. There was a statistical difference ($p > 0.05$) in state and trait anxiety scores
   between teachers of TAKS subjects and teachers of non-TAKS subjects.

2. Within the two groups of teachers of TAKS subjects and teachers of non-
   TAKS subjects, there were statistical differences ($p > 0.05$) in the state and
   trait anxiety scores, which support that a correlation exists between state and
   trait anxiety.

3. There was no statistical difference in state and trait anxiety scores between teachers of TAKS subjects and teachers of non-TAKS subjects in selected demographic variables used for the study.

The following are recommendations for further study:

1. Only middle school teachers were used in a selected district for this study. A larger scale study should be conducted to enhance empirical data to determine if teacher stress and anxiety are impacted by state-mandated tests for all grade levels.

2. This study focused on data collected from 13 public schools. Similar studies should be conducted on private and charter schools. A comparison can then be made to determine if these schools show comparable results in teacher stress and anxiety.

3. The study involved only schools within the city limits. Further research could include studies in rural areas to determine if teachers exhibit similar state and trait anxiety scores as do counterparts within city schools.

4. Selected demographic variables in this study were found not to have a significant difference in teacher stress and anxiety between teachers of TAKS and teachers of non-TAKS subjects. Further studies should be conducted to determine if other demographic variables contribute to teacher stress and anxiety.

DEDICATION

This dissertation is dedicated to my family who has given me unconditional love and support throughout my journey. To my wife, Cathy, whose constant love and encouragement to follow my dream have been an eternal presence in my life. To Andi, Aubrae, and Amber, who knew I was around, but "was always up there typing," you are the strength and the foundation of our family.

For

Skylynn Macie "Scooter" Denning – into whose tiny hands we lovingly commit

our future….

Grampa

ACKNOWLEDGEMENTS

No task of this undertaking could be accomplished without the help and support of special people. It is with great respect, admiration, and fortune that I have been associated with the following individuals who have made this endeavor possible:

My committee members, Dr. Clifford L. Whetten (Chair), Dr. Stephen L. Stark, Dr. Alvin Larke, Jr., and Dr. Kenneth E. Paprock, have provided valuable guidance, expertise, encouragement, and knowledge throughout this process. They are foremost in my thoughts when I think of true heroes.

Dr. Stan Carpenter, Dr. Homer Tolson, and Dr. John Hoyle not only provided guidance and encouragement, but also professional expertise in refining elements of my dissertation that meet the highest standards set by Texas A&M University. Thank you for the assistance, guidance, and encouragement to fulfill a lifelong dream.

Naturally, there are a multitude of others who need to be mentioned: Dr. Walt Stenning, Dr. Richard Clifford, Dr. Phil Linerode, Ms. Joyce Nelson, Ms. Marilyn Oliva, and Dick Smith for his true support and friendship. If I missed you, please forgive me. For all those in the Department of Educational Administration and Human Resource Development, I extend my profound thanks for your assistance.

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CHAPTER I

INTRODUCTION

Clovis (1999) reports that American students might very well be the most tested group in the world, with over 100 million standardized tests administered each year. She further states that results from tests may have a serious impact on educators, parents, administrators, and even local government officials. Sputnik in 1958 and the successful launching of a Russian-manned space capsule in the 1960s became the impetus behind the U.S. government's movement into the education arena (Tunks, 2001). Further, Tunks states that by 1994, 44 of 50 states were administering mandated standardized tests.

High-stakes testing, a term used for certain achievement tests that carries serious consequences for students or educators, reached such magnitude by 1999 that the American Psychological and National Council on Measurement in Education wrote a position statement, taking issue on decisions based on single test results (Baker, 2000; Tunks, 2001). Reviewing the history of high-stakes testing in public schools in Texas, Cruse and Twing (2000) report that in 1979 the Texas State Legislature required the Texas Education Agency (TEA) to adopt and administer a criterion-referenced test to measure basic competencies in mathematics, reading, and writing for students in grades 3, 5, and 9, called Texas Assessment of Basic Skills (TABS).

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The style and format for this dissertation follow that of *The Journal of Educational Research*.

In 1984, the Texas Educational Assessment of Minimum Skills (TEAMS) replaced TABS, and administration of testing included grades 1, 3, 5, 7, 9, and ll. Again, in 1990, TEAMS was phased out for a new assessment program called the Texas Assessment of Academic Skills (TAAS), becoming a component of a statewide integrated school accountability system (Cruse & Twing, 2000). However, Tunks (2001) warns about unintended effects of pressuring teachers and students to raise test scores higher each year. Popham (2000) reports that high-stakes testing has a negative impact on teachers' morale and professional efficacy. In the near future, promotion and graduation requirements will be tied to TAAS ("Student assessment," 1998) and the TAKS.

Baker (2000) states that teachers are under great stress in order to produce higher grades on tests each year. He further states that often teachers feel their careers are dependent upon test scores. Studies by Conley and Woosley (2000) conclude that role stress and role conflict were found to have outcomes by the organization for teachers' intentions to leave the district. Baker (2000) noted that in his five-year study, 44% of teacher education programs were modified in response to TAAS testing. Additionally, the author reported that 56% of the respondents complained about instructional decisions related directly to TAAS. Further, stress experienced by teachers regarding scores on the Performance-Based Accreditation Standards in Alabama was reported in a study by Hipps and Halpin (1992).

Klein, Hamilton, McCaffrey, and Stecher (2000) raised concerns that pressure to increase TAAS scores may be more demanding in low-scoring schools that typically

have low income and minority students. The authors further observed teachers in these low-performing schools reported greater frequency in test preparation than teachers in schools with higher scores. Additionally, the authors discovered that there was a narrowing of curriculum to improve TAAS test scores at the expense of other skill subjects that are not tested.

In studies conducted in Maltese secondary schools (Borg & Riding, 1991), 33.6% of the surveyed teachers considered their job as very stressful or extremely stressful. The research also identified a gender variable that despite the curriculum taught, males reported more stress than females. Weisberg (1994) indicates variables such as age and tenure affect teacher burnout and are consistent with other research. Kyriacou (2001) identified main sources of teacher stress as supported by extensive research. Sources of teacher stress include variables such as lack of motivation, being evaluated by others, and role conflict and ambiguity. Further, he points out that with over 20 years of research in the field, other factors that have been noted as sources of stress include personal values, skills, and circumstances.

Research clearly indicates high-stakes testing creates stress among educators and limits classroom curriculum (Perreault, 2000). Some educators feel their job is on-the-line as a result of high-stakes testing, as evidenced by Valenzuela's (2000) case study on TAAS and Mexican American students. High-stakes testing creates stress that ultimately drives the best teachers out of the classroom. In some instances, the motto is to teach to the test (Patterson, 2000). When academic standards do not measure up and rise from year-to-year, teachers and administrators rush to master skills through drills,

drills, and more drills (Donlevy, 2000). Finally, there is a need for continued research on occupational stress as there are increased demands on job performance and job insecurity (Tennant, 2001).

Statement of the Problem

High-stakes testing appears to be a continuing issue in dealing with teacher stress where research should focus on stress triggered by difficult or excessive demands made on teachers (Kyriacou, 2001). Wilhelm, Dewhurst-Savellis, and Parker (2000) conclude in studies that sources of teacher stress have been investigated extensively. However, future teacher-related stress research needs to be highlighted by work-related pressures. Hoffman, Assaf, and Paris (2001) declare that independent research is necessary to provide critical analysis of the effects of high-stakes assessment on various stakeholders that include parents, teachers, and students. What is important for research in stress and anxiety is how both affect outcomes in organizational procedures and methods that can be developed to reduce adverse effects on teachers (Conley & Woosley, 2000).

Purpose of the Study

The purpose of this study was to determine the impact of the TAKS on teacher stress and anxiety among middle school teachers in a selected district in the Education Service Center, Region 20, Texas. The study examined whether the TAKS impacts transitory emotional (state) stress, and stable, distinguishing characteristic (trait) anxiety among two teacher groups: those who instruct TAKS subjects and those who do not. Next, the study examined whether teachers who exhibit different levels of trait

scores display different state stress means. Lastly, the study examined whether selected demographic variables affect state stress and trait anxiety between both groups.

Research Questions

1. Do differences exist between state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

2. Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

3. Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas?

Operational Definitions

Burnout: A stress-related syndrome described as a state of mind characterized by emotion, physical, or attitudinal exhaustion (Kyriacou, 2001).

Coping: A set of behaviors used to manage stress or anxiety (Hobfoll, 1988).

Criterion-referenced test: The interpretation of an individual's score by comparing it to a prespecified standard of performance (Gall, Borg, & Gall, 1996).

Education Service Center, Region 20, Texas: One of 20 regional education service

    agencies within Texas that assists school districts and charter schools in

    improving student performance and increasing the efficiency and effectiveness

    of school operations.

High-stakes testing: A term used to identify an assessment that measures accountability

    for higher academic performance that influences critical decision-making for a

    school district. The decision-making process includes, but is not limited to, the

    impact on teacher/administrator bonuses, school or district funding through

    local, state, or federal agencies, job stability for educators, or other factors that

    influence school accountability (Haury, 2001).

Impact: The positive or negative influence on the dependent variable in the study

    (Petrisky, 2004).

Mandated tested subjects: Criterion-referenced subjects for grades 6-8 as defined by

    Texas Education Agency: reading, writing, mathematics, and social studies

    (TEA, n.d.-b).

Middle school: A public school institution that on its facility has only students in grades

    6, 7, and 8.

Non-mandated subjects: Curriculum courses that do not directly impact state

    performance assessment, such as music, physical education, or art.

Norm-reference test: The interpretation of an individual's test scores by comparing it to

    the scores earned by other individuals (Gall et al., 1996).

Public Education Information Management System (PEIMS): A data collection system

authorized by the Texas Education Agency that gathers information for public

education, including student demographic and academic performance,

personnel, financial, and organizational information (TEA, n.d.-a).

Selected demographic variables: Gender, age, years of teaching experience, highest

college/university degree attained, and teaching subject.

State stress: Momentary or transient anxiety experienced by an individual at any given

moment and may vary in intensity over time (Finch, Kendall, Dannenburg, &

Morgan, 1978).

Texas Assessment of Academic Skills (TAAS): The third criterion-referenced state-

mandated test administered in 1990 that developed Essential Elements (EEs)

that linked content directly to the core curriculum (Cruse & Twing, 2000).

Texas Assessment of Basic Skills (TABS): The first generation criterion-referenced

state-mandated test administered in 1980 in Texas used to measure basic skills

in mathematics, writing, and reading for grades 3, 5, and 9 (Cruse & Twing,

2000).

Texas Assessment of Minimum Skills (TEAMS): The second generation criterion-

referenced state-mandated test in Texas administered in 1984 to grades 1, 2, 3,

5,7, 9, and 11 (Cruse & Twing, 2000).

Texas Assessment of Knowledge and Skills (TAKS): The fourth generation criterion-

referenced state-mandated tests administered since 2002 measuring the

statewide curriculum in reading at grades 3 through 9; in writing at grades 4 and

7; in English language arts at grades 10 and 11; in mathematics at grades 3 through 11; at science in grades 5, 10, and 11; and social studies at grades 8, 10, and 11 (Cruse & Twing, 2000).

Texas Essential Knowledge Skills (TEKS): The center of the state-mandated curriculum and, as such, defines the basic content of the instructional program in Texas. It outlines the knowledge and skills required of every student by the stateside accountability system, TAKS (Cruse & Twing, 2000).

Trait anxiety: A stable difference in anxiety proneness of an individual or a predisposition to react to various situations consistently (Endler & Kocovski, 2001; Spielberger, Gorsuch, & Lushene, 1970).

Assumptions

1. Instruments used in this study accurately measured the responses rendered by the respondents.

2. The respondents completed the instrument in a truthful and forthright manner.

3. Interpretation of the data collected accurately reflected the intent of the respondent.

4. The respondents surveyed understood the scope of the study and the language of the instrument.

Limitations

1. The study was limited to middle school teachers in a selected district within the Education Service Center, Region 20, Texas.

2. Findings from this study may not be generalized to any group other than the teachers surveyed.

3. The study was limited to information acquired through literature review and survey instruments.

Significance of the Study

As early as the 19th century, teachers knew that their professional status was dependent upon the results produced in the classroom (Jones, 2001). Today, high-stakes testing is commonplace in nearly every state except Iowa (Hoffman et al., 2001; Merrow, 2001). Patterson (2000) believes mandated state tests such as the one given in Texas called the Texas Assessment of Academic Skills (TAAS), which was changed to Texas Assessment of Knowledge Skills (TAKS) in 2002, produces undue stress in teachers and is a primary factor in driving the best teachers out of public schools, or lead directly to job dissatisfaction (Perreault, 2000). Modern research continues to identify sources of teacher stress in the work area, including specifics on gender, age, and experience (Montalvo, Bair, & Boor, 1995).

This study is important in that the literature review identifies many components of teacher stress, anxiety, and burnout. However, little research has been conducted to determine whether a specific state-mandated test, such as the TAKS, impacts different state stress and trait anxiety scores in teachers whose curricular subjects can be used for school and district accountability. If such high-stakes tests prove to impact teacher state stress and trait anxieties, then further studies can be conducted to develop effective coping strategies.

Contents of the Dissertation

This dissertation is organized into five major divisions or chapters. Chapter I contains an introduction, a statement of the problem, a need for the study, specific objectives, limitations and assumptions, and operational definitions. Chapter II contains a review of the literature. The methodology and procedures followed are found in Chapter III. Chapter IV contains the analysis and comparisons of the data collected in the study. Chapter V contains the researcher's summary, conclusions, and recommendations.

CHAPTER II

REVIEW OF THE LITERATURE

Stress Research

The topic of stress and anxiety commands a great amount of research and study over the past several decades. In the early 20th century, Sigmund Freud in his studies reported that anxiety is a reflection of the self-preservation or ego drives. Through observations and experiments, Walter Cannon in 1932 noted similarities between human body reactions and those of inanimate materials. Although Cannon was concerned with the effects of cold, lack of oxygen, and environmental stressors, he concluded that low-level stressors could be withstood, but high-intensity stressors would result in a disturbance of the homeostasis or balance of the human body. If high-intensity stressors were prolonged, a breakdown of the biological systems would result (Hobfoll, 1988). Cannon (as cited in Baum, Davidson, Singer, & Street, 1987) stated that when the body becomes frightened, highly stressed, or is alerted to an emergency, it will prepare for "fight or flight" through sympathetic activity or heightened adrenal activity in the body. This concept was later modified through clinical observations noting that anxiety initiated defense systems rather than anxiety being a result of those defensive systems (Hobfoll, 1988; Selye, 1980).

Hans Selye's pioneering efforts in the 1920s and 1930s helped lay the groundwork for continued and extensive research in stress and anxiety. Selye expanded the basic research of Cannon in that stress causes an imbalance of homeostasis (Hobfoll, 1988; Selye, 1980). Selye's clinical research on mice observed physiological

changes induced by stress factors. This led to what Selye developed as the general adaptation syndrome (G.A.S). The G.A.S. consists of three stages: (a) alarm reaction, (b) stage of resistance, and (c) stage of exhaustion (Selye, 1956).

In stage one of G.A.S., there is an alarm reaction. The organism immediately reacts to a sudden exposure of diverse stimulus in which it has not previously adapted. The autonomic nervous system and endocrine system become highly motivated. There is an increase output in the adrenal cortical steroids with a series of other endocrine changes that react to the adrenal steroid output. The alarm reaction is characterized by two phases:

1. *Shock phase*. This is the immediate or initial reaction to a noxious agent. Tachycardia, loss of muscle tone, loss of temperature, or a sudden drop in blood pressure are symptoms of the shock phase.

2. *Countershock phase*. The body rebounds and mobilizes defenses toward the shock. The adrenal cortex becomes enlarged and secretes corticoid hormones, allowing the body to build a defense against the incurred shock.

In the second stage of G.A.S., or the resistance state, the organism adapts to the stressor. If there is prolonged exposure to the stimulus or the stressor, the body begins to adapt to the input. During this stage, the body seeks to gain control over the stimulus. As stage two develops, there was noted a concurrent decrease in resistance to most other stimuli.

Stage three, or the exhaustion stage, is dependent on the stressor. Since adaptability to stress is finite, if the stressor is severe and prolonged, other

physiological and psychological changes may reappear or become acute. In this stage, should the stressor not be arrested, or it continues unabated, death occurs (Selye, 1956, 1980; Singer & Davidson, 1983).

Research in the 1960s and 1970s found that the basic concepts of Seyle were expanded to include a larger aspect in stress phenomena. Although research expanded the concepts of Selye and Cannon in biological concepts of stress, whether stimulus-based or response-based, stress moved into the direction of the person-environment transactions and how certain events affect place stress on the individual. Coyne and Lazarus (1980) refer to this as "cognitive-phenomenological," or how one appraises the situation and uses the information to develop coping strategies. Stress could not be defined exclusively, because the capacity of any given situation to produce stress reactions was dependent upon an individual's characteristics (Cox, 1978; Cox & Ferguson, 1991; Hamilton, 1982; Lazarus, 1966; Lazarus & Folkman, 1986). Stress should be defined in terms of transactions between individuals and situations, not as either one independently. How stress and anxiety affect the cognitive domain of learning was a primary focus of Gaudry and Spielberger (1971).

A great deal of today's research in stress is a continuance of the biological and physiological aspects of the stress phenomenon. Psychosocial stress (Kaplan, 1996) refers to "the socially derived, conditioned, and situated psychological process that stimulate any or all of the many manifestations of dysphoric affect" (p. 3). In other words, psychosocial stress involves the cognitive and affective-evaluative interpretations of social circumstances and does not include the circumstance that

involves psychological distress. Kaplan (1996) further notes that the individual may be influenced by multiple social identities and the interactions of persons with a social construct. He concludes that changes occur with in the person in relation to social change and life event changes. Psychosocial stress deals with elements of life events and how a person develops coping strategies to manage the stress. Of importance in this concept is that psychosocial research encompasses the work environment (Wheaton, 1996).

Cassel (1970) reports that physical illness is impacted by social interaction and exposure to other humans. His studies found that in many cases, diseases are more prevalent with individuals who are less likely to be socially interactive. Further, how the person reacts to the stimulus is based upon its intensity and past experiences.

To briefly summarize, the research on stress has greatly evolved over the past nine decades. Selye and Cannon conducted research based on the biological ideology of stimulus-response, where the body responds to a specific stressor and seeks to maintain homeostasis. The foundations of Selye and Cannon moved ahead as further research explored the physiological concepts of stress and added the cognitive and psychosocial aspects as well.

Defining Stress

From early research to present, the definition of stress varies with the type of research being conducted. Selye (1974) defines stress as, "the nonspecific response of the body to any demand made upon it" (p. 27). Differences exist between specific and nonspecific responses in the body. For example, a specific response might be the body

shivering in response to cold, or sweat being produced assist in the cooling of the skin surface. In other words, any demand made upon the body is specific in nature. All have one thing in common: all require the body to adjust in a way that will result in normalcy. Similarly, if an animal broke a leg, there would occur bone damage, tissue damage, disruption of blood supplies, and other consequences, specific to the locale of the broken leg.

The term "nonspecific" is defined as the adaptation to a problem, despite what that problem may be. In the human body, the nonspecific response is the effect of all agents working to reestablish normalcy. Selye (1974) uses the term "nonspecific" because chemical reactions in the organism will react the same no matter when the stressor occurs. For example, if a man breaks a leg, the endocrine system would produce adrenal cortical steroids, as well as other chemical bodies that would react to the adrenal steroids. If in the future, the leg breaks again, the same adrenal cortical steroid and endocrine changes would occur. The aim of the body is to reacquire internal equilibrium or homeostasis created by the stressor. (Baum et al., 1987; Selye, 1956, 1974, 1980; Singer & Davidson, 1983). All agree that it makes no difference whether the stressor is pleasant or unpleasant. The body will respond regardless if the stressor produces a euphoric feeling, or one of pain. However, the demand for adjustment is dependent upon the varying degree of intensity of the stressor (Selye, 1983).

McGrath (1970) concludes stress is cognitive in nature and that, "stress occurs when there is a substantial imbalance between environmental demand and the response capability of the focal organism" (p. 17). In other words, stress is a discrepancy

between a problem and one's ability to resolve or accommodate the discrepancy

(Mechanic, 1970). It is a difference between perceived or subjective demand and the

ability to perceive the response to the stressor.

Stress involves multiple variables and processes, placing demands on an

individual's resources (Lazarus, 1966; Lazarus & Folkman, 1986). The individual

appraises these variables, determines relevancy to self-well being, and then responds

cognitively or behaviorally.

Hobfoll (1988) offers that there is no single accepted definition of stress

because of the complexity of the phenomena, and he points out that stress is all

encompassing when the human body is affected:

> It involves all of the systems of the body – cardiovascular, endocrine, and
> neurological; all the systems of the psyche – cognitive, emotional, and
> unconscious; and occurs in all social systems – interpersonal, intrapersonal,
> small group, large group, and societal. It involves our loves, hates, closest
> attachments, competition, achievement – indeed every matter in which humans
> are involved. (p. 2)

Kasal (1983) has perhaps the best working definition for stress when he states:

> The term "stress" continues to be used in several fundamentally different ways:
> (a) as an environmental condition; (b) as an appraisal of an environmental
> situation; (c) as the response to that condition; and (d) as some form of
> relationship between the environmental demands and the person's ability to
> meet the demands. (p. 81)

In sum, the definition of stress cannot be defined specifically, but rather in

terms of the type of study the researcher is conducting. The definition is dependent

upon the construct of the model of stress being tested.

Models of Stress

Research has produced three distinct models of stress: (a) response, (b)

stimulus, and (c) interactional/transactional (Cox, 1978; Geick, 1998; Needham, 1996).

Response-Based Model

Early researchers such as Hans Selye and Walter Cannon viewed stress as the

body responding to a demand. Selye's G.A.S. is an example of a response-based model.

Cox (1978) states that this type of stress can be treated as a dependent variable. The

organism is responding to what Selye (1980) refers to as a disturbing or noxious

environment. All three stages of G.A.S. work to restore homeostasis or equilibrium.

Kagan and Levi (1971) report that stress response is a result of the psychosocial

stimuli. Life changes create a physiological stress response that if unchecked, can

create wear and tear in the person as well as create functional changes. The stress

response is a result of the psychosocial stimuli (Cox, 1978; Levi, 1967).

Stimulus-Based Model

Whereas Selye considers stress as a non-specific response to a stimulus, the

stimulus-based model treats stress as a stimulus characteristic of the individual's

environment with reference to the load or level of demand. A stimulus-based model is

best characterized by the engineering approach (Cox, 1978; Cox & Ferguson, 1991).

Cox treats the stimulus as an independent variable of the person's environment. The

engineering model was derived from Hooke's Law of Elasticity, which deals with

stress, strain and load. A load, or stress, is placed upon an object. If the load or stress is

within the materials elastic limit, and the stress is removed, the object will return to its

original condition. If the load exceeds the elastic limit, then damage will occur. This law can be applied to humans as well. If the load or stress does not exceed the coping capabilities of the human, then a state of equilibrium will occur when the stress is removed. However, if the stress becomes intolerable, permanent damage, both physiological and psychological damage, may result (Cox, 1978).

Interactional/Transactional-Based Model

The interactional and transactional models emphasize the cognitive view of stress and is at the crux of modern-day research. This research focuses on the interplay between the individual and the environment (Aldwin, 1994; Cox, 1978; Folkman, Schaefer, & Lazarus, 1979; McGrath, 1970). Coyne and Lazarus' (1980) research addressed how a person assesses what the experience is and how this information is used to apply coping strategies. In other words, the individual appraises the significance of an ongoing relationship with the environment in an effort to establish coping strategies.

Cox and Ferguson (1991) noted that in the initial phase of appraising the stressor, the individual and situational factors determine whether the situation is anxiety-producing or depressing. Individual differences in a person contribute to the perception of whether or not environmental factors are considered stressful. However Aldwin (1994) notes differences between the interactional and transactional model. In the interactional model, coping is a function of the person and environment, whereas in the transactional model, coping outcomes have effects on both the environment and

person. In other words, how a person copes with the stressor may have an outcome on the environment itself.

Whether stimulus-based, response-based, or transactional/interactional-based, research into the phenomenon of stress continues. How the research is developed and conducted will determine which model best supports the findings.

Cause and Effects of Stress

Research concludes that stress has a physiological, psychological, and psychosocial impact on an individual (Baum et al., 1987; Hobfoll, 1988; Lazarus & Folkman, 1986). There is ample research that defines the three types of stress and the effects on the human body: physiological, psychological, and psychosocial.

Physiological Stress

The physiological aspects of stress were noted in early research by Selye, where he noted chemical changes within the body as a result of body responding to a stimulus. Information transmitted from the cerebral cortex to the hypothalamus, triggers other organ actions including the production of adrenaline, increased vascular activity, and activation of the autonomic nervous system (Cox, 1978; Leidy, 1989; Levi, 1967; Selye, 1974, 1979, 1983).

Studies by Levine and Scotch (1970) concurred with Selye and Levi, but further noted that there are at least five major kinds of evidence that support stress as it relates to physiological dysfunction, as well as disease, mental disorders, and social pathological behaviors. In clinical studies, stress and anxiety have been linked to special life histories, certain vulnerabilities, and distinctive personalities. Additional

studies have supported that the limbic and hypothalamic levels in the human body incur

physiological changes in the presence of stress (Henry & Ely, 1980). To summarize,

medical research supports the conclusion that stress produces physiological changes

within the human body.

Psychological Stress

Psychological stress involves the emotional well-being of the individual. Much

research has been devoted to effects of stress on individuals. Lazarus (1966) noted that

stress reactions were dependent upon the characteristics of the individual. He states that

the nature of stress reactions contain four main classes: (a) reports of disturbed effects

that include fear, anxiety, anger and depressions; (b) motor behavior changes that react

to stress situations, such as facial expressions, attack, or avoidance; (c) cognitive

functioning changes, such as effects on perception, thought, problem solving, and

social adaptation; and (d) physiological changes that include effects on blood pressure,

respiration, skin temperature, and autonomic nervous system changes. Lazarus points

out cognition and the process of appraisal to determine both the perception of stress and

the individual's emotional response to the problem (Aldwin, 1994).

There has been much follow-on research that supports findings that

psychological stress is dependent upon the individual and that it can have profound

effects on the human body (Campbell & Singer, 1983; Cox & Ferguson, 1991; Endler,

1980; Hermann, 1966; Hurrell & Murphy, 1991).

Psychosocial Stress

Lazarus (1966) views sociological stress as how an organism interacts with the environment. How an individual appraises a threat from an experience or environmental factor is important in assessing the psychosocial stress factors (Coyne & Lazarus, 1980). This included occupational stress associated with job performance and perception. Research by Aldwin (1994), Cox (1978), Folkman et al. (1979) and McGrath (1970), all conclude that environmental factors are part of the social make-up of the individual. Outside factors, and how the individual assesses these factors as a threat, determine the stress upon the individual. Whether the individual adapts to the environment or changes the environmental stressor is determined solely by the evaluative processes of the organism (Aldwin, 1994).

To briefly summarize, stress research drew serious attention in the early 20th century with the experiments and research of Hans Selye and Walter Cannon. Follow-on research produced three working models: (a) the response-based model, (b) the stimulus-based model, and (c) the transactional/interactional model. Stress has a physical, psychological, and psychosocial impact on the human being, and each is interrelated. Environmental factors perhaps provide the most stressors. However, how a stressful situation is defined, its magnitude, and impact on the self remains within the cognitive domain of the individual.

Stress and Demographic Variables

Research indicates there may not be a definitive answer to demographic variables when dealing with stress issues. How a study is constructed and what aspect

of stress or anxiety is measured often determines the demographic results. Wofford,

Daly, and Juban (1999) even state that the research is not to be generalized beyond the

sample used for the study.

Age

Huston (1989) indicates that younger teachers identify more with students, as

opposed to older teachers developing more of a paternal/maternal bond with students,

thus decreasing depersonalization. Maslach, Schaufeli, and Leiter (2001), in studies,

concur that employees over 30 to 40 years old experience burnout less than those less

younger.

In a 1983 study by Rottier, Kelly and Tomhave, men in the age group of 41 to

50 were the most unhappy of the age groups. However, they point out that other studies

indicated that the age group of 25 to 34 was the most unhappy, and in a third study, the

age group of 31 to 40 was the most stressed. A 1999 Norwegian study shows that in the

teaching profession, the higher the age, the more risk of leaving the profession due to

stress and burnout (Mykletun & Mykletun, 1999).

Gender

Although Maslach et al. (2001) report that in most instances, gender has not

been a major factor in stress, earlier studies indicate that men are significantly more

depersonalized than women and often suffer burnout more often (Huston, 1989).

Studies indicate that specific stressors can have an impact on gender. Research by

Harris, Halpin, and Halpin (1985) shows that an authoritarian type individual exhibits

higher stress levels than less authoritarian types. Men were found to have a higher level

of stress than women, only in regards to authoritarian types of teachers. In a 15-year study by Wilhelm et al. (2000), it was found that women teachers were less stressed than male counterparts because women exhibited higher satisfaction in their profession. Further, a study of 1860 teachers in Norway by Mykletun and Mykletun (1999), shows that females reported a higher level of stress than males overall, but males have a higher level of stress if self-efficacy is low. There is no doubt that gender differences exit in relation to stress, physically and socially. But it is the nature of the stressor that determines the impact on gender (Barnett, Giener, & Garuch, 1987; Palefrone & Manuck, 1987).

<div align="center">*Education*</div>

In some studies, it was reported that the higher the education level, the less stress and burnout was experienced (Maslach et al., 2001). This was opposite of the Mykletun and Mykletun (1999) studies that conclude neither formal training of professional teachers had an impact on stressors that cause teachers to leave the profession.

In short, demographic variables are important aspects in stress research. However, generalizations of the demographic variables are dependent upon a myriad of components of the study. Internal and external variables, locus of control, environmental stressors, all affect the results of the demographic variables assigned to the study. Mearns and Cain (2003) might very well express the overall perception of demographics in stress research, concluding that the individual characteristics of the

teacher and how that teacher reacts to these stressors will determine the outcome of the variables.

Occupational Stress

Occupational stress has been a growing concern for employees and employers as well. It has been recognized as a significant problem in the workplace today. It has been estimated that American businesses lose more than $150-$200 billion per year because of health costs (McEwen & Lasley, 2003; Spector, 2002). Stressors in the work environment cause strain and affect psychological health and the well-being of the individual. The environmental stressors may include tasking of the individual, relationships with co-workers, or the nature of demands made by the organization itself. Psychological strains include depression, anxiety, or tension. However, there may be physical illnesses associated with occupational stress as well (Beehr, Glaser, Canali, & Wallwey, 2001; McEwen & Lasley, 2003). Further, Rees and Redfern (2000) point out that stress in the workplace has potential ill effects on the human and that it is the duty of the employer to protect workers from the psychological effects of stress.

Research by Tennant (2001) notes that work-related stress has effects on worker satisfaction and productivity, mental and physical health, absenteeism, family, and employer liability. He further states that depression is the most likely adverse psychological effect of stress, but other problems may include physiological problems, alcoholism, chronic fatigue and accidents, and burnout. The term "burnout" refers to occupational settings and is described as a syndrome of cynicism and emotional exhaustion in response to chronic stress within the work environment (Mearns & Cain,

2003; Tennant, 2001). Burke (1976) reports that stress results when there is role conflict, role ambiguity, or role overload. If there are inconsistencies between what the individual perceives and the role performance, the result will be job dissatisfaction, low job performance, or anxiety. He concluded that three factors (individual, task, and organizational) have an effect on job pressure and individual satisfaction.

There are many causes of occupational stress. Research concludes that there are two main demands: internal demands and external demands. Mackay and Cox (1978) refer to Maslow's "need hierarchy" and Herzberg, Mausner, and Snyderman's (1959) dual motivation theory to illustrate internal demands. Maslow asserts that man has five needs that must be satisfied to achieve self-actualization. The needs are physiological, safety, belonging, friendship and love, and esteem. All five relate to the need for achievement, recognition, and then self-actualization (Maslow, 1948, 1970).

The dual motivation theory argues that two factors explain work: satisfaction and dissatisfaction. Satisfaction depends on motivation, whereas dissatisfaction depends on hygiene factors. Achievement, recognition, responsibility and advancement are related to motivation factors. Pay, the working environment, security and personal relationships fall under the realm of hygiene (Herzberg, 1966; Herzberg et al., 1959; Hoy & Miskel, 2001; Mackay & Cox, 1978).

External demands include the make-up of the organization, physical work environment, psychosocial aspects, and activities outside the work area (Mackay & Cox, 1978). Any change within the internal or external environment may heighten the level of work stress resulting in negative effects on the individual. These internal and

external demands are paramount in research on teacher stress and burnout (Brown,

Ralph, & Bremer, 2002).

Occupational stress has an effect upon the individual in various ways. Stress

can be a result of internal or external factors, and these factors can have a physiological

as well as a psychological effect on the individual.

Teacher Stress

Teacher stress is defined as: "the experience by a teacher of unpleasant,

negative emotions, such as anger, anxiety, tension, frustration or depression, resulting

from some aspect of their work as a teacher" (Kyriacou, 2001, p. 28). Teaching has

been identified as one of the more stressful occupations, not only in the United States,

but in other countries as well. The distress that teachers feel is a primary reason why

many are leaving the profession (Cedoline, 1982; Dworkin, 1986; Flowers, (2003);

McKinney-Toodle, 2001; Wilhelm et al., 2000). Stress and burnout in teachers are not

limited to urban schools. Research by Abel and Sewell (1999) shows that although both

urban and rural teachers experience stress and burnout, differences did exist in specific

stressors. In recent surveys, 9.3% of public school teachers leave teaching before the

end of their first year. Further, approximately 20% leave within the first three years,

and nearly 30% exit within five years. The figures rise in more disadvantaged schools

(Certo, & Fox, 2002; Darling-Hammond, 2003).

Causes of Teacher Stress

There is ample literature available that pertains to causes of teacher stress.

However, reasons have been identified as causes of teacher stress and include

environmental, interpersonal, situational and work conditions (Cassel, 1984; Cedoline, 1982; Certo & Fox, 2002; Darling-Hammond, 2003; Dworkin, 1986; Harris et al., 1985; Kagan, 2001; Kyriacou, 2001; Montalvo et al., 1995; Sutton & Huberty, 1984; Wilhelm et al., 2000). In brief, research indicates that causes of teacher stress are many and are most likely determined by the individual. Recent studies by Abramson, Alloy, and Hogan (1997) indicate that hopelessness depression is symptomatic of causal events. Their research identifies 12 symptoms of hopelessness depression that include psychomotor retardation, lack of energy, apathy, and low self-esteem. These are the same types of symptoms associated with stress and burnout. Further, individual stressors can accumulate to create a major stress event (Sutton & Huberty, 1984; Tellenback, Brenner, & Lofgren, 1983).

A symptom of stress is called burnout. Burnout is induced by stress and is characterized by physical and emotional exhaustion, behavioral dysfunction, psychological impairment, and organizational inefficiency (Cedoline, 1982; Friedman, 2000). Kyriacou (2001) states that burnout is an emotional state that is a result of physical and attitudinal exhaustion. It is the result of prolonged inability to successfully cope effectively with life events. Maslach et al. (2001) state that burnout is defined by three dimensions of exhaustion, cynicism, and inefficacy. It is job related and is a prolonged response to chronic emotional and interpersonal stressors. Further, according to recent studies for five occupational sectors in two countries, teaching was characterized with the highest level of exhaustion. The study showed that burnout is experienced more frequently in younger employees than those over 30 or 40 years old.

Interestingly, the demographic variable of sex appears to not be a strong predictor of burnout. Kyriacou and Sutcliffe (1979) noted that teacher stress is related to the internal and external process or locus of control. Research shows how locus of control affects teacher stress and burnout (Lunenburg & Cadavid, 1992; van Dick & Wagner, 2001). Locus of control is expressed as how one perceives events as either being controlled internally (dependent upon self-behavior), or externally (controlled by luck, chance, and fate). The research concludes that individuals with external locus of control view obstacles as insurmountable. On the other hand, those with internal locus of control perceived obstacles as issues with which they could deal. Individuals with external locus of control experience more anxiety, stress, and burnout than those who have more internal locus of control.

Bandura's (1977) self-efficacy theory is an important concept in education. Self-efficacy is a perceptual judgment about one's capability to organize and then execute action in an effort to attain a certain level of performance. It includes determining goals, how much effort to expend, how long they persevere, and how they react to failures. There are four sources of information in regards to teacher self-efficacy: (a) mastery experience, (b) vicarious experience, (c) verbal persuasion, and (d) physiological arousal. Mastery concerns itself with success and failures in completing tasks. Vicarious experience involves providing knowledge through knowledge of an expert and applying those experiences through practice and modeling. Verbal persuasion is talking to others into believing that the task can be accomplished if the individual wants to succeed. Lastly, physiological arousal making judgments about

anticipated performance based on interpersonal factors that may be negative such as fear, distress, or positive factors such as achievement and success (Brouwers & Tomic 2000; Hoy & Miskel, 2001).

Another symptom of stress and burnout is anxiety. Extensive and ongoing research by Gaudry and Spielberger (1971) resulted in the identification of two types of anxiety: state and trait anxiety. State anxiety, or A-State, is a transitory emotional state. It is a result of subjective, consciously perceived feelings of tension and apprehension and heightens the autonomic nervous system. Because it is transitory, A-State anxiety may vary in its intensity and may fluctuate over time.

On the other hand, trait anxiety or A-Trait refers to relatively stable individual differences in anxiety proneness, that is, to differences between people in the tendency to respond to situations perceived as threatening. In other words, A-Trait is how an individual has reacted to anxiety and stress throughout life.

Generally speaking, an individual who exhibits high A-Trait will subsequently exhibit elevations of A-State more frequently than low A-Trait individuals. This is because the high A-State individual perceives a wider range of situations as more dangerous or threatening. High A-Trait individuals most likely will respond to stressful situations with increased A-State intensity, especially if the stressor involves interpersonal relationships or a threat to self-esteem (Endler, 1980; Gaudry & Spielberger, 1971; Kverno, 2000).

Brenner, Sorbom, and Wallius (1985) confirmed that a general transactional stress model, which is temporary in nature, is different than the core stress model that

tends to be long termed. Individuals develop coping strategies to meet these two types of stress models. What is important in this research is the distinction made between how an individual reacts to a transitory event, as compared to how the individual reacts over a long period of time.

To briefly summarize, teachers are exposed to an array of stressors. The locus of control and self-efficacy are important elements in the perception of stress and anxiety in teachers. Anxiety and burnout are byproducts of stress, but appear more frequently in the teaching profession than any other occupation. How a teacher perceives, interprets, and reacts to an internal or external event is contributory stress, anxiety, and burnout.

Teachers and High-Stakes Testing

High-stakes testing is a term used for certain tests that may have serious consequences or penalties for students or teachers. The consequences may result in students not being able to graduate, or teachers being reassigned or terminated because student assessment or accountability has not met established standards (Baker, 2000; Tunks, 2001). Clovis (1999) reported that American students might very well be the most tested group in the world, with over 100 million standardized tests administered each year. She further stated that results from tests may have a serious impact on educators, parents, administrators, and even local government officials. High-stakes testing creates stress among educators and limits classroom curriculum (Perreault, 2000). It has been suggested that state-mandated testing may contribute to stress and anxiety in teachers. Because of the pressure of high-stakes testing, Paris and Urdan

(2000) note teachers are frustrated when they are evaluated on the basis of tests scores. They note, with caution, that when salary, professional status, and career paths are determined by high-stakes test scores, increased teacher involvement may be a double-edged sword. Scores may increase, but it may be at the expense of a watering down of the curriculum in an effort to provide more time to teaching and practicing for the state test.

In 1965, the Elementary and Secondary Education Act (ESEA) established fundamental reforms in the classroom. The Act was designed to take a closer look and establish stronger accountability, create high standards of achievement, and be more accountable for student achievement. The National Commission on Education published *A Nation at Risk* in 1983 (Shaw, 2001). Recently, the 2001 No Child Left Behind Act (NCLB) enacted by the 107th Congress, is a monumental change to the ESEA, and alters the education systems of all states. It sets specific guidelines on how accountability and student assessment is to be achieved, but empowers state educational agencies to implement systems that meet national educational standards. However, it places a great demand on these agencies, school districts, and teachers on how to accomplish this task (Kucerik, 2002).

Goertz (2001) observes that in 1990, the focus of education shifted from educational inputs to educational outcomes, from procedural to educational accountability. The objective of the standard-based reform of the 1990s was to bring to the forefront consistent signals concerning the goals of standards-based reform through four areas. The four areas were high academic standards, student outcome

accountability, inclusion of students in reform initiatives, and instructional flexibility. Included in accountability now were students with disabilities, under the Individuals with Disabilities Education Act (IDEA). However, Goertz (2001) notes that when states are given more flexibility and variability under Title I programs, the result is less continuity and agreement between federal, state, and local priorities. Because performance goals and standards vary widely, the gap between what the federal government mandates and what states consider acceptable accountability grows further apart. Goertz used data from the Consortium for Policy Research in Education (CPRE) that examined specific roles of the federal, state, and local governments and how intergovernmental relationships influenced reform policies and practices. The study shows that although nearly all the districts involved in the study make efforts to align curriculum and instruction with state standards, how the curriculum and instruction changes are deployed, varies. Goertz (2001) concludes that requiring standards-based reform and achieving it are two different issues.

Research during the 1980s and 1990s, emphasized the negative consequences that accompany high-stakes testing. Drawbacks include narrowing the curriculum, anxiety, mistrust, the perception of powerlessness in teachers, lack of accurate measurement for student performance, and loss of class instructional time due to excessive periods for test preparation. Cimbricz (2002) points to a 1991 study on state-mandated testing, where seasoned teachers experience feelings of shame, embarrassment, guilt, and anger when test scores are published. Further, the study indicates that teachers feel anxious and guilty because of the emotional impact the

mandated tests have on children. Teachers spend inordinate amounts of time on drill-based instruction, subject content delimiting, with emphasis on lower thinking skills such as fact regurgitation. Learning test formats and test preparation activities replace subject content instruction (Vogler, 2002). Although test formats have changed to assess higher level thinking skills, Vogler's study points out that, "the use of high stakes as a way to exert significant influence on classroom learning and instructional practices has remained constant" (p. 40). He observes not only are there positive rewards for increased performance, but also negative ones as well that include public reporting of test performance, denial of grade promotion and high school graduation, and mandates restructuring schools whose performance does not meet required standards. Jones (2001) reports that in research, an unanticipated side effect of high-stakes testing, such as bonuses awarded by the state for high test scores, are causing teachers to leave the profession, or transfer to other schools where scores are higher. Further, research by Paris and Urdan (2000), indicate that teachers become anxious about when high-stakes tests results are tied to their salaries or professional status.

Throughout the last several decades, laws have been enacted causing states to scramble to meet identifiable needs of students and to hold accountable state education agencies. Accountability and tests are a key element in educational reform over the past 100 years. Powerful liberals and conservatives are said to have joined forces with corporate leaders in an attempt to control public schools in California. Contemporary stakeholders are no longer interested in content of learning goals, but have shifted interest in the idea that goals were being measured and tracked. Further, reforms have

their origins in organizations or groups of individuals who have money, power, or a combination of the two to dictate reform. Educational reform in science and mathematics of the 1950s and 1960s is a result of a perceived threat of this nation's preeminence in science. In the 1980s, Secretary of Education William Bennett influenced reform through policy. Bennett's policy indicated that vocational education programs, as well as the arts, or self-esteem programs were no longer needed in education. Rather, every student should be on a university tract. This places a great demand on the accountability factor for teachers in having to change educational direction (Ahlquist, 2003; Gibson, 2003; Tellez, 2003). Ahlquist concludes there is currently a movement in California aimed at curriculum control and mandated standards that teachers must impart to students. California leads the nation in developing a comprehensive system for content standards of assessment. However, under California Senate Bill 2042, teachers are replacing the ability to teach academic subjects and engage in intellectual pedagogy with rhetoric that puts its focus on having teachers teach to a specified academic curriculum that is tested by the state (Sleeter, 2003).

Goertz and Duffy (2003) report that all 50 states were engaged in initiatives in the 1990s that focused on high standards of achievement. There appears to be an effort to establish a set of academic standards that would affect all students. Under Title I of the Improving America's Schools Act (IASA) of 1994, federal and state assessment standards were required to be brought into alignment in the areas of reading and mathematics. Information gathered from data reported by the states is to be used to help

identify Title I schools. A total of 48 states, with the exception of Iowa and Nebraska, have implemented statewide testing in reading and mathematics prior to 2001. Goertz and Duffy (2003) suggest that despite the requirement by IASA for testing students at least once from third to fifth grade, sixth to ninth, and tenth to twelve, most states test more frequently. Many states used multiple assessments and test in consecutive grades from second to eighth. Goertz and Duffy (2003) further note that although 48 states comply with assessment requirements in mathematics and English/language arts, "fewer states tested writing (31), science (34), and social studies (29)" (p. 5).

Federally mandated testing became a force with the Elementary and Secondary Education Act (ESEA), which was a consolidation of K-12 federally funded programs. It focuses on Title I programs reaching over 47,000 high poverty schools (Karp, 2003). However, when the 107th Congress passed the NCLB Act, the federal government mandated action to ensure quality education for every student in America. The NCLB act requires annual testing for grades 3-8, and once in grades 10-12, in reading and math. It further requires, beginning in 2007, testing for science given once between grades 3-5, 6-9, and 10-12. In addition, these tests would be used to determine whether schools were, "making adequate yearly progress" (Karp, 2003, p. 23) toward the goal of 100% proficiency for all students. Sanctions will be taken against schools that do not meet adequate yearly progress. Karp surmises that test preparation will become the dominant factor in classrooms and observes that some states are already de-emphasizing non-testable subjects like social studies, as it is not one of the federally mandated measures of success. With a 95% student participation on tests mandated by

NCLB, Karp (2003) concludes that the increased pressure of NCLB might lead to cheating scandals and unreasonable grade retention policies that may result in an increase in student dropout rates. O'Neill (2003) suggests that widespread cheating occurred during the administration of the Texas Assessment of Academic Skills (TAAS) test, a state-mandated test that Texas requires a student to successfully pass in order to receive a diploma. "Similarly, the Austin school district was indicted for allegedly manipulating test data," (O'Neill, 2003, p. 650) and in Fort Worth, some schools were accused of hiding underachieving students so their scores would not be included in the accountability figures.

A comprehensive study in elementary classrooms in California, Texas, and Virginia by Moon, Brighton, and Callahan (2002), reveals a reluctance on the part of teachers to use more innovative learning strategies in favor of methods to prepare students for state tests. The research focuses on pressure on teachers to improve tests scores as well as test preparation, curriculum, and instructional practices. There are several areas of concern. It was reported that teachers spent an inordinate amount of regular class time preparing students for state tests. Since teachers are devoting more time for state test preparation, regular curricular information is trimmed. Relevant information is being omitted from regular lessons due to these time constraints. Subjects not included on state tests have become a low priority in classrooms. Math teachers report being told by administrators that because they have top students in their class, they are now required to have a higher passing percentage rate to counterbalance scores from less gifted students. In addition, the study reveals that approximately 58%

of the teachers reported loss of position as a possible consequence if state-mandated

testing scores were not sufficiently increased.

Studies in Maryland and Kentucky reveal similar complaints. Eighty-eight

percent of the teachers in Maryland indicate they were under pressure to improve

student performance on state-mandated testing, while 98% of the teachers in the

Kentucky study agreed that state-mandated testing resulted teachers being under

pressure as a result of student performance (Abrams, Pedulla, & Madaus, 2003).

Further, it was noted that teachers report spending additional classroom time preparing

students for state-mandated tests. In North Carolina, of the 470 teachers surveyed, 80%

report spending 20% of instructional time preparing for state tests, while in Texas, the

average teacher spent 8-10 hours per week preparing students for the Texas Assessment

of Academic Skills (TAAS) test. Consequently, almost 45% of the teachers surveyed

indicate that high-stakes testing has a negative impact on morale, and 38% of the

teachers report wanting transfers out of schools where state-mandated testing is

administered.

Due to its validity and reliability, the National Assessment of Educational

Progress (NAEP) is most often referred to and used to report the nation's progress in

education (Boston, 2003; Raymond & Hanushek, 2003). Because the United States

does not have a national test, unlike many other countries, commercial test publishers

offer a variety of achievement tests based on knowledge and skills. The most common

are the Iowa Test of Basic Skills (ITBS), the California Achievement Test (CAT), the

Terra Nova, the Scholastic Assessment Test (SAT), and the American College Tests (ACT).

Criticism over state-mandated and high-stakes testing and its impact on education appears to be on the rise. Doherty (2003) notes that while advocates of statewide testing may view this as a way to improve expectations and hold all children at the same standards, critics feel that testing narrows what students learn to what is being tested. A survey in 2000 by *Education Week* reveals that 66% of the teachers feel that state tests force them to concentrate on what is tested on the state test to the detriment of other academic issues. Haury (2001) points out that research indicates high-stakes testing kills innovation in the classroom, limits instruction, forces teachers to teach to the test, and creates an unfair system that is destructive to learning in at-risk students.

High-Stakes Testing in Texas

In Texas, student assessment linked to statewide curriculum began in 1979 when the Texas State Legislature amended the Texas Education Code (TEC) by passing a bill requiring the Texas Education Agency (TEA) to develop and administer a criterion-referenced test that would measure basic skills in mathematics, writing, and reading for students in grades 3, 5, and 9. The test was known as the Texas Assessment of Basic Skills (TABS) and was first administered in 1980. Three years later, TEA amended the TEC by requiring students in the grade 9 who failed to pass the test, to retake it each year until it was passed. Results of the TABS were released to the public, thus commencing the beginning of high-stakes testing.

A second generation test was developed in 1984 and was called the Texas Educational Assessment of Minimum Skills (TEAMS) and was administered to grades 1, 2, 3, 5, 7, 9, and 11. An exit level test was administered at grade 11 and passing standards were established in 1987. This was the first year that students were denied diplomas if they failed the exit-level examination, adding to the nature of high-stakes testing. Information continued to be made public concerning state, district, and school scores.

In 1990, revisions in the state test were made and more content was linked to the core curriculum. Essential elements (EEs) were established to link content directly to the core curriculum. The intent of the new program, called The Texas Assessment of Academic Skills (TAAS), was to place greater emphasis on problem-solving skills. This was the first time that student accountability came into play. Assessment was changed to grades 3, 5, 7, 9, and 11. However in 1994, testing was expanded in grades 3 through 8 in reading and mathematics, with grades 4 and 8 tested in writing. A rating performance was established that determined if a school was "exemplary," "recognized," "acceptable," and "low performing." Criteria included performance for all students, for African American, Hispanic, White, and economically disadvantaged subpopulations. In addition, dropout rates and attendance were included in the rating performance. Again, information was released to the public and required to be presented to parents within the public school system at the local school level (Cruse & Twing, 2000; Haney, 2000; Mehrens, 2000).

Beginning with the 2002 academic school year, TEA introduced the fourth generation state test. Called the Texas Assessment of Knowledge Skills (TAKS), assessment focused on higher high level thinking skills. Reading was measured at grades 3-9; in writing at grades 4 and 7; English language arts at grades 10 and 11; mathematics at grades 3-11; science at grades 5, 10, and 11; and social studies at grades 8, 10, and 11. The prerequisite for a high school diploma is a satisfactory completion of the TAKS at grade 11. A transition period was given to all districts for the 2002-2003 school year, and accountability was re-established for the 2003-2004 school year.

In Texas, there are many who agree that high-stakes testing is neither good for the student nor the teacher. Hoffman et al.'s (2001) research notes that as testing increases, so have consequences for performance. A total of 85% of the respondents report that emphasis on the TAAS was forcing some of the best teachers to leave the profession. In addition, by requiring teachers to raise scores or face consequences, the result was frustration and a desire to escape the pressure of the test. This might include teaching a non-state testable course such as music, arts, or physical education, or moving to a grade level that is not state testable such as grades 1, and 2, or 12. In short, high-stakes TAAS testing results in negative ways and is causing teachers, as well as students, to drop out. Many principals and teachers feel they are under pressure to produce higher grades on state tests. These high-stakes tests are now the object of teaching and not a measure of learning. The negative effects include reduced curriculum, hampered teacher decision-making, decreased instruction time, lower school climate, and a decline in teacher self-concept and motivation (Baker, 2000).

Haney (2000) reports that 68% of the teachers responding to a survey indicate that the teacher's competence is directly or indirectly influenced by the scores their students make on mandated state tests. Further, 86% state that the district puts pressure on teachers to improve student mandated test scores.

Valenzuela (2000) concludes in her three-year qualitative study concerning high-stakes testing that teachers perceive their job as "on the line" because of low TAAS scores recorded by Hispanic immigrant students. Many teachers were frustrated because of three days of continuous testing on students who they regarded as ill-prepared, or they had no control over curriculum taught prior to arriving in their classroom.

Although the initial intent of high-stakes testing in Texas was to improve student scores and increase accountability, the past 24 years of these tests appear to be taking its toll on teachers in the form of stress and anxiety. It is clear that Texas is not the only state where teachers suffer from high-stakes tests. Suffice to say that the impact of state-mandated testing not only puts pressure on the teacher, but it also lowers self-efficacy and has a negative effect on the climate and morale of the school.

Stress and Coping

Lazarus (1966) notes when a threat occurs, there is a behavior or psychological process that is activated to mitigate, neutralize, or eliminate the threat. This process is called coping. It is based on cognitive activity and involves appraisal of the threat and the consequences of the coping behavior. It is a form of problem solving for the person's well-being, but the person does not have clear direction on how to accomplish

the task. It is process oriented and deals with demanding situations that are perceived as stressful (Cox, 1978; Endler & Kocovski, 2001; Eysenck, 1992).

Research on coping is both ongoing and plentiful. It has been generally concluded that coping is an individual function that enhances the well-being and health of the individual. Because of the diversity of coping techniques, there is no single solution or prescription that neatly accomplishes coping. Coping strategies include doing exercise, developing effective dietary control, practicing relaxation techniques, seeking professional assistance, developing an effective time schedule, developing a rewards system, learning bio-feedback techniques, and seeking support groups (Charlesworth & Nathan, 1985). Needham (1996) lists 47 major studies that have identified ways to cope with stress and anxiety. She notes that the list is not all-inclusive and that there may be other strategies that apply as well.

Summation

The review of literature for this study included early research on stress. It reviewed early 20th century pioneering research concerning effects of stress on the physiological, psychological, and psychosocial aspect of the individual. Research then moved out of the infancy stage and was examined more closely by mid- to late-20th century research that included models of stress.

Next, the review looked at the cause and effects of stress and examined how demographic variables are considered in research. Occupational stress and its effects on the economy and personal health were discussed, along with the causes of stress.

Theories included "locus of control," internal and external demands, dual motivation, and self-actualization. Burnout and anxiety were noted to be a product of stress.

Effects upon teachers, such as burnout and anxiety, were discussed next and included research on teacher stress, causes of teacher stress, and coping techniques. Specific stressors such as high-stakes testing and its development within the United States and in Texas were shown to be possible causes of teacher anxiety and burnout.

Understanding the concepts of stress, burnout, and anxiety, and their effect upon the teaching profession is of great importance. Although it can be concluded that stressors are comprised of an array of events that affect the human body, physiologically, psychologically, and psychosocially, by knowing and isolating task specific stressors can be a major advantage in leading to and developing coping techniques.

CHAPTER III

METHODOLOGY

The purpose of this study was to collect and analyze data regarding the impact of the TAKS test on teacher stress and anxiety among middle school teachers in a selected district in the Education Service Center, Region 20, Texas. The focus of the study was to determine if a difference existed between state stress and trait anxiety scores between teachers who teach TAKS tested subjects and those teachers who do not. Secondly, the study examined the relationship whether teachers who exhibit different levels of trait scores exhibit differences in state stress means among the teacher groups. Lastly, data were used to determine if demographic variables of the teachers affected state stress and trait anxiety scores.

Chapter III is divided into the following categories: population, procedures, instrumentation, and data analysis.

Three major questions were to be answered during this study.

1. Do differences exist between state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

2. Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

3. Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas?

Population

The population of this study was teachers engaged in public education at 13 middle schools with grades 6 through 8. This study was limited to middle school teachers assigned to TAKS subjects and those who were not directly related to teaching TAKS tested courses. Teachers who were included in the survey were English, Spanish, reading, math, history/social studies, geography, science/life science, theater arts, computer literacy, physical education, music, art, industrial arts, and home economics. Excluded from the survey were teachers in the positions of Gifted and Talented, Special Education, Content Mastery, Campus Instructional Technologist, English as a Second Language, Campus Coordinators, or any teacher assigned in a supervisory position who was not assigned students. According to PEIMS data, retrieved from Region 20, Education Service Center, Texas, there were 1026 teachers assigned to the selected district during the TAKS tested year of 2003-2004. Of the 1026 teachers available, a total of 825 were screened who met the criteria of being assigned to TAKS or non-TAKS tested courses. These teachers were subsequently mailed surveys for this study.

Procedures

The public school district used in the survey was located in the second most
populated city in Texas and has 14 local school districts. In this study, the school
district represented has the largest number of total students than any of the other 13
districts.

As it was the purpose of the study to measure state stress and trait anxiety
scores of teachers related to TAKS and non-TAKS subjects, the study was conducted
from April 2 through May 1, 2004 when TAKS testing was scheduled by the Texas
Education Agency for middle school students. The writing portion of TAKS test was
administered during the month of February 2004, and that data have also been included
in the study. Table 1 summarizes middle school TAKS subjects tested by grade level
and the date of administration in Texas public schools for the 2003-2004 academic
school year.

Table 1. TAKS Subjects by Grade Level and Administration Dates for the Academic
School Year 2003-2004 for Middle School Students in Texas Public Schools (Dates
Represented Are for 2004)

Subject	Administration Date
Writing (7th grade)	February 27
Math (6th grade)	April 27
Math (7th grade)	April 27
Math (8th grade)	April 27
Reading (6th grade)	April 28
Reading (7th grade)	April 28
Reading (8th grade)	April 28
Social Studies (8th grade)	April 29

The researcher requested and received permission to conduct the study within the school district's 13 middle schools. Survey packets were mailed to each of the participants. As no names were included on the survey instrument, each survey was assigned a unique number in order to track participant responses. The packet contained the authorization letter from the district (Appendix A), a general letter explaining the purpose of the study (Appendix B), an information sheet (Appendix C), and the survey instrument (Appendix D). Included in the packet was a self-addressed stamped envelope to facilitate the return of the instrument by the participant. The cover letter, written by a district representative, introduced the study and assured the participant that approval had been granted by the district to conduct research. A letter by the researcher informed the participant of the purpose of the study, ensured the participant of confidentiality, and stated that any survey or results would not be shared with any party and would be strictly used for research reporting. The information sheet assured the participant again of confidentiality, informed the participant that the survey was strictly voluntary, and that there would be no negative consequences for not completing the survey. It also included points of contact for any questions regarding the research and participation. The survey instrument requested specific demographic data from the participants and included age, years of experience, gender, and highest degree attained. It was explained in the packet that the survey instrument could be completed in approximately 10-15 minutes.

A master list of all participants was established and kept in a separate binder. As participants returned the survey instrument, a color-coding system was used to

identify the returned surveys. Highlighted markers were used to indicate in which sequence surveys were returned. The second mailing and follow-on electronic mail (e-mail) responses were similarly indicated. Survey instruments that were incomplete were highlighted with a separate color. All surveys, including rejected ones, were kept separately and were not included in the results.

In the course of the survey period, two postal mailings and an e-mail were sent to the participants. The first mailing was conducted at the beginning of the month of April 2004. Two weeks later, a second mailing was completed to participants who had not responded to the first survey. Two weeks later, an e-mail was sent to all participants through the school's principal reminding any participant who had not responded to complete the survey and return it to the researcher.

A total of 825 participants were sent the survey instrument, and a total of 453 returned (54.90%) for the two mailings and one e-mail transmission. Because the first mailing yielded a return of only 259 surveys (30.30%), a second mailing was necessary. Subsequently, a third request by e-mail communication was sent. The three survey requests produced a total of 453 responses. Of the total, 20 were rejected for incomplete data, or were outside of the established survey timelines of April 2 through May 1, 2004. The final response for usable surveys was 433 (52.48%). Table 2 details and summarizes the response rate of the participants in this study.

Table 2. Final Survey Return Rates on Total Population of 825 Teachers in a Selected
Public School District in Education Service Center, Region 20, Texas

	Surveys Returned	Survey Return Rate %	Surveys Rejected	Surveys Used	Surveys Usable %
First Mailing	259	31.39	9	250	30.30
Second Mailing	176	21.33	5	171	20.73
E-Mail	18	2.18	6	12	1.45
Total	453	54.90	20	433	52.48

Instrument

The State-Trait Anxiety Inventory (STAI) (Form Y), which measures scores for

state and trait anxiety, was used for this research. With the increase in research on

anxiety during the second half of the 20th century, Drs. Richard L. Gorsuch, Robert E.

Lushene, and Charles D. Spielberger developed the initial anxiety inventory (Form X)

in 1970 (Gaudry & Spielberger, 1971; Spielberger, 1976; Spielberger et al., 1970).

Modifications occurred in 1979 that resulted in the present form of the inventory.

The STAI (Form Y) is a self-report scale for measuring state and trait anxiety.

The S-Anxiety scale (STAI Form Y-1) is used to measure state stress. It is comprised of

20 statements that elicit responses for how the respondent feels at the present moment.

A second scale, the T-Anxiety (STAI Form Y-2), is used to assess how the respondent

generally feels. It, too, is comprised of 20 statements and is printed on the reverse side

of the S-Anxiety scale. Respondents use a four-point Likert type scale where
respondents mark their answers.

The S-Anxiety scale requests the respondent to indicate which of the four
statements best describe their present feeling: 1 – Not At All; 2 – Somewhat; 3 –
Moderately So; or 4 – Very Much So. The T-Anxiety scale asks respondents to best
describe how they feel generally through one of the following choices: 1 – Almost
Never; 2 – Sometimes; 3 – Often; or 4 – Almost Always. Specific demographic data
were requested of each respondent and was added by the researcher on the S-Anxiety
side of the survey. This demographic data included age, years teaching experience,
gender, and highest degree attained.

Scores are weighted for each answer to the STAI. S-Anxiety represents scores
range from (1) indicating the lowest presence of anxiety to (4) representing the highest
level for ten of the S-Anxiety items and nine on the T-Anxiety items. These items
represent anxiety present, and the weights for the S-Anxiety scale match the blackened
numbers on the test form. Statement items for high anxiety levels for each test are
indicated below:

S-Anxiety: 3, 4, 6, 7, 9, 12, 13, 14, 78, 18

T-Anxiety: 22, 24, 25, 28, 29, 31, 32, 35, 37, 38, 40

Anxiety absent items are scored in reverse of anxiety present items. There are
ten anxiety absent items on the S-Anxiety form and nine on the T-Anxiety form, and
the test items for each are listed below:

S-Anxiety: 1, 2, 5, 8, 10, 11, 15, 16, 19, 20

T-Anxiety: 21, 23, 26, 27, 30, 33, 34, 36, 39

When Form-X was updated in 1979, a correlation study was conducted to determine whether the two forms of the test were considered essentially equivalent. A total of 193 college students and 424 high school students were administered the STAI survey to determine equivalency. The correlation was uniformly high with scores ranging from .96 to .98. Reliability studies were conducted with over 6800 respondents in high school, college, medical surgical patients, and prison inmates. A reliability coefficient using the Cronbach alpha was established between .83 to .92 for state stress and .86 to .92 for trait anxiety. To determine the validity of the construct, two studies were given to subjects under high and low stress conditions. A total of 900 college students were used in the first study, and 192 students were used in the second study. Although the type and intensity of stress is important with dealing with S-Anxiety, the validity studies indicated a correlation between the S-Anxiety and T-Anxiety (Spielberger, 1983).

Data Analysis

Results of the study have been reported using numerical and graphic techniques. Analysis and interpretations of the data have followed the principles prescribed in *Educational Research: An Introduction* (6th ed.) by Gall et al. (1996). Data collected from the survey instrument were analyzed with a statistical software program SPSS 211.5 Version II for Windows (2002). Several statistical procedures were performed to answer the research questions including the independent samples t-test and analysis of variance to test for significant differences in answers to the questions for two of the

demographic groups. The researcher used frequencies, mean scores, standard deviations, independent samples t-test, and analysis of variance for descriptive and inferential statistical analysis. Demographical data were analyzed as they pertained to each factor. An alpha level of .05 was used to establish significance. Data analysis included specific statistical procedures for use in answering each research question. Multiple displays such as tables were used to present the research findings.

Research Question #1

Do differences exist between state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas? This question was addressed analysis of survey responses. Using a t-test, the number, mean score, standard deviation, and significance were reported. This procedure has been discussed in more detail in Chapter IV.

Research Question #2

Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas? Using a paired samples t test, the number, mean score, standard deviation, degree of freedom, and significance were reported. This procedure has been discussed in more detail in Chapter IV.

Research Question #3

Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas? Both the use of ANOVA and t-test were used for evaluation. The number, mean score, standard deviation, sum of squares, degree of freedom, and significance were reported. This procedure has been discussed in more detail in Chapter IV.

In summary, the population of the survey was middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas. There were 13 middle schools, grades 6 through 8 involved in the survey and included teachers who directly taught TAKS tested subjects and those who did not teach a TAKS tested subject.

A total of 825 participants were sent the STAI (Form Y), and 453 were returned for a total response rate of 54.90%. Of the 453 surveys returned, 20 were rejected for incomplete data or were outside of the established timelines, leaving a final response rate of 52.48%. However, included in the survey were the TAKS results from the writing test administered in February 2004.

The instrument used for this survey was the State-Trait Anxiety Inventory (Form Y), a 20-statement self-reporting form. Respondents were afforded three separate opportunities to complete and return the form.

Both descriptive and inferential statistics were used to report data. Results of the data were reported in numerical table presentations. In addition, independent samples t-tests, paired samples t-tests, and analysis of variance were used to determine if differences existed between and within groups. Analysis and interpretation of the data followed the principles detailed by Gall et al. (1996).

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

This chapter presents an analysis of the data pertaining to the impact of the

TAKS test on teacher stress and anxiety among middle school teachers in a selected

district in the Education Service Center, Region 20, Texas. Teachers who participated

in this survey were from the 13 middle school in the selected district. The primary

purpose of the study was to determine if a difference existed between state stress and

trait anxiety scores between teachers who taught TAKS tested subjects, and those

teachers who did not teach a TAKS tested subject. Secondly, the study examined the

relationship whether teachers who exhibited different levels of trait scores exhibited

differences in state stress means among the teacher groups. Lastly, data were used to

determine if demographic variables affected state stress and trait anxiety as reported by

the middle school teachers. The three major research questions in this quantitative

study are as follows:

1. Do differences exist between state stress and trait anxiety scores as reported

   by middle school teachers of TAKS tested subjects and teachers of non-

   TAKS tested subjects in a selected school district in the Education Service

   Center, Region 20, Texas?

2. Do teachers who exhibit different levels of trait scores, display different

   state stress means as reported by middle school teachers of TAKS tested

subjects and teachers of non-TAKS tested subjects in a selected school

district in the Education Service Center, Region 20, Texas?

3. Do selected demographic variables have a relationship with state stress and

trait anxiety scores as reported by middle school teachers of TAKS tested

subjects and teachers of non-TAKS tested subjects in a selected school

district in Education Service Center, Region 20, Texas?

Data Analysis Procedure

The researcher used the State-Trait Anxiety Inventory (STAI) (Form Y) to

provide data for the research results presented in this chapter. The STAI (Form Y) uses

a four-point weighted scale (1-4) to indicate the level of state or trait anxiety. The S-

Anxiety scale consisted of 20 statements that evaluated how the respondent felt at the

present time. The T-Anxiety scale consisted of 20 questions that were used to evaluate

how the respondent generally felt most of the time. Respondents blackened the number

on the test form in response to statements regarding S-Anxiety or T-Anxiety. Anxiety

present items were scored corresponding to the number blackened. Conversely, anxiety

absent items were scored in reverse of the blackened numbers. Both the S-Anxiety and

T-Anxiety have a range of 20 to 80 points. Data were analyzed using the statistical

analysis software program SPSS 211.5 Version II for Windows (2002). The first

section of this chapter presents demographic data as requested in the survey instrument.

It established the participant's gender, years of experience, age, and highest academic

degree achieved. These data are reported through descriptive statistics by frequency and

percentages.

The next section of this chapter presents data from the findings used to answer each of the three research questions. Out of 825 total possible participants surveyed, 453 (54.90%) research surveys were returned. A total of 20 surveys were rejected for incomplete data, or were outside of the established survey timelines, yielding a total of 433 (52.48%) usable research instruments. Using a null hypothesis, the statistical significance was established based on an alpha level of 0.05. The survey instrument is found in Appendix D.

Demographic Data

Data regarding demographic information of the respondents are shown and analyzed in this section of the chapter. The following demographic data were asked of the respondents in the research instrument: (a) gender, (b) years of experience, (c) age, and (d) highest academic degree.

Tables 3-6 provide frequencies and valid percentages of demographic information for the 13 campuses and 433 respondents in a selected district in the Education Service Center, Region 20, Texas, who responded to the research instrument.

Gender

Table 3 reports the gender of the 433 respondents who participated in the study. There were 74.4% (n=322) females and 25.6% (n=111) males who responded to the research instrument. The data indicate that the majority of the respondents were female.

Table 3. Frequencies and Valid Percentages of the 433 Participating Middle School Teachers in a Selected Public School District in Education Service Center, Region 20, Texas, by Gender

Gender	Frequency	Valid Percent
Female	322	74.4
Male	111	25.6
Total	433	100.0

Years of Experience

Table 4 indicates the number of years' experience as reported of the 433 respondents who participated in the research study. There were 21.7% (n=94) in the 0-5 years' experience category. In the 6-9 year category, there were 26.1% (n=113) respondents and 52.2% (n=226) with more than 10 years teaching experience. The data indicate that the majority of the teachers responding to the survey had more than 10 years' experience in teaching.

Table 4. Frequencies and Valid Percentages of the 433 Participating Middle School Teachers in a Selected Public School District in Education Service Center, Region 20, Texas, by Years of Teaching Experience

Teaching Experience	Frequency	Valid Percent
0-5 Years	94	21.7
6-9 Years	113	26.1
10+ Years	226	52.2
Total	433	100.0

Age

The age of the survey participants is indicated in Table 5. The age group 20-29 represented 17.8% (n=77), and from 30-39 years of age, respondents showed 27.5% (n=119). In the age group 40-49, there were 24.7% (n=107), and the 50+ years of age category yielded 30.0% (n=130) respondents. As shown in Table 5, the largest category of respondents were the 50+ age group.

Table 5. Frequencies and Valid Percentages of the 433 Participating Middle School Teachers in a Selected Public School District in Education Service Center, Region 20, Texas, by Age

Age	Frequency	Valid Percent
20-29 Years	77	17.8
30-39 Years	119	27.5
40-49 Years	107	24.7
50+ Years	130	30.0
Total	433	100.0

Highest Academic Degree

Table 6 presents the highest academic degree obtained by each of the 433 respondents in the study. There were 61.0% (n=262) who had obtained a bachelor's degree according to the respondents, with 39.0% (n=169) who held a master's degree. There were two respondents who held a doctoral degree and were not statistically

significant to represent a valid percentage 0.00% (n=2). The respondents who held a

bachelor's degree represented the largest category.

Table 6. Frequencies and Valid Percentages of the 433 Participating Middle School
Teachers in a Selected Public School District in Education Service Center, Region 20,
Texas, by Highest Academic Degree

Academic Degree	Frequency	Valid Percent
Bachelor's	262	61.0
Master's	169	39.0
Doctoral	2	0.0
Total	433	100.0

Analysis of Research Questions

Research Question #1

Do differences exist between state stress and trait anxiety scores as reported by

middle school teachers of TAKS tested subjects and teachers of non-TAKS tested

subjects in a selected school district in the Education Service Center, Region 20,

Texas?

For this research question, the researcher reviewed factors that affect stress and

anxiety among teachers as indicated in the literature review. Some of the factors

included administrative support, teacher tasks, self-esteem, and effects of state-

mandated tests. There were four state-mandated tests, called TAKS, that were

administered by middle school teachers during the public school academic year 2003-

2004. The TAKS tests were in reading, mathematics, writing, and social studies. Using

a four-point weighted scale, participants were asked to respond to a 40-question survey

that indicated their current feelings and how they generally felt. Respondents included

all teachers, whether they were involved in TAKS testing, or whether they taught

subjects not included in state-mandated testing. From the data, number, mean, and

standard deviation of each participant were derived. Two groups of teachers were

established with separate data. One set of data were used for the group of teachers who

taught and tested TAKS subjects. The second set of data were used for teachers who

were not associated with any TAKS tested subjects. Using descriptive and inferential

methods, state anxiety and trait anxiety were compared and reported for both groups.

An alpha level of 0.05 was established to determine statistical significance.

Reading

Table 7 looked at the response of the TAKS reading teachers (n=69) and non-

TAKS teachers' (n=212) mean scores on the State Anxiety Inventory. An analysis was

made between the two groups' mean scores using an independent samples t-test. On the

state anxiety score, the level of significance was 0.334. As the score was greater than

the alpha level of 0.05, the decision was made to accept the null hypothesis as the

means between the two groups were the same.

Table 7. Descriptive and Inferential Comparison of Samples t-test of TAKS Reading Teachers and Non-TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Reading Teachers	69	1.96	0.50	0.968	279	0.334
Non-TAKS Teachers	212	1.88	0.55			

Table 8 looked at the response of the TAKS reading teachers (n=69) and non-TAKS teachers' (n=212) mean scores on the Trait Anxiety Inventory. An analysis was made between the two groups' mean scores using an independent samples t-test. On the trait anxiety score, the level of significance was 0.781. As the mean score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the mean score between the two groups were the same.

Table 8. Descriptive and Inferential Comparison of Samples t-test of TAKS Reading Teachers and Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Reading Teachers	69	1.80	0.43	-0.278	279	0.781
Non-TAKS Teachers	212	1.82	0.43			

Mathematics

Table 9 looked at the means between TAKS mathematics teachers (n=81) and non-TAKS teachers (n=212) on the State Anxiety Inventory. An analysis was made between the groups' mean scores using an independent samples t-test. On the state anxiety score, the level of significance was 0.002. As the mean score was less than the alpha level of 0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that the means between the two scores were not the same, and a statistical difference existed between the TAKS mathematics teachers and non-TAKS teachers.

Table 9. Descriptive and Inferential Comparison of Samples t-test of TAKS Mathematics Teachers and Non-TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Writing Teachers	81	2.16	0.68	3.211	122	0.002*
Non-TAKS Teachers	212	1.88	0.55			

*p>0.05

Table 10 looked at the means between TAKS mathematics teachers (n=81) and non-TAKS teachers (n=212) on the Trait Anxiety Inventory. An analysis was made between the groups' mean scores using an independent samples t-test. On the trait anxiety score, the level of significance was 0.033. As the mean score was less than the

alpha level of 0.05, the decision was made to reject the null hypothesis. It was,

therefore, inferred that the means between the two scores were not the same, and a

statistical difference existed between the TAKS mathematics teachers and non-TAKS

teachers.

Table 10. Descriptive and Inferential Comparison of Samples t-test of TAKS
Mathematics Teachers and Non-TAKS Teachers on Trait Anxiety Scores as Reported
by Middle School Teachers in a Selected School District in Education Service Center,
Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Mathematics Teachers	81	1.95	0.50	2.153	128	0.033*
Non-TAKS Teachers	212	1.82	0.43			

*p>0.05

Writing

Table 11 looked at the means between TAKS writing teachers (n=60) and non-

TAKS teachers (n=212) on the State Anxiety Inventory. An analysis was made between

the groups' mean scores using an independent samples t-test. On the state anxiety

score, the level of significance was 0.002. As this score was less than the alpha level of

0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that

the mean scores were not the same, and a statistical difference existed between the

TAKS writing and non-TAKS group.

Table 11. Descriptive and Inferential Comparison of Samples t-test of TAKS Writing
Teachers and Non-TAKS Teachers on State Anxiety Scores as Reported by Middle
School Teachers in a Selected School District in Education Service Center, Region 20,
Texas

Group	(n)	M	SD	t	df	Significance
TAKS Writing Teachers	60	2.13	0.54	3.073	270	0.002*
Non-TAKS Teachers	212	1.88	0.55			

*p>0.05

Table 12 looked at the means between TAKS writing teachers (n=60) and non-

TAKS teachers (n=212) on the Trait Anxiety Inventory. An analysis was made between

the groups' mean scores using an independent samples t-test. On the trait anxiety score,

the level of significance was 0.004. As this score was less than the alpha level of 0.05,

the decision was made to reject the null hypothesis. It was, therefore, inferred that the

mean scores were not the same, and a statistical difference existed between the TAKS

writing and non-TAKS group.

Table 12. Descriptive and Inferential Comparison of Samples t-test of TAKS Writing
Teachers and Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle
School Teachers in a Selected School District in Education Service Center, Region 20,
Texas

Group	(n)	M	SD	t	df	Significance
TAKS Writing Teachers	60	1.99	0.41	2.884	270	0.004*
Non-TAKS Teachers	212	1.82	0.43			

*p>0.05

Social Studies

Table 13 looked at the response of the TAKS social studies teachers (n=11) and

non-TAKS teachers' (n=212) mean scores on the State Anxiety Inventory. An analysis

was made between the groups' mean scores using an independent samples t-test. On the

state anxiety score, the level of significance was 0.179. As this score was greater than

the alpha level of 0.05, the decision was made to accept the null hypothesis. It was,

therefore, inferred that the mean scores between the groups were the same, and there

was no significant statistical difference between the TAKS social studies teachers and

the non-TAKS group.

Table 13. Descriptive and Inferential Comparison of Samples t-test of All TAKS Social
Studies Teachers and Non-TAKS Teachers on State Anxiety Scores as Reported by
Middle School Teachers in a Selected School District in Education Service Center,
Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Social Studies Teachers	11	2.12	0.70	1.349	221	0.179
Non-TAKS Teachers	212	1.88	0.55			

Table 14 looked at the response of the TAKS social studies teachers (n=11) and

non-TAKS teachers' (n=212) mean scores on the Trait Anxiety Inventory. An analysis

was made between the groups' mean scores using an independent samples t-test. On the

trait anxiety score, the level of significance was 0.902. As this score was greater than

the alpha level of 0.05, the decision was made to accept the null hypothesis. It was,

therefore, inferred that the mean score between the groups were the same, and there

was no significant statistical difference between the TAKS social studies teachers and

the non-TAKS group.

Table 14. Descriptive and Inferential Comparison of Samples t-test of All TAKS Social
Studies Teachers and Non-TAKS Teachers on Trait Anxiety Scores as Reported by
Middle School Teachers in a Selected School District in Education Service Center,
Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Social Studies Teachers	11	1.83	0.60	0.124	221	0.902
Non-TAKS Teachers	212	1.82	0.43			

All TAKS and Non-TAKS Teachers

Table 15 looked at the means between all TAKS teachers (n=221) and non-

TAKS teachers (n=212) on the State Anxiety Inventory. An analysis was made between

the groups' mean scores using an independent samples t-test. On the state anxiety

score, the level of significance was 0.001. As this score is less than the alpha level of

0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that

the means between the scores were not the same, and a statistical difference existed

between TAKS teachers and non-TAKS groups.

Table 15. Descriptive and Inferential Comparison of Samples t-test of All TAKS and Non-TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Teachers	221	2.09	0.60	3.639	431	0.001*
Non-TAKS Teachers	212	1.88	0.55			

*p>0.05

Table 16 looked at the means between all TAKS teachers (n=221) and non-TAKS teachers (n=212) on the Trait Anxiety Inventory. An analysis was made between the group mean scores using an independent samples t-test. On the trait anxiety score, the level of significance was 0.030. As this score is less than the alpha level of 0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that the means between the scores were not the same, and a statistical difference existed between TAKS teachers and non-TAKS groups.

Table 16. Descriptive and Inferential Comparison of Samples t-test of All TAKS and Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
TAKS Teachers	221	1.91	0.47	2.179	430	0.030*
Non-TAKS Teachers	212	1.82	0.43			

*p>0.05

Research Question #2

Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

To answer this question, the researcher utilized the review of literature to determine if a link existed between state anxiety and trait anxiety scores. The literature indicated that links may exist between the two scores. More importantly, the literature suggested that high trait anxiety individuals will most likely respond to stressful situations with increased state anxiety intensity.

Using a four-point weighted scale, participants were asked to respond to a 40-question survey that indicated their current feelings and how they generally felt. Respondents included all teachers, whether they were involved in TAKS testing, or whether they taught subjects not included in state-mandated testing. From the data, number, mean, and standard deviation of each participant were derived. Two groups of teachers were established with separate data. One set of data was used for the group of teachers who taught and tested TAKS subjects. The second set of data was used for teachers who were not associated with any TAKS tested subjects. Using descriptive and inferential methods, state anxiety and trait anxiety were compared and reported for both groups. An alpha level of 0.05 was established to determine statistical significance.

Reading

      Table 17 looked at mean scores of TAKS reading teachers (n=69) to determine

if a correlation existed between these mean scores as reported on the State-Trait

Anxiety Inventory. An analysis was made between the two mean scores using a paired

samples t-test. A Pearson product-moment correlation was used to indicate the degree

of relationship between the two scores. The level of significance for the paired samples

test was 0.003. As this score was less than the alpha level of 0.05, the decision was

made to reject the null hypothesis. It was, therefore, inferred that the mean scores

between the two groups were not the same, and there was a statistical difference

between the groups.

Table 17. Descriptive, Inferential, and Correlation of TAKS Reading Teachers on State
Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a Selected
School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	69	1.96	0.50	3.097	68	0.003*
Trait Anxiety	69	1.80	0.43			

*p>0.05

Mathematics

      Table 18 looked at mean scores of TAKS mathematics teachers (n=81) to

determine if a correlation existed between these mean scores as reported on the State-

Trait Anxiety Inventory. An analysis was made between the two mean scores using a

paired samples t-test. A Pearson product-moment correlation was used to indicate the

degree of relationship between the two scores. The level of significance for the paired

samples test was 0.001. As this score was less than the alpha level of 0.05, the decision

was made to reject the null hypothesis. It was, therefore, inferred that the mean scores

between the two groups were not the same, and there was a statistical difference

between the groups.

Table 18. Descriptive, Inferential, and Correlation of TAKS Mathematics Teachers on
State Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a
Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	81	2.16	0.68	4.138	80	0.001*
Trait Anxiety	81	1.95	0.50			

*$p > 0.05$

Writing

Table 19 looked at mean scores of TAKS writing teachers (n=60) to determine

if a correlation existed between these mean scores as reported on the State-Trait

Anxiety Inventory. An analysis was made between the two mean scores using a paired

samples t-test. A Pearson product-moment correlation was used to indicate the degree

of relationship between the two scores. The level of significance for the paired samples

test was 0.005. As this score was less than the alpha level of 0.05, the decision was

made to reject the null hypothesis. It was, therefore, inferred that the mean scores

between the two groups were not the same, and there was a statistical difference

between the groups.

Table 19. Descriptive, Inferential, and Correlation of TAKS Writing Teachers on State Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	60	2.13	0.54	2.902	59	0.005*
Trait Anxiety	60	1.99	0.41			

*p>0.05

Social Studies

Table 20 looked at mean scores of TAKS social studies teachers (n=11) to

determine if a correlation existed between these mean scores as reported on the State-

Trait Anxiety Inventory. An analysis was made between the two mean scores using a

paired samples t-test. A Pearson product-moment correlation was used to indicate the

degree of relationship between the two scores. The level of significance for the paired

samples test was 0.165. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores between the two groups were the same, and there was no statistical

difference.

Table 20. Descriptive, Inferential, and Correlation of TAKS Social Studies Teachers on State Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	11	2.12	0.70	1.498	10	0.165
Trait Anxiety	11	1.83	0.60			

All TAK Teachers

Table 21 looked at mean scores of all TAKS teachers (n=221) to determine if a correlation existed between these mean scores as reported on the State-Trait Anxiety Inventory. An analysis was made between the two mean scores using a paired samples t-test. A Pearson product-moment correlation was used to indicate the degree of relationship between the two scores. The level of significance for the paired samples test was 0.001. As this score was less than the alpha level of 0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that the mean scores between the two groups were not the same, and there was a statistical difference between the groups.

Table 21. Descriptive, Inferential, and Correlation of All TAKS Teachers on State Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	221	2.09	0.60	6.109	220	0.001*
Trait Anxiety	221	1.91	0.47			

*p>0.05

All Non-TAKS Teachers

Table 22 looked at mean scores of non-TAKS reading teachers (n=212) to determine if a correlation existed between these mean scores as reported on the State-Trait Anxiety Inventory. An analysis was made between the two mean scores using a paired samples t-test. A Pearson product-moment correlation was used to indicate the degree of relationship between the two scores. The level of significance for the paired samples test was 0.005. As this score was less than the alpha level of 0.05, the decision was made to reject the null hypothesis. It was, therefore, inferred that the mean scores between the two groups were not the same, and there was a statistical difference between the groups.

Table 22. Descriptive, Inferential, and Correlation of Non-TAKS Teachers on State Anxiety and Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas

Group	(n)	M	SD	t	df	Significance
State Anxiety	212	1.88	0.55	2.809	211	0.005*
Trait Anxiety	212	1.82	0.43			

*p>0.05

Research Question #3

Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas?

To answer this question, the researcher looked at the demographics of the respondents to the survey instrument. The survey instrument allowed the participant to input selected demographic information regarding gender, age, years of teaching experience, and highest academic degree. A review of the literature suggested that certain demographic variables may contribute to different levels of stress and anxiety among teachers. Since there are a great number of demographic variables, the four variables selected appeared to be most common.

Using a four-point weighted scale, participants were asked to respond to a 40-question survey that indicated their current feelings and how they generally felt.

Respondents included all teachers, whether they were involved in TAKS testing, or

whether they taught subjects not included in state-mandated testing. From the data,

number, mean, and standard deviation of each participant were derived. Two groups of

teachers were established with separate data. One set of data was used for the group of

teachers who taught and tested TAKS subjects. The second set of data was used for

teachers who were not associated with any TAKS tested subjects. Two types of analysis

were used in answering the research question. A simple t-test was used in developing

data for gender and highest academic degree. A one-way analysis of variance

(ANOVA) was performed to test the means when comparing the multiple variables of

age and years of teaching experience. Using descriptive and inferential methods, state

anxiety and trait anxiety were compared and reported for both groups. An alpha level of

0.05 was established to determine statistical significance.

Gender Related to the Reading Variable

In reporting mean scores between male (n=3) and females (n=66) for TAKS

reading teachers when comparing state anxiety and trait anxiety scores, it was

determined that an insufficient number of male teachers existed to support meaningful

gender data. Therefore, a comparative analysis of this demographic variable is not

included in this study.

Gender Related to the Mathematics Variable

Table 23 looked at the response of the TAKS mathematics teachers for male

(n=17) and female (n=64) mean scores on the State Anxiety Inventory. An analysis was

made between the two mean scores using an independent samples t-test. On the state

anxiety score, the level of significance was 0.307. As this score was greater than the

alpha level of 0.05, the decision was made to accept the null hypothesis. It was,

therefore, inferred that the mean scores between the two groups were the same, and

there was no statistical difference between the groups.

Table 23. Descriptive and Inferential Comparison of TAKS Mathematics Teachers on
State Anxiety Scores as Reported by Middle School Teachers in a Selected School
District in Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	17	2.01	0.58	-1.029	79	0.307
Female	64	2.20	0.71			

Table 24 looked at the response of the TAKS mathematics teachers for male

(n=17) and female (n=64) mean scores on the Trait Anxiety Inventory. An analysis was

made between the two mean scores using an independent samples t-test. On the state

anxiety score, the level of significance was 0.408. As this score was greater than the

alpha level of 0.05, the decision was made to accept the null hypothesis. It was,

therefore, inferred that the mean scores between the two groups were the same, and

there was no statistical difference between the groups.

Table 24. Descriptive and Inferential Comparison of TAKS Mathematics Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	17	1.88	0.37	-0.837	35.66	0.408
Female	64	2.20	0.71			

Gender Related to the Writing Variable

In reporting mean scores between male (n=3) and females (n=57) for TAKS writing teachers when comparing state anxiety and trait anxiety scores, it was determined that an insufficient number of male teachers existed to support meaningful gender data. Therefore, a comparative analysis of this demographic variable is not included in this study.

Gender Related to the Social Studies Variable

In reporting mean scores between male (n=2) and females (n=9) for TAKS social studies teachers when comparing state anxiety and trait anxiety scores, it was determined that an insufficient number of teachers existed to support meaningful gender data. Therefore, a comparative analysis of this demographic variable is not included in this study.

Gender Related to All TAKS Teachers Variable

Table 25 looked at the response of the all TAKS teachers for male (n=25) and female (n=196) mean scores on the State Anxiety Inventory. An analysis was made

between the two mean scores using an independent samples t-test. On the state anxiety

score, the level of significance was 0.670. As this score was greater than the alpha level

of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred

that the mean scores between the two groups were the same, and there was no statistical

difference between the groups.

Table 25. Descriptive and Inferential Comparison of All TAKS Teachers on State
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	25	2.04	0.56	-0.426	219	0.670
Female	196	2.09	0.60			

Table 26 looked at the response of all TAKS teachers for male (n=25) and

female (n=196) mean scores on the Trait Anxiety Inventory. An analysis was made

between the two mean scores using an independent samples t-test. On the trait anxiety

score, the level of significance was 0.704. As this score was greater than the alpha level

of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred

that the mean scores between the two groups were the same, and there was no statistical

difference between the groups.

Table 26. Descriptive and Inferential Comparison of All TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	25	1.94	0.42	0.381	219	0.704
Female	196	1.90	0.47			

Gender Related to Non-TAKS Teachers Variable

Table 27 looked at the response of non-TAKS teachers for male (n=86) and female (n=126) mean scores on the State Anxiety Inventory. An analysis was made between the two mean scores using an independent samples t-test. On the state anxiety score, the level of significance was 0.066. As this score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred that the mean scores between the two groups were the same, and there was no statistical difference between the groups.

Table 27. Descriptive and Inferential Comparison of Non-TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	86	1.80	0.51	-1.850	210	0.066
Female	126	1.94	0.57			

Table 28 looked at the response of non-TAKS teachers for male (n=86) and

female (n=126) mean scores on the Trait Anxiety Inventory. An analysis was made

between the two mean scores using an independent samples t-test. On the trait anxiety

score, the level of significance was 0.089. As this score was greater than the alpha level

of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred

that the mean scores between the two groups were the same, and there was no statistical

difference between the groups.

Table 28. Descriptive and Inferential Comparison of Non-TAKS Teachers on Trait
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Gender

Group	(n)	M	SD	t	df	Significance
Male	86	1.75	0.40	-1.709	210	0.089
Female	126	1.86	0.44			

Highest Academic Degree Related To Reading Variable

Table 29 looked at the response of the TAKS reading teachers for the highest

academic degree: bachelor's degree (n=36) and master's degree (n=32) and examined

the mean scores on the State Anxiety Inventory. An analysis was made between the two

mean scores using an independent samples t-test. On the state anxiety score, the level

of significance was 0.336. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores between the two groups were the same, and there was no statistical

difference between the groups.

Table 29. Descriptive and Inferential Comparison of TAKS Reading Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	36	2.02	0.49	0.969	66	0.336
Master's	32	1.90	0.51			

Table 30 looked at the response of the TAKS reading teachers for the highest

academic degree: bachelor's degree (n=36) and master's degree (n=32) and examined

the mean scores on the Trait Anxiety Inventory. An analysis was made between the two

mean scores using an independent samples t-test. On the trait anxiety score, the level of

significance was 0.017. As this score was less than the alpha level of 0.05, the decision

was made to reject the null hypothesis. It was, therefore, inferred that the mean scores

between the two groups were not the same, and there was a statistical difference

between the groups.

Table 30. Descriptive and Inferential Comparison of TAKS Reading Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	36	1.92	0.47	2.447	66	0.017*
Master's	32	1.67	0.36			

*p>0.05

Highest Academic Degree Related to Mathematics Variable

Table 31 looked at the response of the TAKS mathematics teachers for the highest academic degree: bachelor's degree (n=52) and master's degree (n=29) and examined the scores on the State Anxiety Inventory. An analysis was made between the two groups mean scores using an independent samples t-test. On the state anxiety score, the level of significance was 0.412. As this score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred that the means between the groups were the same, and there was no statistical difference observed.

Table 31. Descriptive and Inferential Comparison of TAKS Mathematics Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	52	2.11	0.66	-0.824	79	0.412
Master's	29	2.24	0.72			

Table 32 looked at the response of the TAKS mathematics teachers for the highest academic degree: bachelor's degree (n=52) and master's degree (n=29) and examined the scores on the Trait Anxiety Inventory. An analysis was made between the two groups mean scores using an independent samples t-test. On the trait anxiety score, the level of significance was 0.792. As this score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis. It was, therefore, inferred that the means between the groups were the same, and there was no statistical difference observed.

Table 32. Descriptive and Inferential Comparison of TAKS Mathematics Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	52	1.94	0.48	-0.264	79	0.792
Master's	29	1.97	0.53			

Highest Academic Degree Related to Writing Variable

Table 33 looked at the response of the TAKS writing teachers for the highest

academic degree: bachelor's degree (n=42) and master's degree (n=18) and examined

the scores on the State Anxiety Inventory. An analysis was made between the two mean

scores using an independent samples t-test. On the state anxiety score, the level of

significance was 0.890. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

means between the groups were the same, and there was no statistical difference

observed.

Table 33. Descriptive and Inferential Comparison of TAKS Writing Teachers on State
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	42	2.14	0.56	0.140	58	0.890
Master's	18	2.12	0.51			

Table 34 looked at the response of the TAKS writing teachers for the highest

academic degree: bachelor's degree (n=42) and master's degree (n=18) and examined

the scores on the Trait Anxiety Inventory. An analysis was made between the two mean

scores using an independent samples t-test. On the trait anxiety score, the level of

significance was 0.521. As the score was greater than the alpha level of 0.05 the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

means between the two groups were the same, and there was no statistical difference

observed.

Table 34. Descriptive and Inferential Comparison of TAKS Writing Teachers on Trait
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	42	1.98	0.43	-0.646	58	0.521
Master's	18	2.05	0.38			

Highest Academic Degree Related to Social Studies Variable

In reporting mean scores for the highest academic degree: bachelor's degree

(n=5) and master's degree (n=6) for TAKS social studies teachers when comparing

state anxiety and trait anxiety scores, it was determined that an insufficient number of

teachers existed to support meaningful data. Therefore, a comparative analysis of this

demographic variable is not included in this study.

Highest Academic Degree Related to All TAKS Teachers Variable

Table 35 looked at the response for all TAKS teachers for the highest academic

degree: bachelor's degree (n=135) and master's degree (n=85) and examined the mean

scores on the State Anxiety Inventory. On the state anxiety score, the level of

significance was 0.362. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores were the same, and there was no statistical difference observed.

Table 35. Descriptive and Inferential Comparison of All TAKS Teachers on State
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	135	2.12	0.59	0.913	218	0.326
Master's	85	2.04	0.60			

Table 36 looked at the response for all TAKS teachers for the highest academic

degree: bachelor's degree (n=135) and master's degree (n=85) and examined the mean

scores on the Trait Anxiety Inventory. On the trait anxiety score, the level of

significance was 0.095. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores were the same, and there was no statistical difference observed.

Table 36. Descriptive and Inferential Comparison of All TAKS Teachers on Trait
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	136	1.95	0.47	1.676	218	0.095
Master's	85	1.84	0.45			

Highest Academic Degree Related to Non-TAKS Teachers Variable

Table 37 looked at the response for non-TAKS teachers for the highest

academic degree: bachelor's degree (n=127) and master's degree (n=84) and examined

the mean scores on the State Anxiety Inventory. On the state anxiety score, the level of

significance was 0.120. As this score was greater than the alpha level of 0.005, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores were the same, and there was no statistical difference observed.

Table 37. Descriptive and Inferential Comparison of Non-TAKS Teachers on State
Anxiety Scores as Reported by Middle School Teachers in a Selected School District in
Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	127	1.93	0.58	1.561	209	0.120
Master's	84	1.81	0.51			

Table 38 looked at the response for all TAKS teachers for the highest academic

degree: bachelor's degree (n=127) and master's degree (n=84) and examined the mean

scores on the Trait Anxiety Inventory. On the trait anxiety score, the level of

significance was 0.210. As this score was greater than the alpha level of 0.05, the

decision was made to accept the null hypothesis. It was, therefore, inferred that the

mean scores were the same, and there was no statistical difference observed.

Table 38. Descriptive and Inferential Comparison of Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Highest Academic Degree

Group	(n)	M	SD	t	df	Significance
Bachelor's	127	1.85	0.45	1.257	209	0.210
Master's	84	1.77	0.39			

Years of Experience as Related to TAKS Reading Teachers

Table 39 looked at mean scores between and within groups for the state anxiety for years of experience for TAKS reading teachers. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.728. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 39. Descriptive and Statistical One-Way Analysis of Variance of TAKS Reading Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	12	1.99	0.39
6-10 Years	17	2.03	0.49
11-40 Years	40	1.92	0.54
Total	69	1.96	0.50

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.163	2	0.081	0.319	0.728
Within Groups	16.824	66	0.255		
Total	16.986	68			

Table 40 looked at mean scores between and within groups for the trait anxiety for years of experience for TAKS reading teachers. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.322. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 40. Descriptive and Statistical One-Way Analysis of Variance of TAKS Reading Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	12	1.96	0.48
6-10 Years	17	1.81	0.40
11-40 Years	40	1.74	0.43
Total	69	1.80	0.43

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.431	2	0.215	1.154	0.322
Within Groups	12.319	66	0.178		
Total	12.750	68			

Years of Experience as Related to TAKS Mathematics Teachers

Table 41 looked at mean scores between and within groups for the state anxiety for years of experience for TAKS mathematics teachers. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.160. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 41. Descriptive and Statistical One-Way Analysis of Variance of TAKS Mathematics Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	19	2.07	0.56
6-10 Years	19	1.95	0.46
11-40 Years	43	2.29	0.79
Total	81	2.16	0.68

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	1.717	2	0.859	1.878	0.160
Within Groups	35.663	78	0.457		
Total	37.281	80			

Table 42 looked at mean scores between and within groups for the trait anxiety for years of experience for TAKS mathematics teachers. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.156. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 42. Descriptive and Statistical One-Way Analysis of Variance of TAKS Mathematics Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	19	1.94	0.43
6-10 Years	19	1.77	0.31
11-40 Years	43	2.03	0.57
Total	81	1.95	0.50

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.913	2	0.457	1.902	0.156
Within Groups	18.719	78	0.240		
Total	19.632	80			

Years of Experience as Related to TAKS Writing Teachers

Table 43 looked at mean scores between and within groups for the state anxiety for years of experience for TAKS writing teachers. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.757. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between groups were the same.

Table 43. Descriptive and Statistical One-Way Analysis of Variance of TAKS Writing Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	19	2.07	0.54
6-10 Years	18	2.20	0.53
11-40 Years	23	2.13	0.57
Total	60	2.13	0.54

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.167	2	0.084	0.279	0.757
Within Groups	17.078	57	0.300		
Total	17.245	59			

Table 44 looked at mean scores between and within groups for the trait anxiety for years of experience. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.789. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 44. Descriptive and Statistical One-Way Analysis of Variance of TAKS Writing Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	19	1.94	0.38
6-10 Years	18	2.03	0.45
11-40 Years	23	2.02	0.43
Total	60	1.99	0.41

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.084	2	0.420	0.238	0.789
Within Groups	10.056	57	0.176		
Total	10.140	59			

Years of Experience as Related to TAKS Social Studies Teachers

In reporting mean scores for one-way ANOVA for years of experience among TAKS social studies teachers, all groups reported less than ten teachers per group. It was, therefore, determined that an insufficient number of teachers existed to support meaningful data. Therefore, a comparative analysis of this demographic variable is not included in this study.

Years of Experience as Related to All TAKS Teachers

Table 45 looked at mean scores for all TAKS Teachers between and within

groups for the state anxiety for years of experience. An analysis was made between the

scores using descriptive statistics and a one-way analysis of variance. On the state

anxiety score, the level of significance was 0.972. As the score was greater than the

alpha level of 0.05, the decision was made to accept the null hypothesis as the mean

score between the groups were the same.

Table 45. Descriptive and Statistical One-Way Analysis of Variance of All TAKS
Teachers on State Anxiety Scores as Reported by Middle School Teachers in a
Selected School District in Education Service Center, Region 20, Texas, for Years
of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	51	2.07	0.52
6-10 Years	56	2.09	0.53
11-40 Years	114	2.09	0.66
Total	221	2.09	0.60

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.021	2	0.010	0.029	0.972
Within Groups	78.206	218	0.359		
Total	78.227	220			

Table 46 looked at mean scores for all TAKS teachers between and within groups for the trait anxiety for years of experience. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.533. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 46. Descriptive and Statistical One-Way Analysis of Variance of All TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	51	1.97	0.45
6-10 Years	56	1.81	0.40
11-40 Years	114	1.90	0.50
Total	221	1.91	0.47

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.274	2	0.137	0.631	0.533
Within Groups	47.320	218	0.217		
Total	27.594	220			

Years of Experience as Related to Non-TAKS Teachers

Table 47 looked at mean scores for non-TAKS teachers between and within

groups for the state anxiety for years of experience. An analysis was made between the

scores using descriptive statistics and a one-way analysis of variance. On the state

anxiety score, the level of significance was 0.526. As the score was greater than the

alpha level of 0.05, the decision was made to accept the null hypothesis as the means

between the groups were the same.

Table 47. Descriptive and Statistical One-Way Analysis of Variance of Non-TAKS
Teachers on State Anxiety Scores as Reported by Middle School Teachers in a
Selected School District in Education Service Center, Region 20, Texas, for Years
of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	43	1.93	0.55
6-10 Years	57	1.93	0.56
11-40 Years	112	1.84	0.55
Total	212	1.88	0.55

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.394	2	0.197	0.645	0.526
Within Groups	63.778	209	0.305		
Total	64.172	211			

Table 48 looked at mean scores for non-TAKS teachers between and within groups for the trait anxiety for years of experience. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.921. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 48. Descriptive and Statistical One-Way Analysis of Variance of Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Years of Experience

Years of Experience	(n)	Mean	Standard Deviation
0-5 Years	43	1.83	0.43
6-10 Years	57	1.82	0.40
11-40 Years	112	1.80	0.44
Total	212	1.82	0.43

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.030	2	0.015	0.082	0.921
Within Groups	38.521	209	0.184		
Total	38.552	211			

Age as Related to TAKS Reading Teachers

Table 49 looked at mean scores for TAKS reading teachers between and within

groups for the state anxiety for age. An analysis was made between the scores using

descriptive statistics and a one-way analysis of variance. On the state anxiety score, the

level of significance was 0.917. As the score was greater than the alpha level of 0.05,

the decision was made to accept the null hypothesis as the means between the groups

were the same.

Table 49. Descriptive and Statistical One-Way Analysis of Variance of TAKS
Reading Teachers on State Anxiety Scores as Reported by Middle School Teachers
in a Selected School District in Education Service Center, Region 20, Texas, for
Age

Years of Age	(n)	Mean	Standard Deviation
20s	7	2.03	0.43
30s	18	2.01	0.49
40s	16	1.95	0.68
50s & 60s	28	1.91	0.42
Total	69	1.96	0.50

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.131	3	0.044	0.168	0.917
Within Groups	16.855	65	0.259		
Total	16.986	68			

Table 50 looked at mean scores for TAKS reading teachers between and within groups for the trait anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.802. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 50. Descriptive and Statistical One-Way Analysis of Variance of TAKS Reading Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	7	1.94	0.35
30s	18	1.82	0.42
40s	16	1.77	0.54
50s & 60s	28	1.77	0.41
Total	69	1.80	0.43

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.192	3	0.064	0.332	0.802
Within Groups	12.558	65	0.193		
Total	12.750	68			

Age as Related to TAKS Mathematics Teachers

Table 51 looked at mean scores for TAKS mathematics teachers between and within groups for the state anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.187. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 51. Descriptive and Statistical One-Way Analysis of Variance of TAKS Mathematics Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	20	2.08	0.60
30s	18	1.97	0.43
40s	22	2.41	0.78
50s & 60s	21	2.13	0.79
Total	81	2.16	0.68

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	2.244	3	0.748	1.640	0.187
Within Groups	35.136	77	0.456		
Total	37.381	80			

Table 52 looked at mean scores for TAKS mathematics teachers between and within groups for the trait anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.155. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 52. Descriptive and Statistical One-Way Analysis of Variance of TAKS Mathematics Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	20	1.95	0.46
30s	18	1.83	0.36
40s	22	2.14	0.58
50s & 60s	21	1.86	0.51
Total	81	1.95	0.50

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	1.284	3	0.428	1.796	0.155
Within Groups	18.349	77	0.238		
Total	19.632	80			

Age as Related to TAKS Writing Teachers

Table 53 looked at mean scores for TAKS writing teachers between and within

groups for the state anxiety for age. An analysis was made between the scores using

descriptive statistics and a one-way analysis of variance. On the state anxiety score, the

level of significance was 0.684. As the score was greater than the alpha level of 0.05,

the decision was made to accept the null hypothesis as the means between the groups

were the same.

Table 53. Descriptive and Statistical One-Way Analysis of Variance of TAKS
Writing Teachers on State Anxiety Scores as Reported by Middle School Teachers
in a Selected School District in Education Service Center, Region 20, Texas, for
Age

Years of Age	(n)	Mean	Standard Deviation
20s	17	2.17	0.59
30s	19	2.12	0.51
40s	10	2.27	0.32
50s & 60s	14	2.00	0.66
Total	60	2.13	0.54

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.450	3	0.150	0.500	0.684
Within Groups	16.795	56	0.300		
Total	17.245	59			

Table 54 looked at mean scores for TAKS writing teachers between and within groups for the trait anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.815. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 54. Descriptive and Statistical One-Way Analysis of Variance of TAKS Writing Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	17	2.02	0.44
30s	19	2.00	0.45
40s	10	2.06	0.28
50s & 60s	14	1.90	0.45
Total	60	1.99	0.41

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.168	3	0.056	0.314	0.815
Within Groups	9.973	56	0.178		
Total	10.140	59			

Age as Related to TAKS Social Studies Teachers

In reporting mean scores for one-way ANOVA for age among TAKS social studies teachers, all groups reported less than ten teachers per group. It was, therefore, determined that an insufficient number of teachers existed to support meaningful data. Therefore, a comparative analysis of this demographic variable is not included in this study.

Age as Related to All TAKS Teachers

Table 55 looked at mean scores for all TAKS teachers between and within groups for the state anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.269. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 55. Descriptive and Statistical One-Way Analysis of Variance of All TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	45	2.13	0.57
30s	56	2.04	0.48
40s	51	2.21	0.68
50s & 60s	69	2.01	0.63
Total	69	1.96	0.50

Table 55 (continued)

Years of Age		(n)	Mean		Standard Deviation
	Sum of Squares	df	Mean Square	f	Significance
Between Groups	1.400	3	0.467	1.318	0.269
Within Groups	76.826	217	0.354		
Total	78.227	220			

Table 56 looked at mean scores for all TAKS teachers between and within groups for the trait anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.055. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 56. Descriptive and Statistical One-Way Analysis of Variance of All TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	45	2.00	0.47
30s	56	1.89	0.41
40s	51	1.99	0.53
50s & 60s	69	1.80	0.44
Total	221	1.91	0.47

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	1.632	3	0.544	2.568	0.055
Within Groups	45.962	217	0.212		
Total	47.594	220			

Age as Related to Non-TAKS Teachers

Table 57 looked at mean scores for non-TAKS teachers between and within groups for the state anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the state anxiety score, the level of significance was 0.115. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 57. Descriptive and Statistical One-Way Analysis of Variance of Non-TAKS Teachers on State Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	32	1.84	0.43
30s	63	1.98	0.55
40s	56	1.94	0.61
50s & 60s	61	1.76	0.53
Total	212	1.88	0.55

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	1.797	3	0.599	1.998	0.115
Within Groups	62.375	208	0.300		
Total	64.172	211			

Table 58 looked at mean scores for non-TAKS teachers between and within groups for the trait anxiety for age. An analysis was made between the scores using descriptive statistics and a one-way analysis of variance. On the trait anxiety score, the level of significance was 0.212. As the score was greater than the alpha level of 0.05, the decision was made to accept the null hypothesis as the means between the groups were the same.

Table 58. Descriptive and Statistical One-Way Analysis of Variance of Non-TAKS Teachers on Trait Anxiety Scores as Reported by Middle School Teachers in a Selected School District in Education Service Center, Region 20, Texas, for Age

Years of Age	(n)	Mean	Standard Deviation
20s	32	1.84	0.27
30s	63	1.88	0.45
40s	56	1.84	0.49
50s & 60s	61	1.72	0.40
Total	212	1.82	0.43

	Sum of Squares	df	Mean Square	f	Significance
Between Groups	0.823	3	0.274	1.513	0.212
Within Groups	37.729	208	0.181		
Total	38.552	211			

Summary of Findings

The data resulting from the survey instrument State-Trait Anxiety Inventory (STAI) (Form Y) led the researcher to utilize a descriptive approach with certain inferential procedures to answer the three research questions. Frequency data were needed to establish the parameters of the research study results. Frequency data were necessary to obtain group means and establish groups' relation to the normal

distribution. The independent samples t-test in the data analysis was instrumental in determining whether population subgroups were different from each other. The independent samples t-test helped resolve this issue. The resulting data indicated that there was a significant difference with respect to the first research question in the mean scores between TAKS and non-TAKS teachers in the subjects of mathematics and writing. In addition, data indicated a significant difference in the comparison of the all TAKS and non-TAKS teacher scores.

A Pearson product-moment correlation and a paired samples t-test were used for the second research question. Data indicated a significant difference between trait scores and state stress means for teachers in reading, mathematics, writing, and for the categories of all TAKS and all non-TAKS teachers. However, data indicated that no significant difference existed in the subcategory of social studies teachers.

Two types of analyses were used to answer the third research question in response to selected demographic variables. Using frequency data and an independent samples t-test for the gender variable, no significant difference in mean scores was found in reading or mathematics, and within the subcategories of all TAKS and non-TAKS teachers. The subgroups of writing and social studies were not reported due to insufficient numbers of males in each group.

Frequency data and an independent samples t-test were used to develop data for the highest degree variable for all subgroups. In the reading subgroup, a significant difference was indicated in only the Trait Anxiety mean scores. Data for all other subgroups for this variable indicated no significant differences in mean scores.

For two of the variables in the third research question, the researcher used a one-way analysis of variance (ANOVA) to compare the means and determine the differences in years of experience and age variable. For the years of experience variable, data for all categories except social studies indicated no significant difference in any of the mean scores. The subgroup of social studies teachers for the years of experience variable was not reported due to insufficient numbers in all three experience divisions.

For the variable age, data for all categories except social studies indicated no significant difference in any of the mean scores. The subgroup of social studies teachers for the age variable was not reported due to insufficient numbers in the four divisions of age.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter V presents a summary of the purpose, procedures, and major findings of this research study. A discussion of the implications and recommendations for further study are also presented.

The purpose of this study was to collect and analyze data regarding the impact of the TAKS test on teacher stress and anxiety among middle school teachers in a selected district in the Education Service Center, Region 20, Texas. The focus of the study was to determine if a difference existed between state stress and trait anxiety scores between teachers who teach TAKS tested subjects and those teachers who do not. Secondly, the study examined the relationship whether teachers who exhibit different levels of trait scores exhibit differences in state stress means among the teacher groups. Lastly, data were used to determine if demographic variables of the teachers affected state stress and trait anxiety scores.

Teachers who participated in this survey were from the 13 middle schools in a selected school district in Education Service Center, Region 20, Texas, were used to provide answers to the following three research questions.

1. Do differences exist between state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

2. Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?

3. Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas?

The total survey population was gathered from the 13 middle schools in a selected district in Education Service Center, Region 20, Texas. There were a total of 825 possible participants surveyed for this study, of which 453 (54.90%) research surveys were returned.

In the spring of 2004, the total population of 825 participants was sent a self-evaluation questionnaire entitled, The State-Trait Anxiety Inventory (STAI) (Form Y), which measures scores for state and trait anxiety used in this research (Gaudry & Spielberger, 1971; Spielberger, 1976; Spielberger et al., 1970). From the returned surveys, 20 were rejected for incomplete data, or were outside of the established survey timelines. This yielded a final total of 433 (52.48%) usable research instruments.

The STAI (Form Y) is a self-report scale for measuring state and trait anxiety. The S-Anxiety scale (STAI Form Y-1) is used to measure state stress. It is comprised of 20 statements that elicit responses for how the respondent feels at the present moment. A second scale, the T-Anxiety (STAI Form Y-2), is used to assess how the respondent

generally feels. It, too, is comprised of 20 statements and is printed on the reverse side of the S-Anxiety scale. Respondents use a four-point Likert type scale where respondents mark their answers.

The S-Anxiety scale requests the respondent to indicate which of the four statements best describe their present feeling: 1 – Not At All; 2 – Somewhat; 3 – Moderately So; or 4 – Very Much So. The T-Anxiety scale asks respondents to best describe how they feel generally through one of the following choices: 1 – Almost Never; 2 – Sometimes; 3 – Often; or 4 – Almost Always. Specific demographic data were requested of each respondent and was added by the researcher on the S-Anxiety side of the survey. This demographic data included gender, highest academic degree obtained, years of teaching experience, and age.

Summary

It is no doubt that educational testing in America causes stress and anxiety in teachers. There are many variables for the causes of teachers' stress and anxiety: gender, personal skills, age, interaction between administration and educators, and demands made on testing results, are just a few of the variables that contribute to teacher stress (Perreault, 2000; Weisberg, 1994). Careers may be at stake because of test scores, and teachers are often required to produce higher grades on tests each year (Baker, 2000). Perreault (2000) has researched the issue of high-stakes testing and concluded that it is a primary cause of stress in educators.

Stress research became more commonplace in the 20th century through the works of Walter Cannon and Hans Selye. Early work by Cannon shows that low-level

stressors could be effectively dealt with, but persistent and high-level stress would result in a disturbance in the homeostasis or balance in the body (Hobfoll, 1988). Selye expanded the basic research of Cannon and developed a basic model of stress called the General Adaptation Syndrome or G.A.S., in which the body undergoes various phases and stages of stress, ranging from initial reaction to the exhaustion state. However, Selye notes that the stressor was a determining factor of the severity and length of the exhaustion phase. Further, he notes that the stressor has a distinct effect on both the psychological and physiological aspects of the human body (Selye, 1956, 1980).

Through the works of Coyne and Lazarus (1980), the cognitive aspect of stress became a focal point. Studies showed that stress could be defined in terms of transactions between individuals and situations (Cox, 1978; Cox & Ferguson, 1991; Hamilton, 1982; Lazarus, 1966; Lazarus & Folkman, 1986). Research by Gaudry and Spielberger (1971) focuses on how stress and anxiety affect the cognitive domain. Psychosocial aspects of stress and anxiety involved research by Cassel (1970) and Kaplan (1996). How stress is interpreted through human cognition was evaluated through these studies. Individual differences contribute to the perception of whether or not certain factors, such as the environment, are considered stressful. This is important in developing coping strategies. Aldwin (1994) notes that coping may be either a function of the person and environment, or coping has an effect on both the environment and the person.

With respect to demographic variables, Huston (1989) believes age may be a factor in stress, and studies show younger teachers may experience stress more than

older educators. Follow-on studies by Maslach et al. (2001) concurred. However, studies by Mykletun and Mykletun (1999) show that in the teaching profession, the higher the age, the more risk of burnout.

The gender variable is dependent upon interpersonal and environmental factors. Maslach et al. (2001) states because men are more depersonalized, women suffer less stress than male counterparts. Authoritarian type male teachers suffered stress more often than females (Harris et al., 1985). When self-efficacy is low, men exhibit more stress than women (Mykletun & Mykletun, 1999). In general, the nature of the stressor determines the impact on gender (Barnett et al., 1987).

Education level, as a variable of stress, appears to be a stalemate. Studies show no conclusive evidence that the level of education has a constant effect on an individual's stress. Maslach et al. (2001) show that the higher the education level, the more stress is experienced. But Mykletun and Mykletun (1999) show that neither formal training nor informal education impacted stress levels. In sum, Mearns and Cain (2003) conclude that it is individual characteristics of the teacher and how the teacher reacts to these stressors that will determine the outcome of demographic variables.

There is ample research in that high-stakes testing is a cause of teacher stress. With over 100 million standardized tests administered every year, research shows that holding educators responsible for outcomes of these tests produces stress and anxiety among teachers (Clovis, 1999; Perreault, 2000). The No Child Left Behind Act places impetus on respective school districts to document "adequate yearly progress," or fact sanctions that may involve school funding (Karp, 2003). With state-mandated testing

now in 50 states, teachers feel pressure to improve student performance (Abrams et al., 2003). As Hoffman et al. (2001) note, that as testing increases, so do consequences for performance. In Texas, research by Valenzuela (2000) concludes that teachers feel stress because their "jobs are on the line" when state-mandated testing scores are tied to teacher performance.

Dealing with stress and anxiety has come to light in the past four decades. Needham (1996) observes that over 47 major studies have identified coping strategies from developing reward systems to biofeedback techniques. It is certain that as teacher stress and anxiety are commonplace in the educational arena, coping strategies will be required to deal with demanding situations perceived as stressful (Cox, 1978; Endler & Kocovski, 2001).

Conclusions

Specific demographic data of each respondent were requested. The principal demographic information included gender, years of experience, age, and highest academic degree. This information was required to ascertain whether certain demographic variables were a factor in stress and anxiety as reported by the respondents.

The demographic data from the research study (Tables 3-6) revealed that of the 433 respondents to the State-Trait Anxiety Inventory (STAI) (Form Y), the majority were female. The largest group according to years of experience was reported as those with 10+ years of experience, and the group with the least amount of teachers was found in the 0-5 years of experience group. This is consistent with published data, as

most teachers will leave the profession within five years, and the longer a teacher remains, the less likelihood that they will leave the profession.

The next category as reported by the 433 respondents was in the age group. Range of the age groups was from 20-50+ years. Teachers who were 50+ (n=130) years of age comprised the largest group. This group was followed by the 30-39 (n=119) year old group, then the 40-49 (n=107) year old group, and lastly the 20-29 (n=77) year old group.

For the highest academic degree variable, data revealed that 61% (n=262) of the 433 respondents held a bachelor's degree. In addition, 39% (n=161) of the respondents possessed a master's degree, and two respondents held a doctoral degree. The number of respondents who held a doctoral degree were deemed not significant for inclusion into statistical data.

The remainder of data is derived from the 433 usable surveys that were returned for evaluation. The survey instrument was a four-point weighted Likert-type scale used to document responses regarding state anxiety, or current stress, and trait anxiety, or how a respondent generally feels over time. In response to the S-Anxiety Inventory, which measures state or current stress, the scale ranged from 1 – Not At All to 4 – Very Much So. The T-Anxiety scale asks respondents to best describe how they feel generally through one of the following and had a scale range from 1 – Almost Never to 4 – Almost Always.

Research Questions

Research Question #1

Research Question #1 asked, "Do differences exist between state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?"

This question was designed to see if TAKS teachers have higher levels of stress than non-TAKS teachers. Data from the survey showed that, in general, teachers who teach state-mandated test subjects do have a higher level of stress when compared to teachers who do not teach state-mandated test subjects. There were two exceptions in the study. Teacher scores from two state-tested subjects, reading and social studies, indicated no difference in their stress scores when compared to the non-TAKS teacher scores. Based on the level of significance, the decision was made by the researcher to reject the null hypothesis. This was consistent with supporting literature that indicates teaching is a stressful occupation, especially when state-mandated testing is involved.

Implications

Overall, teachers who teach subjects that are tested by the state exhibit higher levels of stress than their counterparts who do not. Substantial research has been conducted on job-related stress and anxiety within the teaching profession. One third of all teachers leave the profession within the first five years. The pressure to do well on state tests, coupled with the stress of a young or inexperienced teacher, may be contributory to the exodus of these classroom teachers. Conversely, if a teacher is not

directly related to producing higher state-mandated test scores, it appears that their stress levels are lower. That is not to infer that there is no stress associated with these teachers. Both types of teachers exhibit stress, but at different levels.

The control of teacher stress and anxiety is essential. Research indicates that deficient coping strategies may be a result of high trait anxiety states. It is important to develop an effective stress-reducing environment. Addressing the environment of the school helps in building morale between administration and faculty.

Good communication avenues between teachers and administration create a more pleasant atmosphere. Novice teachers should be allowed to become part of the campus-based decision-making process, especially on key values and standards within the school. Administrators should consider distributing the workload more evenly between novice and more seasoned teachers. An example might be not assigning first or second year teachers to classrooms that contain students who are predominantly low-performing. In many schools, the more seasoned teachers are assigned upper level junior and senior courses, where most students have already mastered the state test for graduation. These seasoned teachers should share the workload with the less experienced teachers, especially in critical subject areas where the student failure rate is high.

Providing positive feedback to all teachers creates a more positive environment. This might be done through bi-weekly visits from an administrator or academic dean. These actions demonstrate support for the teachers and are useful in assessing the performance of the teachers. Eliminating unnecessary red tape and paperwork reduction

allows teachers to focus on the important elements of the classroom, student performance.

Research Question #2

Research Question #2 asked, "Do teachers who exhibit different levels of trait scores, display different state stress means as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in the Education Service Center, Region 20, Texas?"

The data from the study showed a clear relationship between state and trait anxiety. As reported in the literature, state and trait anxiety are mutually tied together. Studies show that if individuals have learned how to effectively deal or cope with stressful situations in their lives, then isolated stressful incidents will have less impact on stress levels of those individuals. Based on the level of significance for this question, the decision was made by the researcher to reject the null hypothesis. Therefore, trait anxiety, which is how one has reacted to stressors throughout life, will affect the degree of state anxiety, or how one deals with a stressful event.

Implications

State and trait anxiety are related, whether the individual is a teacher of TAKS subjects or the teacher is involved with non-TAKS subjects. Two issues are important in Research Question #2. The first issue is that stress is inherent in teachers, some more than others. The second issue is that types of stress, whether state or trait, correlate each with the other. Because of the nature of the stress and how one interprets this stress, a means by which an individual deals with personal aspects of stress is important. What

may be an evolving issue is how to enhance trait anxiety, and in turn, deal more effectively with immediate or state stress.

Physical health and well-being are two essential components that can counter stress. Learning effective eating habits through a balanced diet provides the necessary energy to maintain physical health during stressful times. A proper diet helps maintain blood pressure, keeps up energy levels, helps maintain appropriate weight standards, and helps keep the mind focused and active. There is an abundance of books, magazines, and health organizations that address the issue of effective eating habits.

Physical exercise has been found to be a contributor of reducing stress and anxiety. Allotting time for teachers to participate in physical activity is a key to stress reduction. In one district, representatives approached local health clubs and obtained special prices for teachers enrolled in exercise programs. In another example, one school devised intramural sports that included student and faculty participation. At one middle school, the student council successfully petitioned the city council to build a walking/exercise track beside their school for the community as well as the school.

The mental aspects of stress and anxiety must be effectively handled as well. Counselors, Education Service Centers, and local health organizations can be used to provide in-service training on coping strategies. From simple breathing exercises to more complex problem-solving skills, learning the cognitive side of dealing with anxiety produces long-term effects in the reduction of stress. Positive thinking strategies from professionals can provide a means by which teachers avoid dwelling on the negative aspects of day-to-day stress inside and outside the classroom.

Mentoring programs appear to be on the rise. Effective mentoring, specific to teaching, provides support and a continuum of strategies designed to counter stressful situations. Keeping logs and journals that can be brought out in discussion groups are essential in sharing ideas that help the teacher through that stressful period. Cognitive coaching is a strategy that helps the teacher develop personal methods of problem solving. This allows personal ownership in the coping strategy and contributes to lowering trait anxiety levels.

Research Question #3

Research Question #3 asked, "Do selected demographic variables have a relationship with state stress and trait anxiety scores as reported by middle school teachers of TAKS tested subjects and teachers of non-TAKS tested subjects in a selected school district in Education Service Center, Region 20, Texas?"

The principal demographic information included gender, years of experience, age, and highest academic degree. A review of the literature showed that depending upon the study, demographic variables may or may not impact outcome of the research. An analysis of data for this study indicated that the demographic variables had no impact on state and trait anxiety levels of the respondents. Based on the level of significance for this question, the decision was made by the researcher to accept the null hypothesis.

Implications

Specific demographic variables are highly subjective to the type of study being conducted. Gender, in this study, revealed no significant differences in any of the

groups, whether TAKS or non-TAKS teachers. Except what may be considered an anomaly in TAKS reading teachers, highest academic degree revealed no significant differences in the examined groups. Likewise, level of experience revealed no significant differences in the examined groups, as was the same for age.

The results of this survey should not imply that demographic variables do not play a role in stress and anxiety. Other combinations of demographic variables may produce a different outcome in statistical data. The culture and climate of the school, academic standings, socioeconomic status, as well as student education cost per pupil may impact stress levels of teachers.

Knowing the school climate and how state-mandated tests have impacted local schools should be a concern of local colleges and universities. Incorporating a course that deals with teacher stress and counter strategies should be a necessary part of the curriculum. Novice teachers already face a myriad of stressors during their first few years of teaching. How to counter these stressors not only prepares the educator for a career, but also contributes to the health, mental and physical welfare of the individual. In sum, it is well recognized within the research, that coping strategies and techniques are vital in creating and maintaining mental and physical health among educators.

Recommendations

The purpose of this study was to examine stress and anxiety on middle school classroom teachers who administer TAKS tests and teachers who are not involved in

TAKS testing. The focus of this study was to examine the impact of the Texas Assessment of Knowledge and Skills (TAKS) on teacher stress and anxiety as reported by middle school classroom teachers in a selected school district in the Education Service Center, Region 20, Texas. A second purpose was to determine if state and trait scores are related. The third purpose of the study was to determine if demographic factors affect stress scores for TAKS and non-TAKS teachers. Based upon the review of literature, the findings of this study, and the conclusions drawn from the research, the following recommendations are provided.

Recommendations Based on the Research Study

1. Teacher stress and anxiety have been identified and acknowledged as a cause for teachers exiting the profession. It is recommended that school districts provide in-service training on coping strategies for teachers to effectively deal with specific stressful situations that impact teacher health, morale, and welfare.

2. As novice teachers enter the profession, it is important for them to understand how state-mandated tests affect their status and personal growth within a school. It is recommended that mentoring programs be established to provide support and guidance for new teachers. These mentoring programs can be of substantial value during the time teachers administer state-mandated tests.

3. All 50 states now have some type of state-mandated test. In addition, all states are required to comply with federal and public law that affects

assessment of teachers, such as the No Child Left Behind Act. Local school

districts and colleges need to collaborate on addressing the importance of

these laws and how they relate to public education. It is recommended that

public school districts and local colleges develop courses of study that make

prospective teachers aware of how these laws impact the teaching

profession.

Recommendation for Further Research

Although there is ample literature available on stress and anxiety in the teaching

profession, gaps exist in the literature related to stress or anxiety caused by state-

mandated testing. As the literature has pointed out, the cause of stress is dependent

upon an infinite amount of variables. The following recommendations for future

research are provided:

1. This study was limited to one district within a city that contains 14 public

   school districts. In addition, only selected middle school teachers were

   administered the survey instrument. Because of the small numbers in some of

   the subgroups, meaningful data could not be extracted. It is recommended that a

   larger scale study be conducted to enhance empirical data as it pertains to

   TAKS and non-TAKS teachers. The study should include all TAKS teachers

   from grades 3-11, as well as all grade level teachers.

2. Respondents of this survey were from 13 middle schools in a public school

   setting. Little research was available on teacher stress and anxiety in the rural,

   private, or charter school sector, of which some are required to administer

TAKS or state-mandated tests. It is recommended that similar studies be conducted on rural, private, and charter schools to determine if comparable results in teacher stress and anxiety can be found.

3. The writing portion of the TAKS test is administered during the month of February, two months prior to the remaining TAKS tests. This study included TAKS writing teachers, who completed their surveys two months after administering the TAKS test. Although the scores for the TAKS writing test was not made known, it might be suggested that this data could be less accurate than data obtained during April, when the remainder of TAKS tests were given. Therefore, it is recommended a similar study be conducted that would include TAKS writing teachers providing data during the timeframe the state of Texas allots for the test.

4. Only four demographic variables were involved in the study. Research indicates there are many demographic variables that affect the stress and anxiety levels of teachers. Future studies should involve identifying demographic variables that may impact teacher stress and anxiety levels and how to develop strategies to lessen the impact of teacher stress and anxiety.

5. In many cases cited by Spielberger, often the State-Trait Anxiety Inventory (STAI) is administered to respondents either during a relaxed stress state or an enhanced stress state, depending upon the conditions. It is also administered in a specific order. Because the STAI was mailed to respondents and could be filled out any time during the TAKS month, scores may not reflect the actual or

perceived stress at the time the respondent fills out the survey instrument.

Therefore, it is recommended that the survey be administered as a group during

the day or days that the TAKS test is taken by the students.

6. In Texas, a school's rating is identified as exemplary, acceptable, or low

    performing. It is recommended that future studies involve data on whether a

    school or district's ratings result in differences in teacher stress and anxiety

    levels.

7. It is necessary and prudent to determine if designed coping strategies are

    effective in dealing with teacher stress and anxiety. It is recommended that a

    longitudinal study be conducted to determine the effectiveness of coping

    strategies.

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APPENDIX A

AUTHORIZATION LETTER FROM NORTHSIDE ISD

Northside Independent School District

Testing & Evaluation Department

John M. Folks, Ed.D.
Superintendent

Sandra L. Poth
Director

March 22, 2004

Dear Northside Middle School Educator,

Thank you considering the enclosed survey. As you can see, the attached survey is investigating your perceived level of stress concerning the TAKS test. (Image that!)

This is part of a dissertation being conducted by Dayne Denning. He is a doctoral candidate at Texas A&M University. The formal title of his study is, 'The Impact of the Texas Assessment of Knowledge and Skills (TAKS) on Teacher Stress and Anxiety as Reported by Middle School Classroom Teachers in a Selected School District in Region 20 Education Service Center, Texas.'

The study has been reviewed and approved by A&M's IRB (Institutional Review Board). It is in compliance with Northside's guidelines for external research. It has been found to be of sufficient professional and technical rigor.

You are not required to complete the survey. However, the 10-15 minutes it takes to complete it would be a great gesture to help a fellow member of the education community. If you participate, it is important that you answer all statements. Please be aware, if you choose not to participate, Mr. Denning will be following up with secondary requests for you to participate. (He has to satisfy the needs of his supervisors at A&M).

If you have any questions about the content or purpose of the study, please contact Dayne at (210) 622-4500. If you have any questions about Northside's policy on External Research please contact me at (210) 397-8724.

Sincerely,

Philip M. Linerode
Program Evaluator

APPENDIX B

LETTER TO FELLOW EDUCATORS EXPLAINING

THE PURPOSE OF THE STUDY

TEXAS A&M UNIVERSITY
Educational Administration and Human Resource Development

April 2, 2004

Dear Fellow Educator,

I am a doctoral candidate at Texas A & M University, conducting research on teacher stress and anxiety during Texas Assessment of Knowledge Skills (TAKS) testing periods. I am requesting your assistance in answering questions on a brief survey that should take about 10 minutes to complete. Please feel free to take this survey home and complete it at your leisure.

All survey instruments are coded, and any information regarding this survey is not shared with any organization, supervisor, superintendent, or principal. Upon completion of the study, all material associated with the survey will be destroyed.

Again, I thank you for your input. As required by Texas A & M University, I am including statements required in conducting research.

You understand that this research study has been reviewed and approved by the Institutional Review Board-Human Subjects in Research, Texas A & M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Support Services, Office of Vice President for Research at (979) 458-4067." (mwbuckley@tamu.edu)

You have read and understand the explanation provided to you. You have had all your questions answered to your satisfaction and you voluntarily agree to participate in this study.

You have been given a copy of this consent form.

By returning this instrument, you voluntarily agree to participate in this research study.

Dayne R. Denning

APPENDIX C

INFORMATION SHEET

TEXAS A&M UNIVERSITY
Educational Administration and Human Resource Development

April 2, 2004

Dear Fellow Educator,

I am a doctoral candidate at Texas A & M University, conducting research on teacher stress and anxiety during Texas Assessment of Knowledge Skills (TAKS) testing periods. I am requesting your assistance in answering questions on a brief survey that should take about 10 minutes to complete. Please feel free to take this survey home and complete it at your leisure.

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You have read and understand the explanation provided to you. You have had all your questions answered to your satisfaction and you voluntarily agree to participate in this study.

You have been given a copy of this consent form.

By returning this instrument, you voluntarily agree to participate in this research study.

Dayne R. Denning

Dayne R. Denning

APPENDIX D

SELF-EVALUATION QUESTIONNAIRE

mind garden

<center>

SELF-EVALUATION QUESTIONNAIRE   **STAI Form Y-1**

</center>

Please provide the following information:

Age _____   **Years teaching experience** _____   **Gender (circle)**   **M**   **F**

Highest degree attained: ___ **Bachelors** ____ **Masters** ____ **Doctoral**

<center>

DIRECTIONS:

</center>

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. 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 your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10. I feel comfortable	1	2	3	4
11. I feel self-confident	1	2	3	4
12. I feel nervous	1	2	3	4
13. I am jittery	1	2	3	4
14. I feel indecisive	1	2	3	4
15. I am relaxed	1	2	3	4
16. I feel content	1	2	3	4
17. I am worried	1	2	3	4
18. I feel confused	1	2	3	4
19. I feel steady	1	2	3	4
20. I feel pleasant	1	2	3	4

STAIP-AD Test Form Y
www.mindgarden.com

SELF-EVALUATION QUESTIONNAIRE
STAI Form Y-2

DIRECTIONS

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number 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.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	1	2	3	4
22. I feel nervous and restless	1	2	3	4
23. I feel satisfied with myself	1	2	3	4
24. I wish I could be as happy as others seem to be	1	2	3	4
25. I feel like a failure	1	2	3	4
26. I feel rested	1	2	3	4
27. I am "calm, cool, and collected"	1	2	3	4
28. I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
29. I worry too much over something that really doesn't matter	1	2	3	4
30. I am happy	1	2	3	4
31. I have disturbing thoughts	1	2	3	4
32. I lack self-confidence	1	2	3	4
33. I feel secure	1	2	3	4
34. I make decisions easily	1	2	3	4
35. I feel inadequate	1	2	3	4
36. I am content	1	2	3	4
37. Some unimportant thought runs through my mind and bothers me	1	2	3	4
38. I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
39. I am a steady person	1	2	3	4
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

STAIP-AD Test Form Y
www.mindgarden.com

VITA

DAYNE RALSTON DENNING
11739 Jarvis Drive
San Antonio, Texas 78253

EDUCATION

2005	Doctor of Philosophy, Educational Administration Texas A&M University, College Station, Texas
1983	Master of Education, Supervision and Administration University of West Florida, Pensacola, Florida
1972	Bachelor of Science in Education The University of Texas at El Paso, El Paso, Texas
CERTIFICATION	Standard Superintendent Professional Mid-Management Provisional Secondary English and History

EXPERIENCE

2004-2005	Director of Administrative Services and Special Projects School of Excellence in Education, San Antonio, Texas
2002-2004	Vice Principal, Southwest High School Southwest Independent School District, San Antonio, Texas
2000-2004	Assistant Principal, Gus Garcia Middle School Edgewood Independent School District, San Antonio, Texas
1996-2000	Assistant Principal, Teacher, Instructional Guide San Antonio Independent School District, San Antonio, Texas
1993-1996	Instructional Guide, English and Reading Teacher San Antonio Independent School District, San Antonio, Texas
1972-1976	English and Reading Teacher, El Paso, Texas El Paso Independent School District, El Paso, Texas

This dissertation was typed and edited by Marilyn M. Oliva at Action Ink, Inc.