THE SOURCES AND MANIFESTATIONS OF OCCUPATIONAL STRESS PERCEIVED BY VOCATIONAL AND TECHNICAL EDUCATION TEACHERS IN OKLAHOMA

By

KENNETH G. MILNER

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"By the grace of God I am what I am: and his grace which was bestowed upon me was not in vain; but I laboured more abundantly than they all: yet not I, but the grace of God which was with me."

I Corinthians 15:10

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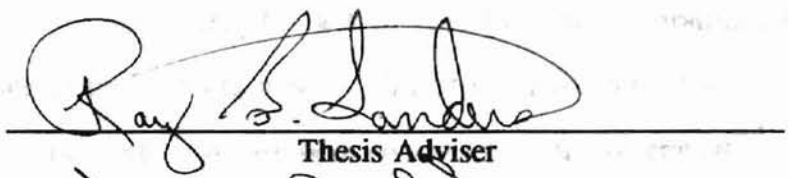

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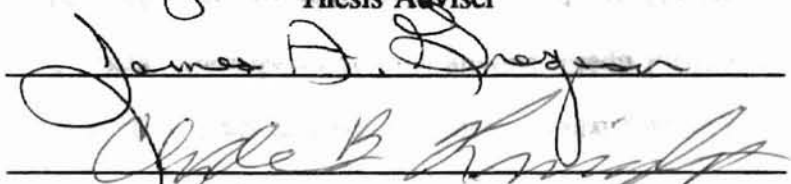

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CHAPTER I

INTRODUCTION

Nature of the Problem

Researchers have shown that teaching is one of the more stressful professions (Cichon & Koff, 1980; Farber, 1991; Fimian, 1986; Maslach, 1982). Alschuler (1984a) proposed that stress could be a one-word definition of teaching and posited that while "many teachers accept stress as a normal part of their professional lives," they often did not realize "it can be as insidious as cancer, slowly destroying their mental and physical health" (p. 5).

Occupational stress has also been shown to negatively impact a teacher's effectiveness in the classroom and the desire to teach. Unresolved stress has caused once committed teachers to abandon the profession and pursue alternative careers. Equally disturbing, far too many stressed-out teachers have remained in the classroom lacking the motivation necessary to provide effective learning environments for their students (French, 1987; Payton, 1986).

The nature of teaching and the increased demands placed upon teachers suggested that teaching will remain a stressful profession (Cole & Walker, 1989; Farber, 1991). Research studies, as Fimian (1986) explained, have enabled investigators to acquire a better understanding of the occupational stress experienced by teachers and the variables that stimulate or moderate stress in the educational environment.

Statement of the Problem

Teachers in vocational and technical education were suspected of being susceptible to occupational stress factors and their related problems that were common to the teaching profession and unique to the teaching discipline. Though occupational stress has been well documented in many teaching disciplines, the sources and manifestations of occupational stress experienced by vocational and technical education teachers have not been sufficiently identified nor documented.

Purpose of the Research

The purpose of this study was threefold: (1) to investigate the sources and manifestations of occupational stress perceived by vocational and technical education teachers; (2) to determine the extent occupational stress is experienced by vocational and technical education teachers; and (3) to identify stress factors that are unique to vocational and technical education teachers.

Research Questions to be Answered

This study sought specifically to answer these questions:

1. What do vocational and technical education teachers perceive to be the sources and manifestations of occupational stress?
2. To what extent are the perceived sources and manifestations of occupational stress experienced by vocational and technical education teachers?
3. What stress factors do vocational and technical education teachers experience that are unique to their teaching discipline?

Assumptions

Implicit to the research design were the assumptions that:

1. The Teacher Stress Inventory provided an adequate measure of the concept of stress for teachers in vocational and technical education.

2. The concept of stress was both discernable and measurable for a sample of vocational and technical education teachers in Oklahoma.

Limitations

The following were limitations upon which the study was dependent:

1. The researcher's capabilities and resources.

2. The representative nature of the study. The study was limited to vocational and technical education teachers in Oklahoma.

3. The time frame allocated for the study.

Definitions of Selected Terms

For the purpose of this study, the following definitions were used:

Area Vocational-Technical School

Area Vocational-Technical Schools (AVTS) were described as educational institutions centrally located to a number of high schools within a given geographic area. An AVTS offered daytime, job-specific training programs in several occupations for secondary and post-secondary students, off-campus programs for area businesses and industries, and evening classes for adults.

Burnout

Burnout was considered the final step in a succession of failed attempts to cope with negative stress conditions experienced by those who work with people (Maslach, 1982).

Comprehensive High School

A Comprehensive High School offered students exposure to and choices from a variety of curricula which have different outcomes. Students pursued general education requirements, college preparation courses, or vocational training in selected occupational areas. Local businesses and industries worked cooperatively with the schools to provide on-the-job training opportunities.

Stress

Stress was identified as the experience of an unpleasant emotional state resulting from negative aspects of the work environment (Kyriacou, 1984).

Summary

Chapter I has presented the background and significance of the problem, the purpose of the study, the questions to be answered, the assumptions and limitations under which the study has been conducted, and definitions of selected terms. Chapter II presents a review of the pertinent literature on occupational stress, the burnout phenomenon, the sources and manifestations of stress, strategies for occupational stress intervention, and an overview of vocational and technical education and its

teachers. Chapter III offers a description of subjects, survey instruments, design of the study, and the statistical procedures used for this study. Chapter IV presents and discusses the results of the study. Chapter V provides a summary of the study, conclusions drawn from the study, and offers recommendations based upon the findings, including recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Historically, teaching has been viewed as a labor of love. Unfortunately, the realities of the educational environment have made teaching a stressful occupation. Teachers have been expected to cure society's ills, prepare people of all ages for life in a complex, technological society, and accomplish these expectations for salaries not commensurate with their education. As a consequence of job conditions, many teachers discovered their feelings about themselves, their students, and their profession had changed. These teachers were vulnerable to emotional exhaustion and fatigue, negative attitudes toward students, and diminished feelings of accomplishment on the job, all indicative of occupational stress (Schwab, Jackson, & Schuler, 1986).

Defining Stress

Stress was described by Kyriacou (1989) as the body's natural emotional and physiological reaction to the perception of danger in one's environment. Put in classic psychological terms, the body was being prepared for "fight or flight" (p. 28). Such a perception of danger was by no means limited to physical danger. The perception of threat to one's self-esteem and mental well-being in general also triggered this emotional state. Teachers have faced numerous and varied demands on a routine

basis. If a teacher perceived that meeting certain demands were to be extremely difficult or impossible, and that failure to do so threatened his or her mental or physical well-being, then the teacher was very likely to experience stress. Such demands may have been self-imposed or imposed by others, just as the judgements about meeting the demands successfully may have been based on the teacher's own criteria as well as those of others.

Selye, a leading pioneer in the study of psychological stress, initially described stress as a hypothetical construct that represented a state of disequilibrium existing between the environment and the individual's response to environmental demands. The state of disequilibrium may have had actual or perceived causes, and frequently, a combination of both (Selye, 1956). Selye's concept was recognized as one of the more commonly accepted today (Fimian, 1982).

Selye (1956) considered life an ongoing process of adaptation to the circumstances in which people existed. Any emotion or activity could have triggered the body's stress-mechanism to some extent. Consequentially, people were not able to live without experiencing some degree of stress all the time. Stress was not even considered necessarily bad. It could have been positive or negative, desirable or undesirable. Selye believed stress was "the spice of life," and that stress which was harmful for one person could have been an "invigorating experience for another", and that, in reality, stress did not cause the negative and dysfunctional conditions, but rather distress (p. vii).

Though distress was perhaps semantically correct, Fimian (1982) noted that the conventional use of the term stress, and its most common occupational use, being under stress, has implied a response syndrome of negative and dysfunctional effects resulting from the individual's job. To emphasize the negative implications of stress, Janis and Leventhal (1968) focused attention upon its potentially dysfunctional and socially costly effects on job performance and recognized that, overall, it was

occupational stress seen as an unpleasant emotional state that has been the most widely used definition of the term. They saw occupational stress as an unpleasant emotional experience associated with elements of fear, dread, anxiety, irritation, annoyance, anger, sadness, grief, depression, tension, frustration, and nervousness resulting from work.

Except in cases of the sudden occurrence of an extremely strong negative stressor, such as the loss of a loved-one, or the unexpected loss of a job, it was discovered that the onset of stress usually occurred in three gradual, distinguishable stages. These stages were identified by Selye (1956) as: (1) the alarm reaction; (2) the stage of resistance, and (3) the stage of reaction. Collectively, these have been termed the General Adaptation Syndrome (GAS). The GAS encompassed all general changes as they developed throughout time during continued exposure to a stressor, or that which produced stress. Whatever the demand made upon humans, they proceeded through: (1) the initial alarm reaction, when they have undergone surprise and anxiety because of inexperience in dealing with a new situation; (2) the stage of resistance, when they have learned to cope with the situation efficiently and without undue turmoil; and (3) the stage of exhaustion, when a depletion of energy reserves has led to fatigue.

One major assumption underlying the GAS was that humans, although very adaptable, have only a limited supply of adaptive energy. Unless the negative stressor has been removed, or unless the individual's perception of the negative stressor was changed in such a way that it was no longer negative, the individual proceeded through the three stages until breakdown occurred (Fimian, 1982). Teachers who were experiencing extreme stress were reported to be driven to the limits of their personal resources and were approaching breakdown (Woods, 1989). The embodiment of breakdown was considered burnout.

The Burnout Phenomenon

Numerous definitions of burnout have been advocated by many researchers, and the term has often been used interchangeably with the word stress. Schwab, et al. (1986) described burnout as a psychological process or a series of attitudinal and emotional reactions that an employee has gone through as a result of job-related experiences. Maslach and Jackson (1981) described burnout as the inability to function effectively in one's job as a consequence of prolonged and extensive job-related stress, and considered it the final step in a progression of unsuccessful attempts to cope with negative stress conditions. They believed that the syndrome was most strongly linked to human service professionals, such as nurses, police officers, and teachers.

Teacher burnout was defined by Kyriacou (1989) as a state of physical, mental, emotional and attitudinal exhaustion which resulted from prolonged experiences to occupational stress. To Gold (1985), teacher burnout was descriptive of the end product of stress. When teachers used the term, they described themselves as being consumed, empty, alienated, wasted, letdown, and even used up. Cherniss (1980) stated that the difference between stress and burnout may be obscure, but it appeared that burnout was one reaction to stress. Though there may not be one universally agreed upon definition of burnout, what researchers did agree upon was that it was occupationally-related and it has affected teachers.

Freudenberger (1974), a leading psychoanalyst, first used the term burnout to describe the physical and emotional exhaustion experienced by professionals in many fields. From numerous investigations, it was observed that corporate staff members becoming less productive, less energetic, and less interested in their jobs. These people had chosen these fields and studied for them. They entered their professions with interest and enthusiasm, bursting with ideas and the desire to implement them.

Even though their job conditions had not noticeably changed, they found themselves fatigued, irritable, bored, and overworked. These staff members had become debilitated by what was described as the burnout syndrome.

The research of Christina Maslach, a leading researcher in the field of burnout, concluded it was a multidimensional construct comprising three related, yet independent components: (1) emotional exhaustion, (2) depersonalization, and (3) reduced personal accomplishment, that occurred among people who work with people (Maslach, 1982).

Emotional exhaustion occurred when feelings of fatigue developed as emotional energies were eventually drained. Teachers exhibited signs of emotional exhaustion when they perceived themselves unable to give as much of themselves to their students as they did earlier in their careers. Chronic fatigue, restlessness, and the inability to sleep were common symptoms of nervous exhaustion. Related symptoms included tension and the inability to relax. Emotional exhaustion paralleled the characteristics of depression. Teacher ratings of job-related stress correlated quite highly with a reputable and widely used depression inventory (Farber, 1991).

Depersonalization, the second component of burnout, involved the development of negative and uncaring attitudes toward others and a harmful distancing of the self from other people. Teachers exhibited signs of depersonalization when they developed negative, cynical and sometimes callous attitudes toward students, parents, and colleagues. The one who was supposed to be helped was transformed into a hateful object. Distrust and dislike replaced concerned and friendly interest. Burned-out teachers treated students like objects and used object labels rather than personal names. They were less sympathetic toward students, had a lower tolerance for classroom disruption, were less apt to prepare adequately for class, and felt less committed and dedicated to their work (Farber & Miller, 1981). Detached and callous responses to students' initiatives reflected the teacher's unexpressed desire to

be left alone (Zahn, 1980). Sick humor and jokes that ridicule or belittle students and their problems, as Bramhall and Ezell (1981a) discovered, became routine, disguising emotional reactions. Such thoughts and actions were viewed as self-protective and served to reduce emotional involvement and stress.

The third component of burnout was a feeling of reduced or low personal accomplishment. It was a deterioration of self-competence and dissatisfaction with personal achievements. Teachers exhibited signs of reduced personal accomplishment when they perceived themselves as ineffective in helping students to learn and in fulfilling other school responsibilities. The demotivating effects which ensue from feelings of inefficacy were evident from research on learned helplessness. The feeling of helplessness made teachers feel frustrated and angry, and promoted feelings of failure and ineffectiveness. In situations where efforts failed to produce positive results, teachers developed symptoms of stress and depression. These occurred when they no longer believed their actions could and did make a difference (Abramson, Seligman, & Teasdale, 1978).

Ever since Freudenberger first used the term burnout, investigation into the sources and manifestations of this phenomenon and its precursory stress has mushroomed and the expressions of concern for the escalating incidence of burnout among members of the teaching profession have increased (Berg, 1994; Farber, 1991). Stress and burnout have disproportionally stricken those in the helping professions, including teachers, and could last for years (Spaniol, 1979).

The Sources of Occupational Stress

The sources of occupational stress experienced by teachers were numerous and occurred in a broad range of conditions and situations. Situational stress factors, those that were built into the job rather than those that were brought to the job by the

teacher, were the basic sources of stress. Through research, investigators attempted to identify and classify the sources of stress that most commonly affected teachers.

In a review of the literature dealing with stress and burnout, Clagett (1980) identified 218 stress generators and determined the stress factors most frequently cited were: lack of faculty participation in decision making; the increase in under-prepared students coupled with student expectations of high grades; apathetic peers; and low salaries. The study presented a model for understanding stress, in which burnout was seen as a breakdown in the relationship between the individual and the organization.

From a nationwide pole, Instructor (1979) identified a number of reasons stress and burnout may have developed among teachers. Lack of professional mobility, turnover of teaching staff, public scrutiny of schools and teacher effectiveness, media assault, budget reversals, class overloads, and over-extended workloads were all listed as sources of stress and precursors to teacher burnout.

Fimian (1982) identified 135 sources of stress and summarized them into categories that included: personal competence; self-relationship; conflicting values; social approval; isolation; expectations; self-fulfillment; deficiencies in the work environment; ego needs; self-inflicted stress; professional constraints; and student-teacher relationship.

From these and other studies (Cichon & Koff, 1980; Farber, 1991; Leffel, 1989), the most highly ranked sources of stress experienced by teachers have been summarily be placed into six categories: (1) administration; (2) student related; (3) peer related; (4) financial; (5) working conditions; and (6) personal.

The primary sources of stress experienced by teachers were related to organizational conditions. Organizational conditions included those factors that were unique to the school system in which they worked. Constraints placed on teachers through the policies and procedures of the school system were inadequate resources required to perform the job, colleagues who were frequently uncooperative or

rebellious, and the lack of feedback about one's successes. All have undermined successful teaching (Bramhall & Ezell, 1981a; Jackson, 1983; Schwab, et al., 1986).

Educational environments that were prone to stress and burnout appeared to have one thing in common. Overload! Whether it was emotional or physical, the burden that exceeded the person's ability to handle it was the epitome of what was meant by stress. As Maslach, (1982) noted, too much information was pouring in, too many demands were being made, and it was all occurring too fast for the person to keep up. Woods (1989) described it as having too much work, combined with a strong moral imperative to do it, and not enough time and energy with which to accomplish the task. Hendrickson (1979) suggested that burnout was the ultimate response to circuit overload and resulted from unchecked stress caused by the institution's impersonal and unyielding demands and the immediate environment in which teaching was done. She concluded if the system were less regimented and the environment more supportive, teachers would have fewer problems.

The lack of control or autonomy in one's job was presented as a major contributor to stress and burnout. Control involved the employees' perception of their influence on decision making regarding such issues as work scheduling and the development of policies that directly affected the work environment. Lack of control stemmed from being told by superiors exactly what to do, when to do it, and how, with no leeway to do it differently, even when the old formula did not work in some new situation. It was the consequence of having no direct input on policy decisions that affected the teaching environment. It arose when a person had no opportunity to get away from a stressful situation or was given more responsibility than he or she could handle. Whatever the reason for the lack of autonomy, not perceiving control over important outcomes in one's job added to the emotional strain of teachers (Maslach, 1982; Schwab, et al., 1986; Spaniol, 1979). Ginsberg, Schwartz, and George (1987) characterized these conditions for teachers as the "I don't get no

respect" syndrome that involved a perceived lack of respect, little decision-making power, unsafe working conditions, lack of materials, and disrespectful parents and students (p. 19).

Closely linked to lack of control, role conflict and role ambiguity were also identified as significant contributors to stress and burnout. Role conflict was described as the simultaneous occurrence of two or more sets of inconsistent, expected role behaviors. Role ambiguity was described as the lack of clear, consistent information regarding the rights, duties, and responsibilities of the job and how these duties and responsibilities can best be performed (Rizzo, House, & Lirtzman, 1970). Teachers reported they were constantly asked to do non-teaching activities, such as preparing excessive and needless paperwork, dealing with a lack of proper supplies, and performing recess or lunch duties. Seen as barriers to teaching, they were considered deterrents to performing their job as teachers (Ginsberg, et al., 1987). Sutton (1984) pointed out two common sources of role conflict for teachers: (1) they were expected to provide quality education to their students, yet they were not allowed to use the best instructional methods or curriculum materials available; and (2) they were responsible for maintaining discipline, but did not have the authority to do so.

Reward and punishment structures in organizations were shown to be contributors to stress and burnout, largely through their impact on personal accomplishment and depersonalization. For many teachers, receipt of reward and/or punishment was considered a meaningful way of knowing how well they were doing and what others thought of their work. Unfortunately, many teachers did not receive this type of information or feedback. School administrators, the main source of organizational rewards and punishments for many teachers, did not provide the requisite rewards and punishments based upon the teacher's performance (Schwab, et al., 1986). Those teachers who received contingency rewards knew how well they were doing and how much their work was appreciated. Contingency punishment was

often the only way teachers knew what they were doing wrong and thus how they might have improved in order to get contingent rewards. In a nationwide study, new teachers indicated overwhelmingly that administrative feedback and positive reinforcement were essential to maintain their overall mental and physical health (Instructor, 1977). The absence of contingent rewards and punishment was attributed to, as Farber (1991) reported, administrators that were themselves burned out.

Teachers expressed desires to see measurable results of their teaching, to be recognized and complimented for a job well done, and to be given more opportunity to participate in the decision-making process (Huston, 1989; Jackson, 1983). Selye (1974) believed that man needed recognition, and that constant criticism, more than any other stressor, made work frustrating and harmful.

Among the student related sources of stress, managing disruptive students has invariably been among the top-ranked items in teacher stress surveys (Cichon & Koff, 1980; Sutton, 1984; Kyriacou & Sutcliffe, 1978). Many teachers resented students who were discipline problems. These students were clearly in need of attention, but attending to them deprived other students of the teacher's time and attention (Farber, 1991). Such resentment created frustration and dismay that evolved into stress.

Occupational stress was also attributed to inadequate professional training. Teachers have entered the profession with unrealistic high expectations due to unrealistic exposure to the job during training (Schwab, et al., 1986; Spaniol, 1979). Teacher preparation programs, Gold (1985) concluded, have not prepared student teachers to cope with stress. Many dedicated and capable teachers entered the profession unprepared to handle the major sources of stress. Limited career ladders, where teachers were often locked into a limited range of income potential, were also shown to promote stress.

Needle (1980) believed that occupational stress occurred from the discrepancy between the teacher's needs, values, and expectations and the actual occupational

rewards, job demands, and the capacity of the worker to meet these requirements. Excessive demands, long hours, funding insecurity, and dangerous surroundings were among the factors that not only produced stress and burned-out behaviors in individuals, but also tended to establish such behaviors as norms (Maslach, 1982). The sources of occupational stress experienced by teachers were found to be so pervasive that occupational stress was labeled an occupational hazard of teaching (Instructor, 1977).

The Manifestations of Occupational Stress

If stressful events or the perceptions of them have not been resolved or controlled, any number of deleterious manifestations often occurred. Mental, emotional, behavioral, and physiological maladies were the net result of sudden, prolonged, or unrelieved stressful experiences. Teachers often reported experiencing these manifestations as a result of occupational stress (Fimian & Santoro, 1983; Leffel, 1989; Maslach, 1982).

Emotional manifestations served as precursors of behavioral and physiological changes in teachers under stress. Certain behavioral manifestations, or changes in the way in which the teacher under stress approached, acted toward, or started to cope with his or her job, occurred if the stressful events or percepts last for an extended period of time. When under stress, teachers kept tighter control on classroom activities, had less tolerance for noise and less patience for students, used less creativity in planning lessons, and felt less productive (French, 1988; Schwab, et al., 1986). If burnout ensued, emotional exhaustion and withdrawal were among the first reactions. Often the first sign of burnout was a feeling of being emotionally exhausted from teaching. When ask to describe how they felt, emotionally exhausted teachers said they felt drained or used-up, at the end of their rope, and physically

fatigued. Withdrawal reactions included spending less or as little time on the job as possible, taking longer breaks, and distancing themselves as much as possible from the job. Withdrawal was physical, by not being present, or psychological, where the teacher was physically present but mentally somewhere else (Schwab et. al., 1986).

Occupational stress has been linked to a desire to leave teaching. Many teachers left the field at different times and for different reasons, though intentions to leave have not always translated into action. Research by Jackson, Schwab and Schuler (1986) concluded that emotional exhaustion was a predictor of turnover, but discovered many teachers who scored high on burnout surveys remained in their job despite their stated preference to leave. Of those surveyed, only 39% indicated that their most preferred job status was being in their current teaching position. Thirty percent indicated they most preferred jobs unrelated to education. Sparks (1979) discovered through questionnaires distributed during a teacher stress in-service workshop that 46% of the teachers were dissatisfied with their job as a whole and, if they had it to do over again, would not choose teaching as a career. These figures suggested that a large percentage of teachers were in their current jobs involuntarily and indicated that turnover rates for teachers were dysfunctionally low. The consequences were negative for both individuals and educational institutions.

Stress and burnout have led to health problems. Selye (1974) disclosed that mental tensions, frustration, insecurity, and aimlessness were among the most damaging stressors, and psychosomatic studies have shown how often they have caused migraine headaches, peptic ulcers, heart attacks, hypertension, mental disease, suicide, or just hopeless unhappiness.

It was reported (Schwab, et al., 1986; Bramhall & Ezell, 1981a) that victims of stress and burnout suffered from insomnia and used medications of various kinds. Many sufferers turned to alcohol as a way of coping with their burnout. They were literally sick and tired and often suffered from headaches, backaches, and

stomachaches. At night they had trouble sleeping as distressing scenes from work went through their heads. Even when they were able to get plenty of sleep, they felt constantly exhausted and woke up in the morning with a sense of anxiety and dread, accompanied at times by morning nausea.

Hendrickson (1979) reported that the symptoms of burnout included being tired all of the time, sleeplessness, depression, and being physically run-down. Teachers experiencing burnout often had minor physical maladies, such as frequent colds, headaches, dizziness or diarrhea. If unchecked, these ailments may turn into ulcers, colitis or asthma, or cause loss of appetite and loss of sexual interest.

Of 1,282 teachers who responded to a national article on stress (Learning, 1979), 93% reported they had experienced feelings of burnout. They reported psychic and physical damage which included nervous breakdowns, depression, stomach ailments, prolonged exhaustion, colitis, and constant headaches. One burned-out teacher reported that a suicide attempt was nearly successful.

Just as stress and burnout have a negative impact on the quality of work life, they have led to behaviors that caused a deterioration of the quality of home life. Emotionally exhausted teachers went home tense, anxious, upset and angry, and complained about work problems. They were more withdrawn while at home and preferred to be left alone rather than share time with the family. They developed negative attitudes toward people and had fewer friends. The negative effects of burnout were especially detrimental because family members were likely to find it increasingly difficult to remain supportive of the afflicted parent or spouse (Schwab, et al., 1986).

Demographic Variables That Have Led To Occupational Stress

Researchers have looked for significant relationships between stress and burnout and a host of demographic variables. Many variables have demonstrated a significant relationship to occupational stress among teachers, while others have proven to be inconsistent. Studies discovered that male teachers were more susceptible to stress and burned out more frequently than female teachers (Berg, 1994; Farber, 1991; Schwab & Iwanicki, 1982). In the 30 to 39 year old bracket, Fiske (1982) found that male teachers who taught in either junior or senior high school were most likely to regret their career choices. In one study of stress experts, Fimian (1987) discovered no significant difference between males and females in their appraisal of teachers stress.

Some researchers (Leffel, 1989; Remley, 1985; Scrivens, 1979) found a correlation between years of service, stress and burnout. These studies indicated that stress increased and the burnout phenomenon grew more acute with length of service, and that teachers who had served for more than a decade were the most prone to feel its effects. Others (Berg, 1994, Kyriacou & Sutcliffe, 1978, Schwab & Iwanicki, 1982) found that less experienced teachers reported higher levels of burnout than did veteran educators. Farber (1991) revealed that many new teachers were unable to sustain their enthusiasm or the energy necessary to cope with stressful situations and left teaching within the first year. Data from the Instructor (1977) survey disclosed that first- and second-year teachers were sick more often than experienced teachers.

Age was found to be a predictor of stress. Remley (1985) reported that in addition to length of service, age was related to stress. From this study, it was discovered that teachers between 45 and 59 years of age filed more stress-related worker's compensations claims than did younger teachers. Here too, differing findings emerged. Fimian (1987) and Berg (1994) discovered that stress experienced

by younger teachers was relevant and reported finding a significant difference between younger teachers and older teachers, especially those over 50 years of age.

Gold (1985) and Schwab and Iwanicki (1982) revealed that younger teachers, in comparison with older teachers, were inclined to express perceptions of indicating both greater amounts of emotional exhaustion and depersonalization. They hypothesized that younger teachers had an unrealistic understanding of the profession, and when they found out their expectations could not be met through teaching, their job became a source of stress and frustration.

Farber (1991) reported on other studies that have provided some evidence that being single, teaching in larger schools, working with large numbers of students, and teaching in urban rather than suburban or rural environments also placed teachers at risk for feeling stressed or becoming burned out. Scrivens (1979) discovered that many teachers who came into the profession from other careers seem to be among the most content with teaching and suggested that their prior work experience helped them cope with stress and inhibit burnout.

Intervention Strategies

Teachers who have experienced excessive occupational stress and burnout have faced dilemmas that seemed irreversible. Overcoming stressful situations has seemed an insurmountable task for some. In spite of a hopeless appearance, occupational stress and burnout have been treated. Stressed-out and burned-out teachers have been helped and valuable human potential preserved (Bramhall & Ezell, 1981b). Ironically, and despite abundant research into occupational stress and burnout experienced by teachers, Berg (1994) disclosed that little action has been directed by education toward the issue of intervention. Proposed by concerned and qualified individuals, promising intervention strategies do exist.

Farber (1991) offered solutions to deal with the problems of stress and burnout, and classified the solutions under three headings: (1) broad-based school reform that, in part, increases teacher empowerment and further professionalizes the field; (2) individual coping strategies that include relaxation training, time management, and social support; and (3) school-based solutions such as teacher centers and school-centered management teams. It was concluded that school administrators were an essential component in relieving stress and preventing burnout in teachers. A number of things were listed that can be accomplished by school administrators to elicit a sense of caring and concern in teachers. The list included: involving teachers in decision-making; increasing administrator visibility at the school; providing recognition for good effort; providing clear guidelines for policy, especially disciplinary policy; follow up teacher requests with action; protecting teachers from impossible demands from parents, politicians, and the school board; developing teacher assistance teams; and encouraging in-service courses aimed at coping with stress.

Research by Jackson (1983) agreed that increased employee participation in the decision-making process was an effective way to prevent job-related stress, or, at least, to minimize its effect. This would occur in part because participation enhances the control employees have over their work environment and strengthens the feeling of autonomy. That administrators play a critical role in the intervention process was supported by Bramhall and Ezell (1981c). They believed that administrators who did not adopt positive, vigorous burnout prevention strategies inadvertently operated according to the "dixie cup - use them and throw them away" school of management (p. 33). Without a burnout prevention plan, teachers were expected to work anxiously, frantically, and less productively.

Esteve (1989) proposed two kinds of approaches that were necessary if the negative effects of stress and burnout were to be controlled. First, preventative

strategies were developed and implemented through initial teacher training. Changes in society had brought inevitable changes to the role of the teacher and to interpersonal relations in education. Initial training for that role was then re-evaluated and included effective responses to the problems of teaching today. Second, in-service training was developed to help practicing teachers. Teachers assimilated changes which had taken place in teaching, the classroom, and the society which surrounds them and adapted their teaching style and modified their role as teachers.

Farber (1991) warned that in-service training approaches were to be used with caution. The most frequently chosen institutional response to the problems of teacher stress and burnout has been the workshop. Typically, outside consultants were hired to speak either on a one-time basis or for a series of after-school workshops. With this type of in-service training, "teachers often feel as if they are being manipulated" and that "the consultant has been hired to "fix" teachers to work better" (p. 303).

Another approach was presented by Alschuler (1984b). It was suggested that stress prevention could be accomplished in five steps: (1) listing stressors; (2) categorizing the stressors; (3) prioritizing the stressors; (4) planning a campaign to reduce the stressors; and (5) implementing the plan. These steps incorporated the problem-solving process and were aimed at creating a collaborative climate focused on improving crucial aspects of the teaching environment. Described as a "stress hunt", cooperation among the individuals involved was declared critical to its success (p. 65).

Choosing an effective strategy was dependent upon the particular circumstances that encompassed each educational setting. School administrators and teachers were encouraged to select or develop a plan suitable to their needs to prevent stress and burnout from occurring. If education wished to retain its teachers, preserve their mental and physical well-being, remove the stumbling blocks that stress and burnout create, and restore and increase the positive effects that were desired in the classroom, stress intervention plans had to be implemented. Occupational stress and burnout

prevention did not just happen. It required an understanding of the problem of stress, acknowledgement of its existence, identification of the sources of stress, and a cooperative commitment to minimize and eliminate the sources.

Vocational and Technical Education and Its Teachers

The basic goal of vocational and technical education has always been to prepare its students for the world of work. When publicly funded vocational education was created, the qualifications for teachers and the responsibilities of those teachers were relatively uncomplicated. The Smith-Hughes Act of 1917 clearly specified that only persons with practical work experience would be allowed to teach in federally funded vocational programs (United States Congress, 1917). Occupations were well-defined, not complex, and relatively stable, and vocational students were usually trained for a single, lifetime occupation. These concepts and practices originated in a different time, from a different need. Today's world of work, teaching profession, and vocational students have changed from those of the past. The responsibilities shouldered by vocational and technical education's teachers that were necessary to achieve its goal have increased dramatically.

Technology turned the workplace and the job market upside down. Increased capabilities, flexibility and adaptability became prized qualities in workers (Kolde, 1991). Employers no longer wanted or needed entry-level job applicants with narrow occupation-specific job-skills (Gray, 1993; Rosenstock, 1991; Wirt, 1991). Employers requested that vocational and technical education change its emphasis to a much broader curriculum centered around basic skills. To qualify and compete for entry-level positions, vocational students needed a firm grasp of occupational basics and an understanding of the math and science behind these basics (Gray, 1991). Good work habits, punctual attendance, and positive attitudes about the world of work were

among the basic, transferable job-skills sought by employers. As Tuttle (1988) stated, basic skills training was necessary to enter the world of work and achieve upward mobility. Basic skills were the "new bottom line for vocational education" (p. 11).

When basic job-skill training was combined with a sound education in academics applied through vocational and technical courses, entry-level positions became available to more students across a wider range of jobs and careers. To accomplish these educational goals, it was necessary for vocational and technical education teachers to become flexible, with a wide range of technical knowledge, as well as the ability to constantly keep technologically current (Welch, 1991). Specialized knowledge and teaching skills were also necessary to manage modern vocational programs effectively.

Implementation of integrated learning programs mandated in The Carl Perkins Vocational and Applied Technology Education Act of 1990 required vocational and technical education teachers to be sufficiently knowledgeable in the areas of communications, humanities, social sciences, natural sciences, and personal social health (Doty & Mastrantuono, 1990). They had to teach and/or reinforce reading, writing, and computational skills, and they had to teach the thinking, reasoning, and communication skills required of tomorrow's workforce (Vos, 1989). Teaching interpersonal skills and preparing each individual student to contend with the constantly changing world of work became important teacher responsibilities. A crucial responsibility of vocational and technical education teachers was to make certain that students passed all required proficiency, licensing, and certification tests to realize job placement.

The responsibilities of teaching in vocational and technical education programs multiplied when the diverse backgrounds of vocational student populations were considered. A majority of vocational students came from groups that were considered "at-risk." These groups included students that were economically, socially, and

educationally disadvantaged, and individuals at all age levels that were mentally and physically handicapped. Students with limited English proficiency and potential dropouts were also included. Teaching at-risk students required special skills and knowledge of various cultures and special-needs students (Gray, 1990; Vos, 1989).

Teachers in vocational and technical education had responsibilities that extended beyond the classroom. In addition to job placement, keeping current with technological advancements and the preparatory training needs of the workplace became basic to the continued success of all vocational programs. Vocational and technical education teachers integrated academics with their vocational program and assisted their students with vertical articulation between the secondary and post-secondary levels. These responsibilities required ongoing communication with business and industrial personnel from the teacher's occupational field and with educators in other areas.

Vocational and technical education teachers addressed all of these responsibilities and continued to provide the education and training for which public vocational education was created; providing students with the knowledge and skills necessary for students to secure gainful employment. Vocational and technical training had always involved instruction in the use of sophisticated, and often dangerous, tools and equipment. Training in industrial safety was always a priority, and now included the complex issues of hazardous materials communications and hazardous waste disposal. Teaching values judgement and moral responsibility were among the recent request that parents, community leaders, and employers have made of vocational and technical education teachers. As Crosby and Petrosko (1990) reported, employers have gone so far as to say that would provide the necessary job skills training if vocational and technical education would provide them with graduates that possessed positive work attitudes.

The responsibilities of present day vocational and technical education teachers were extended far beyond those expected during the inception of public vocational education. They became numerous, complex, and potentially overwhelming. When examined closely and conscientiously, the potential for occupational stress was easily discernable, yet investigation into the sources and consequences of occupational stress experienced by teachers in vocational and technical education has been ignored.

Summary

A review of the literature disclosed that occupational stress affected teachers and that the problems faced by the teaching profession as a result of stress were serious concerns. Kyriacou (1989) reported that teachers who responded to stress research seem to have found more despair than joy in teaching. Teachers related the insensitivity of administrators, the pressures and strains of teaching, difficulty in dealing with students, an increasingly bureaucratic system, and dead-end situations that have made teaching less and less a pleasure. Clearly, the major concerns with teacher stress were that a prolonged experience can precipitate both mental and physical ill-health and that its influence had a negative and dysfunctional influence on job performance.

Burnout, routinely used interchangeably with the term stress, appeared to be more a final stage or end state of occupational stress. Hendrickson (1979) noted that burnout began with a feeling of uneasiness, the joy of teaching had slipped away, not just for a day or a week, but permanently. The struggle against burnout was shown to be a lonely and sometimes losing battle. Many teachers who have burned out simply quit and gave up jobs that made heavy demands and required intense student interaction (Bramhall & Ezell, 1981b). It was discovered that stress and burnout can be prevented, controlled and reversed (Bramhall & Ezell, 1981c).

Farber (1991) stated that, paradoxically, occupational stress and burnout experienced by teachers was, in part, the result of caring: about students, about doing a good job, about achieving the best results for students. Such an idealistic approach to teaching occurred in education while the public demanded more and more and provided less and less support in funding, physical security, instructional materials, and public confidence for education. Teachers were the primary victims of the dwindling support. They experienced stress at an alarming rate, burned out faster, and left the profession sooner. Rather than teach, many sought relief from stress in other occupations. This change of consciousness from "love to hate, from hope to cynicism, from commitment to revulsion has been a tragedy for students, for parents, for colleagues, and for loved ones, and ultimately for the national welfare" (Alschuler, 1984b, p. 71). Teacher stress and burnout affected and, it was predicted, will continue to affect the lives of teachers and their families, administrators and their families, students and their families, and all of society (Farber, 1991). Several intervention strategies were reviewed as methods of addressing the problem.

Because no prior research was discovered, it could only be surmised that teachers in vocational and technical education have experienced many of the sources and manifestations of occupational stress that were experienced by teachers in other disciplines. The distinctive nature of the teaching environment in which vocational and technical education teachers work presented opportunities for sources of stress that are common to all teachers and particular to the teaching discipline. Research has allowed investigators to acquire a better understanding of occupational stress experienced by teachers and serve as a foundation in the search for solutions. By anticipating, identifying and isolating the sources and manifestations of occupational stress and then implementing appropriate stress management strategies at an early stage, problems have been managed, reversed or alleviated (Fimian, 1986).

The review of the literature sought to define stress and the phenomenon of burnout. The sources and manifestations of stress experienced by teachers that were reported by a number of researchers and authorities were explored. The character of vocational and technical education and its teachers were also examined. The remainder of this study was devoted to determining the sources and manifestations experienced by teachers in vocational and technical education, the extent to which these sources and manifestations were experienced by these teachers, and to determine what, if any, sources and manifestations of stress experienced by vocational and technical education teachers were indeed unique to their teaching discipline.

CHAPTER III

RESEARCH METHODOLOGY AND PROCEDURES

Introduction

The focus of this study was to investigate the sources and manifestations of occupational stress perceived by teachers in vocational and technical education in Oklahoma. Personal and professional information reported by the teachers was utilized to determine the existence and level of stress experienced by these teachers and to study the degree to which relationships existed between selected demographic variables and occupational stress. This chapter presents the steps taken to accomplish the investigation which are discussed in the following order: description of subjects, description of the instruments, research design, and statistical procedures.

Description of Subjects

The subjects for this study were vocational and technical education teachers in Oklahoma. A list of all vocational and technical education teachers in Oklahoma was provided by the Oklahoma Department of Vocational and Technical Education.

The vocational and technical education structure in Oklahoma was comprised predominately of Area Vocational-Technical Schools (AVTS) and Comprehensive High Schools (CHS). A small number of vocational and technical education teachers

in Oklahoma teach in Vocational-Technical Skills Centers (VTSC) and Jr. High School (JHS) or Middle School (MS) vocational programs.

The VTSC teachers provide vocational and technical training to prison inmates as a critical component of the rehabilitation process. The JHS and MS teachers provide occupational exploration opportunities for younger students. Due to the distinctive nature of these programs, these teachers were not included in this study.

Description of Instruments

The instruments utilized in this study were the Vocational Educators Demographic Data Sheet and the Teacher Stress Inventory. Each of these instruments will be described individually.

The Vocational Educators Demographic Data Sheet

The first instrument administered in the study was the Vocational Educators Demographic Data Sheet (VEDDS). The VEDDS was developed specifically for this study to provide a personal and professional description of the subjects. Subjects were asked to provide their age, gender, level of education, teaching experience, work experience prior to teaching, school classification, level of students taught, and population of their schools location. Participants supplied additional data pertaining to their teaching environment. A specimen of the VEDDS is provided in Appendix B.

The Teacher Stress Inventory

In both the literature and in common usage of the term occupational stress, it is apparent that certain things cause stress and that this stress is evident in terms of any

number of symptoms. These symptoms may be physiological, behavioral, or characterized in other ways. Therefore, it should be possible to identify certain events that act as sources of stress and other events that act as manifestations of stress. Structurally, the Teacher Stress Inventory (TSI), developed by Fimian (1984) and endorsed by the Buros Institute of Mental Measurement (Murphy, Conoley & Impara, 1994), provides that possibility.

Current Form of the TSI

In its current form, the TSI test instrument consists of 49 questions germane to occupational stress sources and manifestations of stress for teachers. The questions are administered under the seven headings of: personal/professional stressors; professional distress; discipline and motivation; emotional manifestations; biobehavioral manifestations; physiological manifestations; and time management.

Operationally, the 49 test items are divided into ten subscales, designated as "stress factors," representing two major dimensions: (1) sources of stress and (2) manifestations of stress. Five factors represent sources of stress and five factors represent manifestations of stress.

The five factors representing sources of stress are: (1) Work-Related Stressors, (2) Time Management, (3) Professional Distress, (5) Discipline and Motivation, and (5) Professional Investment. The five factors representing manifestations of stress are: (1) Emotional Manifestations, (2) Fatigue Manifestations, (3) Cardiovascular Manifestations, (4) Gastronomic Manifestations, and (5) Behavioral Manifestations. Collectively, the ten factors represent the construct "Total Stress."

The TSI rates the strength and frequency of teacher stress. The strength of teacher stress is rated on a 5-point Likert-type scale (1 = No Strength/Not Noticeable; 5 = Major Strength/Extremely Noticeable) associated with the items. Based on this

scale, items rated 3, 4 or 5 would prove to be the most significant contributors to an individual's overall stress level. This subjective measure allows the teacher to rate the degree of perceived influence individual items have upon their overall stress levels. The frequency of teacher stress, also based on these items, is rated in terms of a 7-point scale (1 = never; 7 = daily).

The strength and frequency dimensions of the TSI are moderately to strongly correlated to one another (Fimian & Zacherman, 1987). Data show that factor correlations range from a low of .30 (non-significant) to a high of .99, with only one nonsignificant correlation out of a possible 92. As reported by Fimian (1987), "only one percent of the time did a frequency factor not correlate significantly with its strength analogue" (p.24). Comparative results were obtained with regard to the relationship between the Total Strength and Total Frequency scores.

Due to the adequate relationship between the strength and frequency dimensions of the TSI, the strength-only form or the frequency-only form can be used in place of the strength-frequency version. This modified version of the strength-only form (Fimian, 1988), consisting of the 49 items, was used in the current study to collect data from vocational and technical education teachers in Oklahoma.

The 49 items comprising the TSI were of the closed-end variety. An open response form was incorporated with the instrument used in this study to permit respondents to add what they perceived to be sources of occupational stress unique to their positions as vocational and technical education teachers. A specimen of the strength-only form of the TSI with the open response form is provided in Appendix C.

Validity of the TSI

Based on nonempirical articles about teacher stress and available measures of teacher burnout, an original item pool of 135 stems was reduced through a process of

content, factorial, and construct validation. To establish content validity, five samples of 226 responding experts provided data once each in one of five summers (Fimian, 1987). An "expert" was defined as one who was knowledgeable about teacher stress and burnout. Each had (1) authored one or more stress articles, monographs or books; (2) conducted quantitative, qualitative, and/or combination stress research; and/or (3) conducted stress management workshops for practitioners.

Interrater reliability correlations were calculated to assess the degree of congruence among the experts' ratings (Fimian, 1988b). These correlations ranged from 0.0 (total lack of correspondence) to 1.0 (perfect agreement) among raters. All item-level correlations exceeded the .05 (2 items), .01 (6 items), and .001 (41 items) probability levels. Subscale and scale levels using the newly defined "factors" of the final form of the TSI were then examined. Reliabilities ranged from a low of .42 to a high of .72. A reliability of .82 was determined for the Total TSI.

Reliability Analysis of the TSI

The alpha or internal consistency reliability is a widely used measure of reliability. As a guide, it allows researchers to assess the degree to which test items within a scale or subscale are interconnected and blend together. If the alpha reliability estimate that represents how the test items relate to one another is lower than desirable, then there is less internal consistency within a body of items. The higher the degree of consistency exhibited by the response pattern across test items, the higher the alpha reliability.

The TSI has been shown to be a reliable measure of stress for public school teachers. Factor reliability estimates ranged from a low of .80 on Professional Investment to a high of .91 on Gastronomic Manifestations. The remaining eight factor estimates fell in the .80s. With all (100%) of the estimates at or above .80, it

is apparent that the research participants responded to the TSI in a consistently reliable fashion. Table I on page 35 details the internal consistency of the TSI. Names, total item numbers, and alpha reliability estimates for each factor are presented.

Further data have shown the TSI to be adequately reliable in terms of its split-half, test-retest, and alternate forms reliability estimates. Consequently, the TSI can be used for both research and other field purposes, as well as for making group-to-group and individual-to-group comparisons (Fimian, 1987).

TSI Test Norms And Interpretation

A number of methods can be utilized to assist teachers and researchers in determining where TSI tests scores fit into the overall picture of occupational stress. One method used to determine whether teachers were experiencing significantly weaker or stronger stress than the typical teacher was to make a direct comparison of total stress scores and factor scores to those yielded by an aggregate norm group of 3,401 teachers. To determine the stress levels experienced by teachers in vocational and technical education, the direct comparison to normative data was employed.

With respect to the significance levels of the "total stress" score, teachers' scores can be compared to the cut-off points established by the norm group. The TSI Total Stress Strength Scale and range of significance levels of "total stress" scores are presented in Table II on page 36. Teachers scoring in the 1.93 or below range for total stress are considered to be experiencing a "significantly weak" level of occupational stress. Teachers scoring in the 1.94 to 3.27 range are considered to be experiencing a "moderate" level of occupational stress. Teachers scoring in the 3.28 or above range are considered to be experiencing a "significantly strong" level of occupational stress. A total stress score at the "significantly strong" level should be considered a potential problem.

TABLE I

TSI FACTOR ALPHA RELIABILITY ESTIMATES

TSI Deminsions/ Factors	Number of Items	Reliability Coefficients
Stress Sources		
Work-Related Stressors	6	0.85
Time Management	8	0.87
Professional Distress	5	0.85
Discipline and Motivation	6	0.84
Professional Investment	4	0.80
Stress Manifestations		
Emotional Manifestations	5	0.88
Fatigue Manifestations	5	0.86
Cardiovascular Manifestations	5	0.82
Gastronomic Manifestations	3	0.91
Behavioral Manifestations	4	0.81

Fimian, M. J. (1988a). The alpha and split-half reliability of the Teacher Stress Inventory. Psychology in the Schools, 25(2), 110-118.

TABLE II

TSI TOTAL STRESS MEAN SCORE RANGES
BY SIGNIFICANCE LEVELS

TSI Total Stress Strength Scale	Low Score	High Score
Significantly Strong Stress Level	3.28	5.00
Moderate Stress Level	1.94	3.27
Significantly Weak Stress Level	1.00	1.93

N = 3,401

Cut-off points for significance levels were set at ± 1 standard deviation around the sample mean.

Fimian, M. J. (1988b). Teacher stress inventory. Brandon, VT: Clinical Psychology Publishing Co., Inc.

With regard to significance levels of the ten stress factor scores, these scores can also be compared to (1) the average or mean score, (2) significantly high scores, and/or (3) significantly low scores for the entire norm sample. The high and low cut-off points and mean scores for the TSI factors are presented in Table III on page 38. These cut-off points were based on one mean score and standard deviation derived for each of the ten factors. One standard deviation above the mean signified significantly strong stress and one standard deviation below the mean indicated significantly weaker stress. A score at the higher end of either factor was considered a potential problem.

Research Design

The total population (N = 2,255) of vocational and technical education teachers in Oklahoma was stratified into two subgroups: (1) AVTS teachers; and (2) CHS teachers. Both subgroups were almost equally represented with 1,038 teachers (46%) representing the Area Vocational and Technical Schools and 1,217 teachers (54%) representing the Comprehensive High Schools. To achieve a 95% level of confidence, sample size was determined by the formula developed by Krejcie and Morgan (1970). From the total population (N = 2,255), a sample size (S) of 331 was determined to be acceptable. To strengthen the representative nature of the stratified population, proportional sampling was employed. Representing the AVTS subgroup population (N_1 = 1,038), the AVTS sample (S_1) was established at 152 subjects. Representing the CHS subgroup population (N_2 = 1,217), the CHS sample (S_2) was established at 179 subjects.

TABLE III

HIGH-LOW CUT-OFF POINTS AND MEAN SCORES FOR THE TSI FACTORS

TSI Dimensions/ Factors	Low Score	High Score	Mean
Sources of Stress			
Work-Related Stressors	2.20	4.10	3.20
Time Management	2.40	4.00	3.30
Professional Distress	2.00	4.20	3.00
Discipline and Motivation	1.80	4.00	3.00
Professional Investment	1.50	3.70	2.80
Manifestations of Stress			
Emotional Manifestations	1.40	3.80	2.60
Fatigue Manifestations	1.40	3.10	2.40
Cardiovascular Manifestations	1.00	3.00	1.70
Gastronomic Manifestations	1.00	3.00	1.30
Biobehavioral Manifestations	1.00	2.00	1.20

Fimian, M. J. (1988b). Teacher stress inventory. Brandon, VT: Clinical Psychology Publishing Co., Inc.

Each subject selected was voluntarily surveyed once during the second nine-weeks of the Fall, 1995 school semester. Paper and pencil procedures were used. An introductory letter, an example of which is shown in Appendix A, the survey instruments, and a self-addressed, stamped return envelope was distributed to each potential respondent. Obligatory precautions were taken to ensure anonymity of each respondent.

Statistical Procedures

Mean and standard deviation values were calculated for each of the 49 test items and the ten stress factors. These calculations permitted indentification and ranking of the sources and manifestations of occupational stress experienced by vocational and technical education teachers in Oklahoma.

Data were analyzed by *t*-tests and one-way analyses of variance (ANOVA). Comparisons were made between selected variables. Dependent variables were the degree of strength of various sources and manifestations of stress. The independent variables examined were teachers' characteristics which included: age, gender, level of education, teaching experience, business or industry work experience prior to teaching, school classification, student level taught, and size population of the area where their school was located.

To test for significant differences among mean scores after the *t*-tests and one-way analysis of variance, a Duncan's Multiple Range post hoc test was administered. The post hoc test identified where significant differences among the mean scores were located.

For each of the statistical tests employed, the alpha was established at the .05 level. Statistical analyses were performed using the Statistical Analysis System (1992) computer program.

Summary

Teachers in vocational and technical education in Oklahoma were represented in this study and were selected at random from teachers in Area Vocational-Technical Schools and Comprehensive High Schools. The instruments used in this study were the Vocational Educators Demographic Data Sheet (VEDDS), developed for this study to collect demographic data, and the Teacher Stress Inventory (TSI), an instrument that has been proven reliable and valid for measuring strength and frequency of occupational stress experienced by teachers. Due to the adequate relationship between the strength and frequency dimensions, the strength-only form was used in this study. An open response form was incorporated to collect data concerning sources of stress unique to the teaching discipline. The Statistical Analysis System computer program was used to analyze the frequency and degree relationships between the dependent and the independent variables.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

This study investigated the sources and manifestations of occupational stress perceived by teachers in vocational and technical education in Oklahoma. Participating teachers responded to a 49 item inventory designed to rate the degree of impact experienced on identified stressors in order to reach an overall total stress level. The participants rated their perceptions on a 5-point Likert-type scale ranging from 1 (No Strength-Not Noticeable) to 5 (Major Strength-Extremely Noticeable).

The study noted the relationship between vocational and technical education teachers' perceived degree of job stress and reported demographic variables. The study also identified, utilizing an open form type response, the sources of stress vocational and technical education teachers perceived to be unique to their teaching discipline.

The information obtained from the data generated by this study is organized into the following sections: Demographic Data, Teaching Environment Data, Statistical Treatment of the Data, and Open Form Responses. The results, statistical analysis, and interpretation of the data are arranged sequentially to answer each stated research question set forth in Chapter I. To evaluate the results, means and standard deviations of test item were calculated, and *t*-tests and one-way analysis of variance procedures were employed at the .05 level of confidence.

Demographic Data

Survey instruments were mailed to 331 teachers selected at random from a total population of 2,255 vocational and technical education teachers in Oklahoma. One hundred seventy-one usable questionnaires were returned, representing a return rate of 51.7 percent.

Respondents to the survey were requested to provide selected personal data and information pertaining to their local teaching environment. The data requested included age, gender, highest level of education achieved, years of teaching experience in vocational or technical education, years of work experience in business or industry prior to teaching, school classification, level of students taught, and size population of the area in which their school was located. The demographic characteristics of the respondents are shown in Table IV, beginning on page 43.

The respondent group was comprised of 11 (6.43%) teachers 20 to 29 years of age, 52 (30.41%) teachers 30 to 39 years of age, and 73 (42.69%) teachers 40 to 49 years of age. Thirty-five (20.47%) teachers reported being 50 years of age or older.

Concerning gender, 80 (46.78%) of the teacher respondents were male. Ninety-one (53.22%) teacher respondents were female.

With regard to the highest level of education achieved, eight (4.68%) teacher respondents reported having achieved no degree but had attended some college, and 10 (5.85%) teachers reported having earned an Associates's Degree. A Bachelor's Degree was reported as being achieved by 76 (44.44%) teachers. Twenty-six (15.20%) teacher respondents had achieved a Master's Degree and 51 (29.83%) teachers reported having continued their education beyond a Master's Degree. None of the responding teachers reported having achieved a Doctorate Degree.

Total years of teaching experience in vocational or technical education were reported as follows: 36 (21.05%) teachers reported five years or less experience

TABLE IV

DEMOGRAPHIC DATA OF VOCATIONAL AND TECHNICAL EDUCATION TEACHERS

Demographic Variable Code	Frequency	Percent
Age		
20-29 Years	11	6.43
30-39 Years	52	30.41
40-49 Years	73	42.69
50 + Years	35	20.47
Gender		
Male	80	46.78
Female	91	53.22
Highest Level of Education Achieved		
Some College	8	4.68
Associate's Degree	10	5.85
Bachelor's Degree	76	44.44
Master's Degree	26	15.20
Master's Degree +	51	29.83
Years Teaching in Vocational or Technical Education		
1-5 Years	36	21.05
6-10 Years	42	24.56
11-15 Years	32	18.71
16-20 Years	33	19.30
21 + Years	28	16.38
Years Work Experience Prior to Teaching		
None	40	23.39
1-5 Years	61	35.67
6-10 Years	36	21.05
11-15 Years	16	9.36
16-20 Years	12	7.02
21 + Years	6	3.51

TABLE IV (Continued)

Demographic Variable Code	Frequency	Percent
School Classification		
Area Vocational-Technical School	79	46.20
Comprehensive High School	92	53.80
Level of Students Taught		
High school students	113	66.08
Adult students	20	11.70
Both significantly represented	38	22.22
Size Population Where School is Located		
Rural area - less than 10,000	88	51.46
Small town - 10,000 to 20,000	27	15.79
Suburban area - 20,000 to 50,000	27	15.79
Urban area - over 50,000	29	16.96

N = 171

teaching in vocational or technical education. Forty-two (24.56%) teachers, the largest single group, reported 6 to 10 years of teaching experience. Thirty-two (18.71%) reported having 11 to 15 years experience in teaching, and 33 (19.30%) teachers reported having taught for 16 to 20 years. Twenty-eight (16.38%) respondents reported 21 or more years of teaching experience.

When asked the number of years of work experience in business or industry prior to teaching in vocational or technical education, teachers responded with the following data. Forty (23.39%) teachers reported having had no prior work experience before entering teaching. Sixty-one (35.67%) teachers reported 1 to 5 years of work experience, 36 (21.05%) teachers reported having worked 6 to 10 years, 16 (9.36%) teachers reported having worked 11 to 15 years, and 12 (7.02%) teachers had worked for 16 to 20 years. Six (3.51%) teachers reported having worked 21 or more years in business or industry prior to becoming a teacher in vocational or technical education.

Of the teachers that responded to the survey, 79 (46.20%) reported teaching in an Area Vocational-Technical School. Ninety-two (53.80%) teachers reported teaching in Comprehensive High Schools.

One-hundred-thirteen (66.08%) teachers indicated that the students they were teaching predominantly high school students, and 20 (11.70%) teachers signified their students were adults. Thirty-eight (22.22%) teachers reported that both high school students and adult students were significantly represented in their classes.

Respondents reported the size population of the area where their schools were located. Eighty-eight (51.46%) teachers reported teaching in rural areas (country or town with population less than 10,000 people). Twenty-seven (15.79%) respondents reported teaching in small towns (population between 10,000 and 20,000 people). Twenty-seven (15.79%) teachers indicated their schools were located in suburban areas (populations between 20,000 and 50,000 people). Twenty-nine (16.96%) teachers reported teaching in urban areas (population larger than 50,000 people).

Teaching Environment Data

The demographic data sheet concluded with nine questions relating to the teacher respondent's perceptions of the general working conditions of their local teaching environments. Respondents were asked to disclose how many hours per day they devoted to teaching, was their professional training for teaching adequate, have their views of teaching become negative since they began teaching, do they receive support from the administration and staff in dealing with occupational stress, do peers provide mental and/or emotional support to one another, have they attended any programs specifically related to occupational stress, and would they leave teaching if another job opportunity arose. Respondents were also asked the degree to which they were satisfied with their teaching job and to what degree they found their job stressful. Data pertaining to the respondent's local teaching environment are shown in Table V, beginning on page 47.

When asked to disclose how many hours each day, including preparation, were devoted to teaching, respondents replied in the following manner: 7 (4.09%) teachers reported devoting 2 to 4 hours per day; 21 (12.28%) devoted 5 to 7 hours per day; 82 (47.95%) devoted 8 to 9 hours per day; 55 (32.16%) devoted 10 to 12 hours per day; and 1 (0.58%) teacher devoted 13 or more hours per day. Five (2.92%) teachers did not respond to this question. The average time devoted to teaching by all vocational and technical education teachers responding was eight and one-half hours each day.

Respondents were asked if, in their judgement, their professional training adequately prepared them for teaching. Eighty-nine (52.05%) teachers, representing more than one-half of the respondents, did not feel they had received adequate professional training for teaching. Eighty-one (47.37%) felt they had received adequate professional training to prepare them for teaching. One (0.58%) teacher did not respond to the question.

TABLE V

TEACHING ENVIRONMENT DATA OF VOCATIONAL AND TECHNICAL EDUCATION TEACHERS

Question/Response		Frequency	Percent
Q9.	How many hours per day do you devote to teaching, including preparation?		
	2-4 Hours	7	4.09
	5-7 Hours	21	12.28
	8-9 Hours	82	47.95
	10-12 Hours	55	32.16
	13 + Hours	1	0.58
	No Response	5	2.92
Q10.	In your judgement, did your professional training adequately prepare you for teaching?		
	Yes	89	52.05
	No	81	47.37
	No Response	1	0.58
Q11.	Have your view of teaching become negative since you begin teaching?		
	Yes	60	35.09
	No	109	63.74
	No Response	2	1.17
Q12.	Does your supervisory or administrative staff take an active role in helping you deal with occupational stress?		
	Yes	76	44.44
	No	93	54.39
	No Response	2	1.17
Q13.	Do you and your peers provide mental and/or emotional support to one another when needed?		
	Yes	153	89.47
	No	18	10.53

TABLE V (Continued)

Question/Response		Frequency	Percent
Q14.	Have you attended any workshops, classes, or in-service programs specifically related to occupational stress prior to answering this survey?		
	Yes	74	43.27
	No	97	56.73
Q15.	Would you leave teaching and take another job if the opportunity arose?		
	Yes	92	53.80
	No	78	45.62
	No Response	1	0.58
Q16.	To what degree are you satisfied with your job?		
	1. Very Little	1	0.58
	2.	8	4.69
	3. Moderately	61	35.67
	4.	68	39.77
	5. Very Much	33	19.29
Q17.	To what degree do you find your job stressful?		
	1. Very Little	2	1.17
	2.	9	5.26
	3. Moderately	51	29.82
	4.	68	39.77
	5. Very Much	41	23.98

N = 171

In response to the question to determine if their views of teaching had become negative since they began teaching, 60 (35.09%) teachers reported that their attitudes toward teaching had become negative. One-hundred-nine (63.74%) teachers reported that their attitudes toward teaching had not become negative. Two (1.17%) teachers gave no response to this question.

Respondents were asked if their supervisory or administrative staff took an active and supportive role in helping them deal with occupational stress. Seventy-six (44.44%) responded yes, 93 (54.39%) responded no, and two (1.17%) teachers did not respond to this question.

When asked if they and their peers provided mental and/or emotional support to one another when needed, a convincing majority of 153 (89.47%) teachers indicated they did receive and/or provide such support. Eighteen (10.53%) teachers reported they did not receive and/or provide such support.

Respondents were asked if they had attended any professional training programs specifically related to occupational stress prior to responding to the survey. Seventy-four (43.27%) teachers reported they had received such training, 97 (56.73%) teachers reported they had not.

When asked if they would leave teaching and take another job if the opportunity arose, 92 (53.80%) teachers indicated they would leave teaching for another job. Seventy-eight (45.62%) teachers indicated they would not leave teaching for another job, and one (0.58%) teacher gave no response to this question.

Respondents were asked the degree to which they were satisfied with their teaching job. They were asked to rank their satisfaction on a 5-point scale of 1 (Very Little) to 5 (Very Much). Responding teachers answered in the following manner: one (0.58%) teacher responded 1 (Very Little); eight (4.69%) teachers responded 2; 61 (35.67%) teachers responded 3 (Moderately); 68 (39.77%) teachers responded 4, and 33 (19.29%) teachers responded 5 (Very Much).

Responding teachers were asked to what degree they found their job stressful by ranking their perceptions on a 5-point scale of 1 (Very Little) to 5 (Very Much). Respondents answered in the following manner: two (1.17%) teachers reported 1 (Very Little); nine (5.26%) teachers reported 2; 51 (29.82%) reported 3 (Moderately); 68 (39.77%) teachers reported 4; and 41 (23.98%) teachers reported 5 (Very Much).

Statistical Treatment of Data

To answer the research questions, various statistical procedures were employed. Means and standard deviations were calculated for each of the TSI's 49 tests items to determine the individual sources and manifestations of occupational stress experienced by teachers in vocational and technical education in Oklahoma. Means and standard deviations of total stress scores and the ten stress factor scores were calculated to determine the extent of total stress and the sources and manifestations of stress experienced by these teachers. Mean total stress scores were also compared to total stress scores significance levels established by a norm group.

To determine if the total stress and stress factor scores varied significantly across the selected variables, *t*-tests and one-way analysis of variance (ANOVA) were employed. Where calculated values revealed significant differences at the established .05 alpha level, a Duncan's Mulitple Range post hoc tested was applied to determine where within the variable those differences occured.

Research Question Number One

Research question number one was proposed to determine the sources and manifestations of occupational stress experienced by teachers in vocational and technical education in Oklahoma. To answer this question, means and standard

deviations of the 49 TSI test items were calculated. The items were then ranked by mean scores.

Means, Standard Deviations and Rank of TSI Test Items

A group mean, standard deviation, and rank were computed for each test item. The mean scores for the group ranged from a high of 4.04 on "I feel there is too much administrative paperwork in my job" (Item 6), to a low of 1.15 on "I respond to stress by using alcohol" (Item 31). The following sources and manifestations of stress ranked as the top ten.

1. Item 6 - "There is too much administrative paperwork in my job."
2. Item 44 - "I have to try doing more than one thing at a time."
3. Item 3 - "I feel that I have too much to do."
4. Item 46 - "I have little time to relax and enjoy the time of day."
5. Item 49 - "I feel uncomfortable wasting time."
6. Item 43 - "There isn't enough time to get things done."
7. Item 47 - "I easily overcommit myself."
8. Item 19 - "Certain students would do better if they tried harder."
9. Item 18 - "Attempting to teach students who are poorly motivated."
10. Item 2 - "Personal priorities are short-changed due to time demands."

The standard deviation score represents the measure of dispersion of a distribution and provides information regarding the extent of individual differences on a given measure. "I respond to stress with feelings of increased blood pressure" (Item 32) exhibited the greatest variance for all respondents with a standard deviation of 1.41. "I respond to stress by using alcohol" (Item 31) had the least variance for the total group with a standard deviation of 0.52. Table VI, on page 52, presents the means, standard deviations, and rank of the 49 TSI test items for all respondents.

TABLE VI

MEANS, STANDARD DEVIATIONS, AND RANK OF TSI TEST ITEM MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS

TSI Item	Sources and Manifestations of Stress	M	SD	Rank
6.	Too much administrative paperwork.	4.04	1.10	1
44.	Having to do more than one thing.	3.87	1.17	2
3.	Too much work to do.	3.81	1.16	3t
46.	Little time to relax during the day.	3.81	1.23	3t
49.	Feeling uncomfortable about wasted time.	3.75	1.32	5
43.	Not having time to complete things.	3.74	1.24	6
47.	Becoming easily overcommitted.	3.69	1.13	7
19.	Teaching students who should try harder.	3.63	1.21	8
18.	Teaching students who are poorly motivated.	3.60	1.21	9
2.	Personal priorities are being short-changed.	3.50	1.17	10
45.	Becoming impatient with others.	3.39	1.19	11
36.	Physical exhaustion.	3.32	1.27	12
1.	Little time to prepare.	3.30	1.19	13
16.	Having to constantly monitor student behavior.	3.22	1.30	14t
26.	Feeling anxious.	3.22	1.25	14t
48.	Thinking about unrelated things at once.	3.17	1.23	16
12.	Receive an inadequate salary.	3.12	1.29	17
7.	Lack promotion or advancement opportunities.	2.94	1.38	18
25.	Feeling depressed.	2.92	1.40	19
10.	Lack of recognition.	2.89	1.34	20

TABLE VI (Continued)

TSI Item	Sources and Manifestations of Stress	M	SD	Rank
5.	Pace of the school day is too fast.	2.83	1.09	21
13.	Lack of control over school decisions.	2.78	1.32	22t
21.	Authority rejected by students or administrators.	2.78	1.40	22t
4.	Classload is too big.	2.74	1.23	24
41.	Procrastinating.	2.64	1.38	25
20.	Inadequate or poorly defined discipline policies.	2.62	1.20	26
9.	Need for more status and respect.	2.54	1.29	27
8.	Not progressing in job.	2.49	1.17	28
38.	Becoming tired in a short time.	2.48	1.29	29
37.	Physical weakness.	2.46	1.25	30
17.	Discipline problems in my classroom.	2.43	1.11	31
11.	Attitudes and opinions remain unheard.	2.34	1.15	32t
23.	Feeling unable to cope.	2.34	1.18	32t
42.	Rushing in one's speech.	2.34	1.12	32t
33.	Feelings of heart pounding or racing.	2.32	1.35	35
24.	Feeling vulnerable.	2.30	1.17	36
15.	Lack of promotional opportunities.	2.14	1.14	37
14.	Lack of on-the-job stimulation.	2.13	0.97	38
22.	Feeling insecure.	2.07	1.08	39
39.	Stomach acid.	2.06	1.39	40
32.	Feelings of increased blood pressure.	2.00	1.41	41
40.	Sleeping more than usual.	1.91	1.23	42

TABLE VI (Continued)

TSI Item	Sources and Manifestations of Stress	M	SD	Rank
34.	Stomach pain of extended duration.	1.63	0.98	43
35.	Stomach cramps.	1.57	0.96	44
30.	Rapid or shallow breathing.	1.53	1.00	45
28.	Using prescription drugs.	1.28	0.87	46
27.	Calling in sick.	1.19	0.61	47t
29.	Using over the counter drugs.	1.19	0.54	47t
31.	Using alcohol.	1.15	0.52	49

t = represents a tie in item ranking.

Research Questions Number Two

Research question number two was proposed to determine the extent of occupational stress experienced by vocational and technical education teachers in Oklahoma. To answer this question, group means and standard deviations of total stress and stress factor scores were compared and stress factor scores were ranked. A comparison of total stress mean scores was made to the established total stress "significance levels". To determine if significant differences existed between total stress and stress factor scores across the selected demographic variables, *t*-tests and analysis of variance were computed. Mean scores for total stress and the ten stress factors were then compared across the selected demographic variables.

Comparisons of Mean Scores and Standard Deviations of Scores

Mean scores and standard deviations of total stress and stress factor scores for the respondent group were examined to determine the strength of stress experienced by vocational and technical education teachers. A group mean score of 2.52 was determined for total stress with a standard deviation of 0.57. Stress factors were then ranked by mean scores. Mean stress sources scores for the group ranged from a high of 3.49 on Time Management to a low of 2.37 on Professional Investment. Mean stress manifestations scores for the group ranged from a high of 2.61 on Fatigue Manifestations to a low of 1.21 on Behavioral Manifestations. Standard deviations ranged from 0.43 on Behavioral Manifestations to 1.02 on Cardiovascular Manifestations. The means, standard deviations and rank of total stress and stress factor scores of responding vocational and technical education teachers are presented in Table VII on page 56.

TABLE VII

MEANS, STANDARD DEVIATIONS, AND RANK OF STRESS FACTOR MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS

TSI Factor	N	M	SD	Rank
Stress Sources				
Time Management	171	3.49	0.83	1
Work Related Stressors	171	3.37	0.86	2
Discipline and Motivation	171	3.02	0.92	3
Professional Distress	171	2.80	1.00	4
Professional Investment	171	2.37	0.90	5
Stress Manifestations				
Emotional Manifestations	171	2.58	0.96	2
Fatigue Manifestations	171	2.61	0.93	1
Cardiovascular Manifestations	171	2.03	1.02	3
Gastronomic Manifestations	171	1.76	0.94	4
Behavioral Manifestations	171	1.21	0.43	5
Total Stress	171	2.52	0.57	

Comparison of Mean Stress Scores to Established Significance Levels

Mean total stress scores of teacher respondents were compared to significance levels established by a norm group of 3,401 teachers (Fimian, 1988b). The mean scores of 25 (14.62%) teachers fell in the 1.93 or below range, signifying a "significantly weak" level of stress. The mean scores of 131 (76.61%) teachers fell in the 1.94 to 3.27 range, signifying a "moderate" level of stress. The mean scores of 15 (8.77%) teachers fell in the 3.28 or above range, signifying a "significantly strong" level of stress. The frequency and percentage of total stress scores of all vocational and technical education teacher respondents by significance levels are presented in Table VIII on page 58.

Mean stress factor scores were compared to mean levels calculated for the norm group. Mean stress factor scores for vocational and technical education teachers were higher than those of the norm group on: Work-Related Stressors, Time Management, Discipline and Motivation, Fatigue Manifestations, Cardiovascular Manifestations, Gastronomic Manifestations, and Biobehavioral Manifestations. Mean stress factor scores for vocational and technical education teachers were lower than those of the norm group on: Discipline and Motivation, Professional Investment, and Emotional Manifestations. Mean stress factor scores of the norm group were presented in Table III on page 38.

t-Test and Analysis of Variance

To determine if significant differences existed between the calculated mean scores for total stress and the sources and manifestations of stress factors across the demographic variable, *t*-test and one-way analysis of variance were computed. The findings are presented by age, gender, level of education, years of teaching

TABLE VIII

TOTAL STRESS SCORE SIGNIFICANCE LEVELS FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS

Total Stress Strength Scale	Frequency	Percent
Significantly Strong Stress Level (3.28 or above)	15	8.77
Moderate Stress Level (1.94 to 3.27)	131	76.61
Significantly Weak Stress Level (1.93 or below)	25	14.62

experience, years of work experience prior to teaching, school classification, level of students, and size population of school location.

Age. Question number one in the Vocational Educators Demographic Data Sheet (VEDDS) asked the respondents to indicate their age. The question was designed to classify the respondents into four age categories. Respondents were classified as follows: 11 respondents indicated they were 20 to 29 years of age; 52 respondents indicated they were 30 to 39 years of age; 73 respondents indicated they were 40 to 49 years of age; and 35 respondents indicated they were 50 years old or over. After the means for total stress and the sources and manifestations of stress factors were sorted by the age variable, a one-way analysis of variance was computed.

Analysis of variance revealed that no significant differences existed in vocational and technical education teachers' perceptions of total stress with regard to age. Values computed on total stress for the age variable are presented in Table IX on page 60.

Analysis of variance revealed a significant difference existed at the .05 level in vocational and technical education teachers' perceptions of the stress factor Time Management with regard to age. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents in the 20 to 29 years of age category and those in the 50 years of age or over category. The mean scores were noted to be 3.67 and 3.13 respectively. A significant difference also existed between respondents in the 40 to 49 years of age category and those 50 years of age or over category. The mean scores were noted to be 3.60 and 3.13 respectively.

A significant difference was shown to exist at the .05 level in vocational and technical education teachers' perceptions of the stress factor Cardiovascular Manifestations with regard to age. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents in the 40 to 49 years of age category and those in the 50 years of age or over category. The mean scores

TABLE IX

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY AGE

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	1.35	3	0.45	1.38	0.25			
Within	54.48	167	0.33					
Total	55.84	170						
Group								
20-29 Years						11	2.56	0.46
30-39 Years						52	2.60	0.57
40-49 Years						73	2.55	0.61
50 + Years						35	2.35	0.61

were 2.24 and 1.60 respectively. Values computed on the sources and manifestations of stress factors for the age variable are presented in Table G-I in Appendix G.

Gender. Question number two in the VEDDS asked the respondents to indicate their gender. Eighty respondents indicated they were male and 91 indicated they were female. After the means for total stress and the sources and manifestations of stress factors were sorted by the gender variable, *t* tests were computed to test for differences.

The computed values for total stress were not significant at the selected .05 level. Therefore, no significant differences existed in vocational and technical education teachers' perceptions of total stress with regard to gender. Values computed on total stress for the gender variable are presented in Table X on page 62.

The computed values for the sources and manifestations of stress at the .05 level indicated no significant differences existed in vocational and technical education teachers' perceptions of the sources and manifestations of stress with regard to gender. Values computed on the sources and manifestations of stress factors for the gender variable are presented in Table F-I in Appendix F.

Level of Education. Question number three in the VEDDS asked the respondents to indicate their level of education. The question was designed to classify the respondents into seven possible level of education categories. Respondents were classified under five of those categories as follows: eight respondents indicated they had Some College; 10 respondents indicated they had an Associate's Degree; 76 respondents indicated they had a Bachelor's Degree; 26 respondents indicated they a Master's Degree; and 51 respondents indicated they had a Master's Degree plus additional years of education. None of the respondents reported having only a High School Diploma or having achieved a Doctorate Degree. After the means for total stress and the sources and manifestations of stress factors were sorted by the level of education variable, a one-way analysis of variance was computed.

TABLE X

t-TEST FOR DIFFERENCES IN TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY GENDER

TSI Scale/ Variable Code	N	M	SD	t	p
Total Stress					
Male	80	2.53	0.58	0.05	0.96
Female	91	2.52	0.57		

Analysis of variance revealed that no significant differences existed at the .05 level of vocational and technical education teachers' perceptions of total stress with regard to level of education. Values computed on total stress for the level of education variable are presented in Table XI on page 64.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of the sources and manifestations of stress with regard to level of education. Values computed on the sources and manifestations of stress factors for the level of education variable are presented in Table G-II in Appendix G.

Years of Teaching Experience. Question number four in the VEDDS asked the respondents to indicate their years of teaching experience in vocational and technical education. The question was designed to classify the respondents into five years of teaching categories. Respondents were classified as follows: 36 indicated they had been teaching 1 to 5 years; 42 indicated they had been teaching 6 to 10 years; 32 indicated they had been teaching 11 to 15 years; 33 indicated they had been teaching 16 to 20 years; and 28 indicated they had been teaching more than 20 years. After the means for total stress and the sources and manifestations of stress factors were sorted by the years of teaching variable, a one-way analysis of variance was computed.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of total stress with regard to years of teaching experience. Values computed on total stress for the years of teaching experience variable are presented in Table XII on page 65.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of the sources and manifestations of stress with regard to years of teaching experience. Values computed on the sources and manifestations of stress factors for the years of teaching experience variable are presented in Table G-III in Appendix G.

TABLE XI

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF EDUCATION

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	1.08	4	0.27	0.82	0.51			
Within	54.75	166	0.33					
Total	55.84	170						
Group								
Some College						8	2.24	0.53
Associate's Degree						10	2.69	0.45
Bachelor's Degree						76	2.49	0.60
Master's Degree						26	2.53	0.63
Master's Degree +						51	2.58	0.53

TABLE XII

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY TEACHING EXPERIENCE

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	1.48	4	0.36	1.11	0.35			
Within	54.38	166	0.33					
Total	55.84	170						
Group								
1-5 Years						36	2.40	0.56
6-10 Years						42	2.68	0.44
11-15 Years						32	2.51	0.59
16-20 Years						33	2.55	0.68
20 + Years						28	2.46	0.60

Years of Work Experience. Question number five in the VEDDS asked the respondents to indicate how many years of work experience they had in business or industry prior to teaching. The question was designed to classify the respondents into six categories. Respondents were classified as follows: 40 respondents indicated they had no prior work experience; 61 respondents indicated they had 1 to 5 years prior work experience: 36 respondents indicated they had 6 to 10 years prior work experience; 16 respondents indicated they had 11 to 15 years prior work experience; 12 respondents indicated they had 16 to 20 years prior work experience; and six respondents indicated they had more than 20 years work experience. After the means for total stress and the sources and manifestations of stress factors were sorted by the years of work experience variable, a one-way analysis of variance was computed.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of total stress with regard to years of work experience. Values computed on total stress for the years of work experience variable are presented in Table XIII on page 67.

Analysis of variance revealed a significant difference existed at the .05 level in vocational and technical education teachers' perceptions of the stress factor Cardiovascular Manifestations with regard to years of work experience. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents with no years of work experience and those with 20 or more years of work experience. The mean scores were noted to be 2.39 and 1.39 respectively. Values computed on the sources and manifestations of stress factors for the years of work experience variable are presented in Table G-IV in Appendix G.

School Classification. Question number six in the VEDDS asked the respondents to indicate their school classification. The question was designed to classify the respondents into six categories. Respondents were classified as follows: 79 respondents indicated they were Area Vocational-Technical School teachers and 92

TABLE XIII

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY WORK EXPERIENCE

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	2.97	5	0.59	1.86	0.10			
Within	52.86	165	0.32					
Total	55.84	170						
Group								
None						40	2.65	0.70
1-5 Years						61	2.60	0.51
6-10 Years						36	2.41	0.51
11-15 Years						16	2.49	0.46
16-20 Years						12	2.19	0.67
20 + Years						6	2.35	0.43

indicated they were Comprehensive High School teachers. After the means for total stress and the sources and manifestations factors were sorted by the school classification variable, *t* tests were computed to test for differences.

The computed values for total stress were not significant at the selected .05 level. Therefore, no significant differences existed in vocational and technical education teachers' perceptions of total stress with regard to school classification. Values computed on total stress for the school classification variable are presented in Table XIV on page 69.

The computed values for the sources and manifestations factors at the .05 level revealed that a significant difference existed in vocational and technical education teachers' perceptions of the stress source Professional Distress with regard to school classification. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents teaching in Comprehensive High Schools and those teaching in Area Vocational-Technical Schools. The mean scores were noted to be 2.98 and 2.58 respectively.

Values computed for the sources and manifestations factors at the .05 level revealed that a significant difference existed in vocational and technical education teachers' perceptions of the stress source Discipline and Motivation with regard to school classification. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents teaching in Comprehensive High Schools and those teaching in Area Vocational-Technical Schools. The mean scores were noted to be 3.20 and 2.81 respectively. Values computed for the stress factors for the school classification variable are presented in Table F-II in Appendix F.

Level of Students. Question number seven in the VEDDS asked the respondents to indicate the level of students they were teaching. The question was designed to classify the respondents into three categories. Respondents were classified as follows: 113 respondents indicated they were teaching high school students;

TABLE XIV

t-TEST FOR DIFFERENCES IN TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SCHOOL CLASSIFICATION

TSI Scale/ Variable Code	N	M	SD	t	p
Total Stress					
Area Vocational-Technical Schools	79	2.46	0.52	1.25	0.21
Comprehensive High Schools	92	2.57	0.61		

20 respondents indicated they were teaching adult students; and 38 respondents indicated that high school students and adult students were both significantly represented in their classes. After the means for total stress and the sources and manifestations factors were sorted by the level of students variable, a one-way analysis of variance was computed.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of total stress with regard to level of students. Values computed on total stress for the years of work experience variable are presented in Table XV on page 71.

Analysis of variance revealed a significant difference existed at the .05 level in vocational and technical education teachers' perceptions of the stress factor Professional Distress with regard to level of students. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents teaching high school students only and those teaching adult students only. The mean scores were noted to be 2.93 and 2.38 respectively.

Analysis of variance also revealed a significant difference existed at the .05 level in vocational and technical education teachers' perceptions of the stress factor Discipline and Motivation with regard to level of students. A Duncan's Multiple Range post hoc test procedure indicated a significant difference between respondents teaching high school students only and those teaching adults students only. The mean scores were noted to be 3.15 and 2.22 respectively. Values computed on the sources and manifestations of stress factors for the level of students variable are presented in Table G-V in Appendix G.

Size Population of School Location. Question number eight in the VEDDS asked the respondents to indicate the size population of the location of their schools. The question was designed to classify the respondents into four categories. Respondents were classified as follows: 88 respondents indicated their schools were

TABLE XV

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF STUDENTS

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	1.12	2	0.56	1.71	0.18			
Within	54.72	168	0.33					
Total	55.84	170						
Group								
High School Students						113	2.56	0.61
Adult Students						20	2.30	0.50
Both Represented						38	2.54	0.46

located in Rural Areas (in the country or a town of less than 10,000 population); 27 respondents indicated their schools were located in Small Towns (population between 10,000 and 20,000); 27 respondents indicated their schools were located in Suburban Areas (a city with a population of over 20,000 but less than 50,000); and 29 respondents indicated their schools were located in Urban Areas (a city with over 50,000 population). After the means for total stress and the sources and manifestations of stress factors were sorted by the size population of school location variable, a one-way analysis of variance was computed.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of total stress with regard to population of school location. Values computed on total stress for the population of school location variable are presented in Table XVI on page 73.

Analysis of variance revealed that no significant differences existed at the .05 level in vocational and technical education teachers' perceptions of the sources and manifestations of stress with regard to population of school location. Values computed on the sources and manifestations of stress factors for the population of school location variable are presented in Table G-VI in Appendix G.

Comparisons of Mean Scores Across the Selected Demographic Variables

Mean total stress and stress factor scores of responding vocational and technical educations teachers in Oklahoma were compared across the selected demographic variables. Direct comparisons were made to ascertain whether these teachers were experiencing significantly stronger or significantly weaker stress with regard to age, gender, level of education, years of teaching experience, years of work experience, school classification, level of students, and size population of schools' location.

TABLE XVI

ANALYSIS OF VARIANCE ON TOTAL STRESS SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SIZE POPULATION OF SCHOOL LOCATION

TSI Scale/ Variable Code	SS	df	MS	F	p	N	M	SD
Total Stress								
Source								
Between	0.50	3	0.17	0.51	0.69			
Within	55.33	167	0.33					
Total	55.84	170						
Group								
Rural Area						88	2.56	0.60
Small Town						27	2.44	0.55
Suburban Area						27	2.45	0.57
Urban Area						29	2.54	0.52

With regard to age, teachers in the 30 to 39 years of age range recorded the highest mean total stress score of 2.60. Teachers 20 to 29 years of age recorded a mean total score of 2.56, and teachers 40 to 49 years of age had a mean total score of 2.55. The lowest mean total stress score of 2.35 was calculated for teachers in the 50 years of age or over category.

With regard to gender, the mean total stress score for males was calculated at 2.53. An insignificantly lower mean total stress score of 2.52 was calculated for female teachers.

Concerning level of education, teachers with an Associate's Degree recorded the highest mean total stress score of 2.68. Teachers with a Master's Degree plus recorded a mean total stress score of 2.58, teachers with a Master's Degree, but no additional education, recorded a mean total score of 2.54, and teachers with a Bachelor's Degree recorded a mean total stress score of 2.49. Teachers with some college but no degree recorded the lowest mean total stress score of 2.24.

With regard to years of teaching experience, teachers with 6 to 10 years experience recorded the highest mean total stress score of 2.68. Teachers with 16 to 20 years of experience recorded a mean total stress score of 2.55, teachers with 11 to 15 years of experience recorded a mean total score of 2.51, and teachers with 20 or more years of teaching experience recorded a mean total stress score of 2.46. Teachers with 1 to 5 years, the fewest years of teaching experience within the variable, had a mean total stress score of 2.30, the lowest among the variable category.

Concerning years of work experience, teachers with no work experience recorded a mean total stress score of 2.65. Teachers with 1 to 5 years of teaching experience recorded a mean total stress score of 2.60, teachers with 6 to 10 years or work experience recorded a mean total stress score of 2.41, and teachers with 11 to 15 years of work experience had a mean total stress score of 2.49; teachers with 20 or

more years of work experience had a mean stress score of 2.35. Teachers with 16 to 20 years of work experience had a the lowest mean total stress score of 2.19.

Concerning school classification, the mean total stress score for Comprehensive High School teachers was calculated at 2.57. Area Vocational-Technical School teachers recorded a mean total stress score of 2.46.

With regard to level of students taught, teachers with only high school students recorded a mean total stress score of 2.56, and teachers having both high school and adult students represented in their classes recorded a mean total stress score of 2.54. A mean total stress score of 2.30 was calculated for teachers having adult students only.

With regard to size population of school location, those teaching in Rural Areas (population less than 10,000) recorded the highest mean total stress score of 2.56. Teachers in Urban Areas (population over 50,000) recorded a mean stress score of 2.54, and teachers in Suburban Areas (population between 20,000 and 50,000) had a mean total stress score of 2.45. Teachers in Small Towns (population between 10,000 and 20,000) had the lowest mean total stress score for this category of 2.44.

Comparisons of mean total stress scores across the selected variables are presented in Table XVII, beginning on page 76. Comparisons of the ten stress factor mean scores across the variables are presented in Tables H-I through H-VIII in Appendix H.

Open Response Form

Research Question Number Three

Research question number three was proposed to determine the sources of occupational stress that vocational and technical education teachers in Oklahoma

TABLE XVII

COMPARISONS OF MEAN TOTAL STRESS SCORES FOR VOCATIONAL TECHNICAL EDUCATION TEACHERS BY SELECTED VARIABLES

Variable/ Variable Code	N	Total Stress
Age		
20-29 Years	11	2.56
30-39 Years	52	2.60
40-49 Years	73	2.55
50 + Years	35	2.35
Gender		
Male	80	2.53
Female	91	2.52
Level of Education		
Some College	8	2.24
Associate's Degree	10	2.68
Bachelor's Degree	76	2.49
Master's Degree	26	2.54
Master's Degree +	51	2.58
Years of Teaching Experience		
1-5 Years	36	2.30
6-10 Years	42	2.68
11-15 Years	32	2.51
16-20 Years	33	2.55
20 + Years	28	2.46
Years of Work Experience		
None	40	2.65
1-5 Years	61	2.60
6-10 Years	36	2.41
11-15 Years	16	2.49

TABLE XVII (Continued)

Variable/ Variable Code	N	Total Stress
Years of Work Experience (continued)		
16-20 Years	12	2.19
20 + Years	6	2.35
School Classification		
Area Vocational Technical School	79	2.46
Comprehensive High School	92	2.57
Level of Students		
High School Students	113	2.56
Adult Students	20	2.30
Both Significantly Represented	38	2.54
Size Population of School Location		
Rural Area	88	2.56
Small Town	27	2.44
Suburban Area	27	2.45
Urban Area	29	2.54

perceived to be unique to their teaching discipline. Participants in the survey were requested to list these sources on an open response form. Of the 171 teachers responding to the survey, 120, representing 70.18% of the respondent group, provided meaningful responses to answer the research question.

The sources of stress that teachers in vocational and technical education in Oklahoma perceived to be unique to their discipline cited most often were related to the following categories:

1. Students lack basic reading, writing and math skills.
2. Vocational student organizations.
3. School administrations.
4. Educational conferences.
5. Advisory committees.

A comprehensive list of all responses deemed relevant to sources of occupational stress unique to vocational and technical education teachers in Oklahoma is presented in Appendix I. Comments submitted by respondents that were not deemed relevant to the research question are presented seperately as Unsolicited Comments in Appendix J.

Summary

This chapter analyzed and discussed data obtained from the Vocational Educators Demographic Data Sheet and the Teacher Stress Inventory. The data were obtained from responding vocational and technical education teachers in Oklahoma and were organized into demographic data, teaching environment data, and statistical treatment of the data.

The demographic data solicited information that permitted classification of respondents according to age, gender, level of education, years of teaching

experience, years of work experience, school classification, level of students taught, and size of area where schools were located. The teaching environment data contributed information about the respondents local teaching environment relevant to occupational stress.

Statistical treatment of the data consisted of determining means, standard deviations, and ranking of the TSI test items and the ten stress factor scores. Comparisons were made between total stress and stress factor mean scores obtained from this study and those established by a norm group. To determine if differences existed in stress scores across the selected variables, *t*-test and one-way analysis of variance were employed. Comparisons were made between total stress and the ten stress factor scores across the demographic variables.

Data gathered from the open form responses submitted by the respondents determined the principal sources of occupational stress that vocational and technical education teachers perceived to be unique to their teaching discipline. These responses were categorized under seven representational headings.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

In the interest of motivating, training and maintaining teaching professionals, occupational stress was an important consideration to be assessed. That occupational stress was present in the lives of some classroom teachers proved to be a certainty. The possibility that it exists at excessive levels among teachers was cause for concern. Consequentially, it has become an area of interest to educational researchers. Numerous findings concerning occupational stress and its negative influence in the workplace have been reported in the literature. Evidence concerning occupational stress and its affects on the regular classroom teacher has been well documented and convincing. However, limited attention had been directed toward reporting the presence and impact of occupational stress experienced by teachers in vocational and technical education. The sources of stress unique to this teaching discipline have not been identified.

Summary

As set forth in Chapter I, the purpose of this study was threefold. First, the study investigated the sources and manifestations of occupational stress perceived by vocational and technical education teachers in Oklahoma. Second, the study

determined the degree that occupational stress was experienced by these teachers. Finally, the study identified sources of stress that are unique to this teaching discipline.

The review of the literature contained six areas encapsulating occupational stress. Those areas included defining stress, the burnout phenomenon, the sources of occupational stress, the manifestations of occupational stress, demographic variables that have led to occupational stress, and stress intervention strategies. Additionally, an overview of vocational and technical education and its teachers was provided.

The subjects for this study were vocational and technical education teachers that were teaching in Comprehensive High Schools and Area Vocational-Technical Schools in Oklahoma. From a total population of 2,255, survey instruments were mailed to 331 randomly selected subjects. One hundred seventy-one usable instruments were completed and returned.

The instruments used in this study were the Vocational Educators Demographic Data Sheet (VEDDS) and the Teacher Stress Inventory (TSI). The VEDDS was administered to gather demographic data and data pertaining to the local teaching environment. The TSI was administered to ascertain the sources and manifestations of occupational stress. It contained 49 closed-end questions which asked respondents to rank their perceptions on a 5-point, Lichert type scale ranging from 1 (No Strength/Not Noticeable) to 5 (Major Strength/Extremely Noticeable). Teachers were also requested to indicate, in an open form response format, the sources of occupational stress they believed to be unique to their teaching discipline.

Findings

From the TSI, the principal stressors contributing to the overall occupational stress of vocational and technical education teachers in Oklahoma were determined to

be: (1) too much administrative paperwork; (2) trying to do more than one thing at a time; (3) feeling that they have too much to do; (4) having little time to relax and enjoy the time of day; (5) feeling uncomfortable about wasting time; (6) there isn't enough time to get things done; (7) easily overcommitting oneself; (8) certain students would do better if they tried harder; (9) attempting to teach students who are poorly motivated; and (10) personal priorities are short-changed due to time demands. The primary stress factor contributing to overall stress was that of Time Management.

Teachers often identify too much clerical work or time-consuming duties not directly associated with teaching as leaders among their many complaints. Woods (1979) also agreed that teachers had too much to do and not enough time with which to accomplish their assigned responsibilities. Excessive paperwork and time constraints as primary sources of stress were findings in agreement with Maslach (1982) who contended that overload was the common denominator in educational environments that lead to stress and burnout. The lack of time to accomplish teaching duties can lead to frustration and feelings of failure and ineffectiveness. These, in turn, can lead to stress and eventually to burnout (Abramson, et al., 1978).

The TSI test items ranked least were: (1) using alcohol; (2) using over the counter drugs; (3) calling in sick; and (4) using prescription drugs. Behavioral Manifestations was the lowest ranking stress factor. These finding did not agree with previous research into the effects of stress and the elected methods of coping. However, these findings were consistent with those of Parham (1988) who proposed that respondents were either not bothered with the predictable ways in which stress manifests itself or were unwilling to document its manifestations in what might appear to be unacceptable ways of coping.

The data from this study also revealed that vocational and technical education teachers in Oklahoma, as a group, were experiencing "moderate" levels of occupational stress. Fifteen teachers were discovered to be experiencing "significantly

strong" levels of occupational stress, which was cause for concern. It was interesting to note that when asked in the environment data questionnaire to rate the degree to which they found their job stressful, all but eleven of the responding teachers rated their stress as "moderate" or stronger. Noteworthy too, of those experiencing "significantly strong" levels of stress, 14 were Comprehensive High School teachers. Only one was an Area Vocational-Technical School teacher.

The assignment of *t*-tests and one-way analysis of variance to test scores determined that no significant differences existed on total stress regardless of age, gender, level of education, years of teaching experience, years of work experience prior to teaching, school classification, level of students being taught, or size population of the community where the school was located. However, significant differences were found to exist on specific stress factors across certain variables.

Younger teachers, those in the 20 to 29 years of age category, and teachers in the 40 to 49 years of age category, were found to be experiencing significantly higher levels of stress on the Time Management and Cardiovascular Manifestations test factors than those in the 50 years of age or over category. Likewise, Fimian (1987) and Berg (1994) discovered that stress experienced by younger teachers was significantly stronger than older teachers, especially those over 50 years of age. The findings of Gold (1985) and Schwab and Iwanicki (1982) indicated that younger teachers experienced greater amounts of emotional exhaustion. The inability to manage time in a demanding environment led to exhaustion, both physical and emotional. Mental tensions led to emotional exhaustion and were among the most damaging stressors, and, as Selye (1974) explained, they have been shown to lead to cardiovascular problems.

Teachers with no work experience in business or industry prior to teaching experienced significantly stronger levels of stress on the Cardiovascular Manifestations test factor than did those teachers with 20 or more years of work experience. This

finding was congruent with the report of Scrivens (1979) that teachers entering the teaching profession from other careers were among the most content. The report suggested that prior work experience helped them cope with stress and, therefore, stress related cardiovascular problems would be minimized.

Teachers with high school students were found to experience significantly stronger levels of stress on the Professional Distress and Discipline and Motivation test factors than those teaching adult students only. Those teaching in Comprehensive High Schools were found to be experiencing significantly stronger levels on the same two factors than did those teaching in Area Vocational-Technical Schools. Managing disruptive students has been well documented as being among the top-ranked items in teacher stress surveys (Cichon & Koff, 1980; Sutton, 1984; Kyriacou & Sutcliffe, 1978), lending support to the finding of this study. However, no previous research was located that studied the relationship between the level of students taught or the school classifications and the Professional Distress or Discipline and Motivation stress factors.

Data generated by this study also discovered that a majority of vocational and technical education teachers in Oklahoma had never attended any workshops, classes, or in-service programs specifically related to occupational stress. This finding was supported by Berg (1994) who concluded that education has done little on the issue of stress intervention. The level of occupational stress experienced by the teachers responding to this study would perhaps have been lower than "moderate" if appropriate intervention strategies had been implemented.

A disturbing finding was that a majority of vocational and technical education teachers in Oklahoma would leave teaching and take another job if the opportunity arose. This discovery parallels the findings of Jackson, et al., (1986) and Sparks (1979) that most teachers preferred jobs unrelated to education and would not choose teaching as a career if they had the option to choose again.

Qualitative data derived from this study identified sources of stress that vocational and technical education teachers in Oklahoma perceived to be unique to their teaching discipline. The principal sources were determined to be: students entering vocational programs deficient in basic reading, writing and math skills; vocational student organizations; school administrations; educational conferences; and advisory committees.

Claggett (1980) reported that the increase in under-prepared students was one of the most frequently cited stress generators by teachers. For many vocational and technical education teachers, the need to develop sound reading, writing and math skills required valuable time away from job training. Cichon & Koff (1980), Farber (1991) and Leffel (1989) reported that among the most highly ranked sources of stress experienced by teachers, administration ranked number one. The conclusions of these investigations offer definite similarities with the findings of this study. No substantiating research was found concerning the relationship between educational conferences and occupational stress. Vocational student organizations and vocational advisory committees were components exclusive to vocational and technical education. No data evaluating their impact upon occupational stress was uncovered from prior research.

Conclusions

It was concluded from this study that vocational and technical education teachers in Oklahoma experience occupational stress similarly to teachers in other educational disciplines. Universally recognized and accepted sources and manifestations of occupational stress are decisively comparable. It was also concluded that vocational and technical education teachers in Oklahoma experience occupational stress stemming from sources unique to their teaching discipline. The distinctive

sources that contribute to the overall stress of these teachers are vocational student organizations and advisory committees.

It seems appropriate, from the findings of this study, to conclude that the stress intervention strategies that have been implemented and proven successful in other teaching disciplines can also be utilized to assist vocational and technical education teachers in Oklahoma to cope with and alleviate occupational stress.

Data from the open response form indicated that school administrations have a notable impact upon the occupational stress experienced by vocational and technical education teachers in Oklahoma. Therefore, it may be concluded that administrative personnel must be more involved in the day to day activities of teachers and be more attentive to the teachers' needs. Administrators must become attuned to the issues related to occupational stress and make commitments to provide the support necessary to assist teachers in developing coping strategies and alleviating this serious problem.

Younger vocational and technical education teachers in Oklahoma experience stronger levels of stress related to time management and experience stronger cardiovascular manifestations than do older teachers. The ability to manage time in a demanding environment is gained through experience; experience which many younger teachers have yet to obtain. The conclusion was therefore drawn that the inability of younger teachers to manage time, which leads to frustration, emotional exhaustion, and eventually to cardiovascular problems, was true for vocational and technical education teachers in Oklahoma.

Somewhat related to the above, vocational and technical education teachers in Oklahoma that had not been employed full-time in business or industry prior to teaching do experience stronger cardiovascular manifestations than do teachers with many years of prior work experience. From this finding, it was concluded that the progression of events that induces cardiovascular symptoms, stemming from the lack

of experience in coping with occupational stress gained in the workplace, was true for vocational and technical education teachers in Oklahoma.

Stress levels for vocational and technical education teachers in Oklahoma are alarmingly high. The level of impact that occupational stress has upon these teachers prompted a majority to declare that they would prefer being in an occupation other than teaching. The conclusion was thus made that many vocational and technical education teachers in Oklahoma reluctantly remain in their teaching positions to the detriment of all concerned, especially the students. Unless timely and appropriate action is taken, this dilemma will be prolonged.

Recommendations

This study has provided information concerning the sources and manifestations of occupational stress experienced by teachers in vocational and technical education teachers in Oklahoma. The information presented should be beneficial to persons involved in decisions regarding pre-service and in-service educational program design for these teachers. Such persons might include Area Vocational-Technical School administrators, Comprehensive High School administrators, common school administrators, administrators of the Oklahoma Department of Vocational and Technical Education, teacher educators, teachers, politicians, and concerned citizens.

The following recommendations are offered:

1. Occupational stress should be understood for the physiological harm it may cause. Common health related symptoms, such as irritability, depression, sleeping problems, headaches, and stomach disorders, are often not recognized as initial symptoms of occupational stress. Consequently, many teachers do not seek help or share their problems with others. These early symptoms, if untreated, may escalate to more debilitating physical and emotional problems.

2. Vocational and technical education teachers should be considered similarly with other teachers with regard to their perceptions of occupational stress and the sources and manifestations encompassed within the construct of occupational stress.

3. Acknowledgment and sincere consideration should be given to the perceptions that vocational and technical education teachers have concerning the sources of occupational stress considered unique to their discipline.

4. The results of this and other studies should be conscientiously considered by those having input into the decisions regarding pre-service and in-service teacher education programs. Training programs which focus upon intervention strategies for occupational stress should be selected or developed and then implemented to assist vocational and technical education teachers in alleviating occupational stress. Time management training programs should also be selected or developed and then implemented to assist vocational and technical education teachers with controlling one the leading sources of occupational stress.

5. Serious attention should be given to this study and other such research involving occupational stress of teachers. Administrative and supervisory personnel should review conscientiously the findings, discussion, and recommendations of this and other studies to gain a better understanding of these concerns as they affect all teaching professionals.

The following recommendations are offered for further research:

1. Subsequent research should expand this study to a larger sample of vocational and technical education teachers. The larger sample should include teachers from various geographic regions of the country.

2. Subsequent research should replicate this study to examine the perceived sources and manifestations of occupational stress, the extent of occupational stress, and unique stress sources among teachers in Vocational Skills Centers and Jr High-Middle School vocational and technical education programs in Oklahoma.

3. Subsequent research should determine the impact that occupational stress experienced by vocational and technical education teachers may have upon the learning outcomes of their students. The relationship between teacher stress and student anxiety and performance should be an integral part of such a study.

4. Subsequent research should endeavor to design, validate and analyze for reliability a test instrument expressly for vocational and technical education teachers to measure the sources, manifestations and overall occupational stress experienced by these teachers.

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APPENDIXES

APPENDIX A

INTRODUCTORY LETTER TO TEACHERS

Kenneth G. Milner
801 North Star Drive
Stillwater, OK 74075-3818

November 30, 1995

Dear Vocational/Technical Education Teacher;

I am a graduate student at Oklahoma State University presently involved in research concerning occupational stress experienced by Oklahoma's vocational and technical education teachers. Through a random sample selection process, you were selected to be a participant in this research.

Would you please take time out of your busy schedule to complete the enclosed questionnaire? It includes a Vocational Educators Demographic Data Sheet and a Teacher Stress Inventory. It should take little more than 20 minutes to complete. The data they will provide is relevant to my research, and, I believe, to vocational and technical education and its teachers.

The information that you specifically provide will be confidential. All that is required is the statistical data that the survey instruments disclose. The investigative process preserves anonymity, therefore, names will not appear on the survey instruments nor will they be used in tabulations.

Please return the completed questionnaires by December 10, 1995. A self-address, stamped envelope is provided. The results of the study will be available to you upon request.

Thank you very much for contributing to this important research project and for your valuable time in helping with this effort.

Sincerely;

Kenneth Milner
Graduate Student
Occupational & Adult Education

APPENDIX B

VOCATIONAL EDUCATORS DEMOGRAPHIC DATA SHEET

VOCATIONAL EDUCATORS DEMOGRAPHIC DATA SHEET

In this section, I would like to know about you, your previous education, and your teaching experience. Then I would like to find out about your present position and your perceptions of your present position. Please read each statement or question carefully and respond by marking or providing the most appropriate answer, as indicated. Your responses will be kept confidential.

1. What is your age?

   A. ____ 20-29.
   B. ____ 30-39.
   C. ____ 40-49.
   D. ____ 50 or over.

2. What is your gender?

   A. ____ Male.
   B. ____ Female.

3. What is the highest level of education you have achieved?

   A. ____ High School Diploma.
   B. ____ Some College.
   C. ____ Associates Degree.
   D. ____ Bachelor's Degree.
   E. ____ Master's Degree.
   F. ____ Master's Degree plus.
   G. ____ Doctorate.

4. How many years have you been teaching in vocational or technical education?

   A. ___ Years.

5. How many years did you work in business or industry prior to becoming a vocational teacher?

   A. ___ Years.

6. In what school classification do you teach?

   A. ____ Area Vo/Tech.
   B. ____ Comprehensive High School.

7. What level of students do you teach predominately?

   A. ____ High School Students.
   B. ____ Adult Students.
   C. ____ Both are significantly represent.

8. In what size population area is your school located?

   A. ____ Rural area - in the country or town of less than 10,000.
   B. ____ A small town - 10,000 to 20,000.
   C. ____ A suburban area - city over 20,000.
   D. ____ An urban area - city over 50,000.

9. How many hours per day do you devote to teaching, including preparation?

   A. ____ Hours.

10. In your judgement, did your previous training adequately prepare you for teaching?

    A. ____ Yes.
    B. ____ No.

11. Have your views of teaching become negative since you began teaching?

    A. ____ Yes.
    B. ____ No.

12. Does your supervisory or administrative staff take an active and supportive role in helping you deal with on-the-job stress?

    A. ____ Yes.
    B. ____ No.

13. Do you and your peers provide mental and/or emotional support to one another when needed?

    A. ____ Yes.
    B. ____ No.

14. Have you attended any workshops, classes, or in-service programs specifically related to on-the-job stress prior to answering this survey?

    A. ____ Yes.
    B. ____ No.

15. Would you leave teaching and take another job if the opportunity arose?

A. ____ Yes.
B. ____ No.

16. To what degree are you satisfied with your job? Circle your response.

1	2	3	4	5
Very Little		Moderately		Very Much

17. To what degree do you find your job stressful? Circle your response.

1	2	3	4	5
Very Little		Moderately		Very Much

APPENDIX C

TEACHER STRESS INVENTORY

TEACHER STRESS INVENTORY

The following are a number of sources and manifestations of stress commonly cited in the stress literature. Please identify those factors which cause you stress or which may result in stress in your teaching situation. Read each statement and decide if you ever feel this way. If you have experienced this feeling, indicate HOW STRONG the feeling is when you experience it by circling the appropriate number on the 5-point Strength Scale.

STRENGTH SCALE:

1 No Strength - Not Noticeable
2 Mild Strength - Barely Noticeable
3 Medium Strength - Moderately Noticeable
4 Great Strength - Very Noticeable
5 Major Strength - Extremely Noticeable

PERSONAL - PROFESSIONAL STRESSORS

"I feel that . . ."		HOW STRONG?				
1.	there is little time to adequately prepare for lessons and other teaching responsibilities.	1	2	3	4	5
2.	my personal priorities are being short-changed due to time demands.	1	2	3	4	5
3.	I have too much too do.	1	2	3	4	5
4.	my class-load is too big.	1	2	3	4	5
5.	the pace of the school day is too fast.	1	2	3	4	5
6.	there is too much administrative paperwork in my job.	1	2	3	4	5

PROFESSIONAL DISTRESS

"I feel that . . ."		HOW STRONG?				
7.	I lack promotion and/or advancement opportunities.	1	2	3	4	5
8.	I am not progressing in my job as rapidly as I would like.	1	2	3	4	5
9.	I need more status and respect on my job.	1	2	3	4	5
10.	I lack recognition for the extra or good teaching I do.	1	2	3	4	5
11.	My personal attitudes, opinions, and values are not given significant airing in my classroom or school.	1	2	3	4	5
12.	I receive an inadequate salary for the work I do.	1	2	3	4	5
13.	I lack control over decisions made about matters in my classroom or school.	1	2	3	4	5
14.	I am not adequately emotionally and intellectually stimulated on the job.	1	2	3	4	5
15.	I lack opportunities for professional improvement.	1	2	3	4	5

DISCIPLINE AND MOTIVATION

"I feel frustrated . . ."		HOW STRONG?				
16.	because I have to constantly monitor pupil behavior.	1	2	3	4	5
17.	because of discipline problems in my classroom.	1	2	3	4	5
18.	attempting to teach students who are poorly motivated.	1	2	3	4	5
19.	because certain students of mine would do better if they only tried harder.	1	2	3	4	5
20.	because of inadequate or poorly defined discipline policies in my school.	1	2	3	4	5
21.	whenever my authority is rejected by pupils and/or administration.	1	2	3	4	5

EMOTIONAL MANIFESTATIONS

"I respond to stress by . . ."	HOW STRONG?				
22. feeling insecure.	1	2	3	4	5
23. feeling unable to cope.	1	2	3	4	5
24. feeling vulnerable.	1	2	3	4	5
25. feeling depressed.	1	2	3	4	5
26. feeling anxious.	1	2	3	4	5

BIOBEHAVIORAL MANIFESTATIONS

"I respond to stress by/with . . ."	HOW STRONG?				
27. calling in sick.	1	2	3	4	5
28. using prescription drugs.	1	2	3	4	5
29. using over-the-counter drugs.	1	2	3	4	5
30. rapid and/or shallow breath.	1	2	3	4	5
31. using alcohol.	1	2	3	4	5
32. feelings of increased blood pressure.	1	2	3	4	5
33. feelings of heart pounding or racing.	1	2	3	4	5

PHYSIOLOGICAL FATIGUE MANIFESTATIONS

"I respond to stress by/with . . ."	HOW STRONG?				
34. stomach pain of extended duration.	1	2	3	4	5
35. stomach cramps.	1	2	3	4	5
36. physical exhaustion.	1	2	3	4	5

"I respond to stress by/with . . ."		HOW STRONG?				
37.	physical weakness.	1	2	3	4	5
38.	becoming fatigued in a very short time.	1	2	3	4	5
39.	stomach acid.	1	2	3	4	5
40.	sleeping more than usual.	1	2	3	4	5
41.	procrastinating.	1	2	3	4	5

TIME MANAGEMENT

"I feel that . . ."		HOW STRONG?				
42.	I rush in my speech.	1	2	3	4	5
43.	There isn't enough time to get things done.	1	2	3	4	5
44.	I have to try doing more than one thing at a time.	1	2	3	4	5
45.	I become impatient if others do things too slowly.	1	2	3	4	5
46.	I have little time to relax and enjoy the time of day.	1	2	3	4	5
47.	I easily overcommit myself.	1	2	3	4	5
48.	I think about unrelated matter during conversations.	1	2	3	4	5
49.	I feel uncomfortable wasting time.	1	2	3	4	5

ADDITIONAL SOURCES OF STRESS

On the following page, identify the sources occupational stress not listed in the 49 items above that you believe are unique to you and your position as a teacher in vocational or technical education. This information is vital and crucial to the study. Please list and rank them according to the Strength Scale.

SOURCES OF STRESS THAT ARE UNIQUE TO YOU AS A VOCATIONAL/TECHNICAL EDUCATION TEACHER

"I feel that . . ." HOW STRONG?

APPENDIX D

TEACHER STRESS INVENTORY BY FACTORS

TABLE D

THE TEN TSI FACTORS AND THEIR ABBREVIATED ITEM STEMS

Factor Item/Abbreviated Item Stem
Work-Related Stress
1. Little time to prepare
2. Personal priorities are being shortchanged
3. Too much work to do
4. Class-load is too big
5. Pace of school day is too fast
6. Too much administrative paperwork
Time Management
42. Rushing in one's speech
43. Not having time to complete things
44. Having to do more than one things
45. Becoming impatient with others
46. Little time to relax during day
47. Becoming easily overcommitted
48. Thinking about unrelated things at once
49. Feeling uncomfortable about wasted time
Professional Distress
7. Lack of promotion or advancement opportunities
8. Not progressing rapidly in job
9. Need for more status and respect
10. Lack of recognition
12. Receive an inadequate salary
Discipline and Motivation
16. Having to constantly monitor student behavior
17. Discipline problems in my classroom
18. Teaching students who are poorly motivated
19. Teaching students who should try harder
20. Inadequate or poorly defined discipline policies
21. Authority rejected by students or administrators
Professional Investment
11. Attitudes and opinions remain unheard
13. Lack of control over school decisions
14. Lack of on-the-job stimulation
15. Lack of promotional opportunities

TABLE D (Continued)

Factor Item/Abbreviated Item Stem
Emotional Manifestations
22. Feeling insecure
23. Feeling unable to cope
24. Feeling vulnerable
25. Feeling depressed
26. Feeling anxious
Fatigue Manifestations
36. Physical exhaustion
37. Physical weakness
38. Becoming tired in a short time
40. Sleeping more than usual
41. Procrastinating
Cardiovascular Manifestations
30. Rapid or shallow breathing
32. Feelings of increased blood pressure
33. Feelings of heart pounding or racing
Gastronomic Manifestations
34. Stomach pain of extended duration
35. Stomach cramps
39. Stomach acid
Behavioral Manifestations
27. Calling in sick
28. Using prescription drugs
29. Using over-the-counter drugs
31. Using alcohol

APPENDIX E

TSI ITEM NUMBERS, ABBREVIATED ITEMS, ITEM MEANS, AND STANDARD DEVIATIONS FOR THE TEN-FACTOR SOLUTION

TABLE E

TSI ITEM NUMBERS, ABBREVIATED ITEMS, ITEM MEANS AND STANDARD DEVIATION FOR THE TEN-FACTOR SOLUTION

Item	Abbreviated Item Stem	M	SD
	Factor I - Professional Investment		
11.	Attitudes and opinions remain unheard	2.6	1.3
13.	Lack of control over school decisions	3.0	1.4
14.	Lack of on-the-job stimulation	2.5	1.3
15.	Lack of promotional opportunities	2.7	1.4
	Factor II - Behavioral Manifestations		
27.	Calling in sick	1.5	1.0
28.	Using prescription drugs	1.4	1.0
29.	Using over-the-counter drugs	1.4	0.9
31.	Using alcohol	1.4	0.9
	Factor III - Time Management		
42.	Rushing in one's speech	2.4	1.3
43.	Not having time to complete things	3.5	1.3
44.	Having to do more than one things	3.6	1.2
45.	Becoming impatient with others	3.1	1.2
46.	Little time to relax during day	3.7	1.2
47.	Becoming easily overcommitted	3.2	1.3
48.	Thinking about unrelated things at once	2.8	1.2
49.	Feeling uncomfortable about wasted time	3.6	1.3
	Factor IV - Discipline and Motivation		
16.	Having to constantly monitor student behavior	3.0	1.4
17.	Discipline problems in my classroom	2.7	1.3
18.	Teaching students who are poorly motivated	3.3	1.3
19.	Teaching students who should try harder	3.2	1.3
20.	Inadequate or poorly defined discipline policies	2.7	1.4
21.	Authority rejected by students, staff, or administrators	2.7	1.4
	Factor V - Emotional Manifestations		
22.	Feeling insecure	2.5	1.3
23.	Feeling unable to cope	2.4	1.3
24.	Feeling vulnerable	2.4	1.3
25.	Feeling depressed	2.8	1.3
26.	Feeling anxious	3.0	1.3

TABLE E (Continued)

Item	Abbreviated Item Stem	M	SD
	Factor VI - Work-Related Stress		
1.	Little time to prepare	3.1	1.3
2.	Personal priorities are being shortchanged	3.3	1.3
3.	Too much work to do	3.4	1.2
4.	Class-load is too big	2.8	1.4
5.	Pace of school day is too fast	2.7	1.3
6.	Too much administrative paperwork	3.7	1.3
	Factor VII - Gastronomic Manifestations		
34.	Stomach pain of extended duration	1.7	1.1
35.	Stomach cramps	1.7	1.1
39.	Stomach acid	1.9	1.3
	Factor VIII - Cardiovascular Manifestations		
30.	Rapid or shallow breathing	1.6	1.1
32.	Feelings of increased blood pressure	1.9	1.3
33.	Feelings of heart pounding or racing	2.1	1.3
	Factor IX - Fatigue Manifestations		
36.	Physical exhaustion	3.0	1.4
37.	Physical weakness	2.1	1.3
38.	Becoming tired in a short time	2.6	1.4
40.	Sleeping more than usual	2.2	1.3
41.	Procrastinating	2.6	1.3
	Factor X - Professional Distress		
7.	Lack of promotion or advancement opportunities	2.9	1.5
8.	Not progressing rapidly in job	2.5	1.4
9.	Need for more status and respect	3.0	1.4
10.	Lack of recognition	3.3	1.4
12.	Receive an inadequate salary	3.7	1.4

Means are based on the following scale: 1 = no strength, not noticeable; 3 = medium strength, moderately noticeable; 5 = major strength, extremely noticeable.

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APPENDIX F

t-TEST ON THE TEN STRESS FACTOR SCORES FOR VOCATONAL AND TECHNICAL EDUCATION TEACHERS BY SELECTED VARIABLES

TABLE F-I

t-TEST ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY GENDER

TSI Factor/Variable Code	N	M	SD	t	p
		Stress Sources			
Work-Related Stressors					
Male	80	3.28	0.83	1.28	0.20
Female	91	3.45	0.87		
Time Management					
Male	80	3.41	0.78	1.08	0.28
Female	91	3.55	0.88		
Professional Distress					
Male	80	2.85	1.00	0.70	0.48
Female	91	2.75	1.01		
Discipline and Motivation					
Male	80	3.12	0.87	1.31	0.19
Female	91	2.93	0.95		
Professional Investment					
Male	80	2.47	0.90	1.35	0.18
Female	91	2.29	0.89		

TABLE F-I (Continued)

TSI Factor/Variable Code	N	M	SD	t	p
		Stress Manifestations			
Emotional Manifestations					
Male	80	2.45	0.93	1.69	0.09
Female	91	2.70	0.97		
Fatigue Manifestations					
Male	80	2.49	0.95	1.61	0.11
Female	91	2.72	0.90		
Cardiovascular Manifestations					
Male	80	2.09	1.07	0.65	0.52
Female	91	1.98	0.98		
Gastronomic Manifestations					
Male	80	1.87	1.05	1.41	0.16
Female	91	1.66	0.84		
Behavioral Manifestations					
Male	80	1.23	0.47	0.60	0.55
Female	91	1.19	0.39		

TABLE F-II

t-TEST ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SCHOOL CLASSIFICATION

TSI Factor/Variable Code	N	M	SD	t	p
		Stress Sources			
Work-Related Stressors					
Area Vocational/Technical Schools	79	3.43	0.80	0.91	0.01
Comprehensive High Schools	92	3.31	0.90		
Time Management					
Area Vocational/Technical Schools	79	3.38	0.81	1.53	0.13
Comprehensive High Schools	92	3.58	0.85		
Professional Distress					
Area Vocational/Technical Schools	79	2.58	0.98	2.63	0.01
Comprehensive High Schools	92	2.98	0.98		
Discipline and Motivation					
Area Vocational/Technical Schools	79	2.81	0.94	2.77	0.01
Comprehensive High Schools	92	3.20	0.87		
Professional Investment					
Area Vocational/Technical Schools	79	2.29	0.92	1.12	0.26
Comprehensive High Schools	92	2.45	0.88		

TABLE F-II (Continued)

TSI Factor/Variable Code	N	M	SD	t	p
		Stress Manifestations			
Emotional Manifestations					
Area Vocational/Technical Schools	79	2.57	0.85	0.20	0.84
Comprehensive High Schools	92	2.60	1.05		
Fatigue Manifestations					
Area Vocational/Technical Schools	79	2.61	0.90	0.07	0.94
Comprehensive High Schools	92	2.62	0.96		
Cardiovascular Manifestations					
Area Vocational/Technical Schools	79	1.97	0.96	0.72	0.47
Comprehensive High Schools	92	2.08	1.08		
Gastronomic Manifestations					
Area Vocational/Technical Schools	79	1.81	0.95	0.61	0.54
Comprehensive High Schools	92	1.72	0.94		
Behavioral Manifestations					
Area Vocational/Technical Schools	79	1.19	0.36	0.38	0.70
Comprehensive High School	92	1.22	0.48		

APPENDIX G

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SELECTED VARIABLES

TABLE G-I

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY AGE

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	0.56	3	0.19	0.25	0.86			
Within	123.73	167	0.74					
Total	124.29	170						
Group								
20-29 Years						11	3.51	0.91
30-39 Years						52	3.42	0.82
40-49 Years						73	3.33	0.82
50+ Years						35	3.31	0.98
Time Management								
Source								
Between	5.87	3	1.96	2.91	0.04			
Within	112.39	167	0.67					
Total	118.26	170						
Group								
20-29 Years						11	3.67	0.94
30-39 Years						52	3.60	0.70
40-49 Years						73	3.55	0.83
50+ Years						35	3.13	0.92

TABLE G-I (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	1.94	3	0.65	0.64	0.59			
Within	168.02	167	1.01					
Total	170.00	170						
Group								
20-29 Years						11	2.73	0.85
30-39 Years						52	2.92	1.04
40-49 Years						73	3.34	0.82
50 + Years						35	3.31	0.98
Discipline and Motivation								
Source								
Between	2.30	3	0.77	0.90	0.68			
Within	141.37	167	0.85					
Total	143.67	170						
Group								
20-29 Years						11	3.24	0.92
30-39 Years						52	3.15	0.96
40-49 Years						73	2.93	0.91
50 + Years						35	2.95	0.88

TABLE G-I (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	1.21	3	0.40	0.50	0.68			
Within	135.65	167	0.81					
Total	136.86	170						
Group								
20-29 Years						11	2.23	0.95
30-39 Years						52	2.36	0.86
40-49 Years						73	2.33	0.89
50 + Years						35	2.53	0.98
Stress Manifestations								
Emotional Manifestations								
Source								
Between	2.36	3	0.79	0.85	0.47			
Within	154.51	167	0.93					
Total	156.87	170						
Group								
20-29 Years						11	2.61	0.71
30-39 Years						52	2.70	1.00
40-49 Years						73	2.60	0.93
50 + Years						35	2.37	1.03

TABLE G-I (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	3.65	3	1.22	1.42	0.24			
Within	142.64	167	0.85					
Total	146.29	170						
Group								
20-29 Years						11	2.70	0.57
30-39 Years						52	2.74	0.70
40-49 Years						73	2.64	0.88
50 + Years						35	2.34	1.08
Cardiovascular Manifestations								
Source								
Between	11.15	3	3.72	3.72	0.01			
Within	166.89	167	1.00					
Total	178.00	170						
Group								
20-29 Years						11	1.70	0.73
30-39 Years						52	2.10	0.84
40-49 Years						73	2.24	1.20
50 + Years						35	1.60	0.81

TABLE G-I (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	2.24	3	0.75	0.84	0.48			
Within	149.47	167	0.90					
Total	151.71	170						
Group								
20-29 Years						11	2.09	1.26
30-39 Years						52	2.10	0.84
40-49 Years						73	1.78	0.99
50 + Years						35	1.59	0.88
Behavioral Manifestations								
Source								
Between	0.98	3	0.33	1.79	0.15			
Within	30.50	167	0.18					
Total	31.48	170						
Group								
20-29 Years						11	1.11	0.30
30-39 Years						52	1.19	0.40
40-49 Years						73	1.29	0.52
50 + Years						35	1.10	0.25

TABLE G-II

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF EDUCATION

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	2.09	4	0.52	0.71	0.59			
Within	122.20	166	0.74					
Total	124.29	170						
Group								
Some College						8	3.06	0.85
Associates Degree						10	3.57	0.66
Bachelor's Degree						76	3.36	0.86
Master's Degree						26	3.22	0.83
Master's Degree +						51	3.48	0.90
Time Management								
Source								
Between	3.37	4	0.84	1.22	0.31			
Within	114.89	166	0.69					
Total	118.26	170						
Group								
Some College						8	2.99	0.81
Associates Degree						10	3.52	0.79
Bachelor's Degree						76	3.43	0.85
Master's Degree						26	3.51	0.99
Master's Degree +						51	3.63	0.72

TABLE G-II (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	3.92	4	0.98	0.98	0.42			
Within	166.07	166	1.00					
Total	170.00	170						
Group								
Some College						8	2.40	1.04
Associates Degree						10	2.42	0.74
Bachelor's Degree						76	3.36	0.86
Master's Degree						26	2.77	0.95
Master's Degree +						51	2.95	0.99
Discipline and Motivation								
Source								
Between	0.86	4	0.21	0.25	0.91			
Within	142.81	166	0.86					
Total	143.67	170						
Group								
Some College						8	3.02	0.87
Associate's Degree						10	3.23	0.80
Bachelor's Degree						76	3.05	0.96
Master's Degree						26	2.91	1.01
Master's Degree +						51	2.99	0.87

TABLE G-II (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	1.99	4	0.50	0.61	0.65			
Within	134.87	166	0.81					
Total	136.86	170						
Group								
Some College						8	2.28	1.07
Associate's Degree						10	2.53	0.93
Bachelor's Degree						76	2.29	0.87
Master's Degree						26	2.30	0.86
Master's Degree +						51	2.52	0.94
			Stress Manifestations					
Emotional Manifestations								
Source								
Between	4.06	4	1.01	1.10	0.36			
Within	152.81	166	0.92					
Total	156.87	170						
Group								
Some College						8	2.25	0.81
Associate's Degree						10	2.94	0.73
Bachelor's Degree						76	2.51	0.96
Master's Degree						26	2.82	1.05
Master's Degree +						51	2.55	0.97

TABLE G-II (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	2.10	4	0.53	0.61	0.66			
Within	144.19	166	0.87					
Total	146.29							
Group								
Some College						8	2.26	0.91
Associate's Degree						10	2.82	0.89
Bachelor's Degree						76	2.58	0.94
Master's Degree						26	2.55	0.82
Master's Degree +						51	2.71	0.99
Cardiovascular Manifestations								
Source								
Between	4.17	4	1.04	1.00	0.41			
Within	173.86	166	1.05					
Total	178.04	170						
Group								
Some College						8	1.58	0.64
Associate's Degree						10	2.30	0.92
Bachelor's Degree						76	1.93	1.04
Master's Degree						26	2.21	1.04
Master's Degree +						51	2.11	1.05

TABLE G-II (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	3.48	4	0.87	0.97	0.42			
Within	148.23	166	0.89					
Total	151.71	170						
Group								
Some College						8	1.50	1.04
Associate's Degree						10	2.23	0.86
Bachelor's Degree						76	1.75	0.98
Master's Degree						26	1.86	0.97
Master's Degree +						51	1.67	0.88
Behavioral Manifestations								
Source								
Between	0.22	4	0.06	0.30	0.88			
Within	31.25	166	0.19					
Total	31.48	170						
Group								
Some College						8	1.09	0.19
Associate's Degree						10	1.23	0.34
Bachelor's Degree						76	1.24	0.48
Master's Degree						26	1.19	0.40
Master's Degree +						51	1.18	0.42

TABLE G-III

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY YEARS OF TEACHING EXPERIENCE

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	2.60	4	0.65	0.89	0.47			
Within	121.69	166	0.73					
Total	124.29	170						
Group								
1-5 Years						36	3.39	0.90
6-10 Years						42	3.57	0.61
11-15 Years						32	3.26	0.91
16-20 Years						33	3.25	0.98
20 + Years						28	3.30	0.98
Time Management								
Source								
Between	3.55	4	0.89	1.28	0.28			
Within	114.71	166	0.69					
Total	118.26	170						
Group								
1-5 Years						36	3.34	0.89
6-10 Years						42	3.73	0.63
11-15 Years						32	3.41	0.72
16-20 Years						33	3.48	1.00
20 + Years						28	3.40	0.91

TABLE G-III (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	9.45	4	2.36	2.44	0.05			
Within	160.55	166	0.97					
Total	170.00	170						
Group								
1-5 Years						36	2.44	0.98
6-10 Years						42	2.98	0.83
11-15 Years						32	2.59	0.80
16-20 Years						33	2.93	1.15
20 + Years						28	3.04	1.07
Discipline and Motivation								
Source								
Between	1.35	4	0.34	0.39	0.81			
Within	142.32	166	0.86					
Total	143.67	170						
Group								
1-5 Years						36	3.03	0.99
6-10 Years						42	3.09	0.78
11-15 Years						32	2.99	0.94
16-20 Years						33	3.11	1.07
20 + Years						28	2.84	0.85

TABLE G-III (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	4.29	4	1.07	1.34	0.26			
Within	132.57	166	0.80					
Total	136.86	170						
Group								
1-5 Years						36	2.09	0.93
6-10 Years						42	2.51	0.89
11-15 Years						32	2.45	0.92
16-20 Years						33	2.33	0.94
20 + Years						28	2.50	0.76
Stress Manifestations								
Emotional Manifestations								
Source								
Between	5.51	4	1.38	1.51	0.20			
Within	151.36	166	0.91					
Total	156.87	170						
Group								
1-5 Years						36	2.39	0.91
6-10 Years						42	2.81	0.89
11-15 Years						32	2.71	0.95
16-20 Years						33	2.59	1.04
20 + Years						28	2.35	1.00

TABLE G-III (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	7.64	4	1.91	2.29	0.06			
Within	138.65	166	0.84					
Total	146.29	170						
Group								
1-5 Years						36	2.48	0.92
6-10 Years						42	2.80	0.86
11-15 Years						32	2.73	0.87
16-20 Years						33	2.75	0.94
20 + Years						28	2.21	1.01
Cardiovascular Manifestations								
Source								
Between	0.60	4	0.15	0.14	0.97			
Within	177.43	166	1.07					
Total	178.04	170						
Group								
1-5 Years						36	1.94	0.91
6-10 Years						42	2.09	0.95
11-15 Years						32	2.04	0.89
16-20 Years						33	2.08	1.18
20 + Years						28	1.98	1.25

TABLE G-III (Continued)

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	0.17	4	0.04	0.05	1.00			
Within	151.54	166	0.91					
Total	151.71	170						
Group								
1-5 Years						36	1.76	0.88
6-10 Years						42	1.79	1.00
11-15 Years						32	1.74	0.83
16-20 Years						33	1.71	0.95
20 + Years						28	1.80	1.11
Behavioral Manifestations								
Source								
Between	0.54	4	0.13	0.72	0.58			
Within	30.94	166	0.19					
Total	31.48	170						
Group								
1-5 Years						36	1.11	0.24
6-10 Years						42	1.22	0.44
11-15 Years						32	1.22	0.45
16-20 Years						33	1.29	0.52
20 + Years						28	1.20	0.48

TABLE G-IV

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY YEARS OF WORK EXPERIENCE

TSI Factor/Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	1.31	5	0.26	0.35	0.88			
Within	122.98	165	0.75					
Total	124.29	170						
Group								
None						40	3.41	0.95
1-5 Years						61	3.39	0.79
6-10 Years						36	3.38	0.77
10-15 Years						16	3.36	0.99
16-20 Years						12	3.05	0.85
20 + Years						6	3.45	1.15
Time Management								
Source								
Between	4.23	5	0.43	0.49	0.78			
Within	144.14	165	0.87					
Total	146.29	170						
Group								
None						40	3.53	0.97
1-5 Years						61	3.64	0.66
6-10 Years						36	3.41	0.83
10-15 Years						16	3.35	0.76
16-20 Years						12	3.11	1.17
20 + Years						6	3.21	0.80

TABLE G-IV (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	15.91	5	0.26	0.35	0.88			
Within	154.09	165	0.93					
Total	170.00	170						
Group								
None						40	3.05	0.91
1-5 Years						61	3.00	1.06
6-10 Years						36	2.67	0.94
10-15 Years						16	2.38	0.89
16-20 Years						12	2.08	0.89
20 + Years						6	2.33	0.77
Discipline and Motivation								
Source								
Between	2.55	5	0.51	0.60	0.70			
Within	141.12	165	0.86					
Total	143.67	170						
Group								
None						40	3.01	0.91
1-5 Years						61	3.12	0.92
6-10 Years						36	3.04	0.92
10-15 Years						16	2.96	0.91
16-20 Years						12	2.65	1.15
20 + Years						6	2.83	0.54

TABLE G-IV (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	4.73	5	0.95	1.18	0.32			
Within	132.13	165	0.80					
Total	136.86	170						
Group								
None						40	2.41	0.79
1-5 Years						61	2.50	0.88
6-10 Years						36	2.33	0.86
10-15 Years						16	2.34	1.20
16-20 Years						12	1.84	0.87
20 + Years						6	2.21	1.09
			Stress Manifestations					
Emotional Manifestations								
Source								
Between	7.46	5	1.49	1.65	0.15			
Within	149.41	165	0.91					
Total	156.87	170						
Group								
None						40	2.81	1.06
1-5 Years						61	2.64	0.98
6-10 Years						36	2.41	0.89
10-15 Years						16	2.53	0.62
16-20 Years						12	2.02	0.91
20 + Years						6	2.77	0.92

TABLE G-IV (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	2.15	5	0.43	0.49	0.78			
Within	144.14	165	0.87					
Total	146.29	170						
Group								
None						40	2.74	1.05
1-5 Years						61	2.59	0.86
6-10 Years						36	2.59	0.96
10-15 Years						16	2.71	0.92
16-20 Years						12	2.28	0.80
20 + Years						6	2.57	0.97
Cardiovascular Manifestations								
Source								
Between	14.18	5	2.84	2.86	0.02			
Within	163.86	165	0.99					
Total	178.04							
Group								
None						40	2.39	1.23
1-5 Years						61	2.09	0.94
6-10 Years						36	1.61	0.68
10-15 Years						16	2.11	1.02
16-20 Years						12	2.03	1.31
20 + Years						6	1.39	0.61

TABLE G-IV (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	1.70	5	0.34	0.37	0.87			
Within	150.01	165	0.91					
Total	151.71	170						
Group								
None						40	1.82	1.06
1-5 Years						61	1.77	0.88
6-10 Years						36	1.61	0.90
10-15 Years						16	1.96	0.93
16-20 Years						12	1.75	1.11
20 + Years						6	1.61	1.04
Behavioral Manifestations								
Source								
Between	1.56	5	0.31	1.72	0.13			
Within	29.92	165	0.18					
Total	31.48	170						
Group								
None						40	1.34	0.66
1-5 Years						61	1.24	0.39
6-10 Years						36	1.09	0.26
10-15 Years						16	1.16	0.22
16-20 Years						12	1.06	0.22
20 + Years						6	1.13	0.21

TABLE G-V

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF STUDENTS TAUGHT

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	0.95	2	0.47	0.64	0.53			
Within	123.35	168	0.73					
Total	124.29	170						
Group								
High School Students						113	3.32	0.90
Adult Students						20	3.52	0.87
Both Represented						38	3.44	0.72
Time Management								
Source								
Between	0.84	2	0.42	0.60	0.55			
Within	117.43	168	0.70					
Total	118.26	170						
Group								
High School Students						113	3.53	0.88
Adult Students						20	3.32	0.98
Both Represented						38	3.45	0.59

TABLE G-V (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	6.67	2	3.34	3.44	0.03			
Within	163.31	168	0.97					
Total	170.00	170						
Group								
High School Students						113	2.93	1.00
Adult Students						20	2.38	1.03
Both Represented						38	2.62	0.91
Discipline and Motivation								
Source								
Between	14.65	2	7.32	9.54	0.00			
Within	129.02	168	0.77					
Total	143.67	170						
Group								
High School Students						113	3.15	0.93
Adult Students						20	2.22	0.81
Both Represented						38	3.04	0.74

TABLE G-V (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	2.41	2	1.21	1.51	0.22			
Within	134.44	168	0.80					
Total	136.86	170						
Group								
High School Students						113	2.39	0.90
Adult Students						20	2.06	0.87
Both Represented						38	2.48	0.89
			Stress Manifestations					
Emotional Manifestations								
Source								
Between	0.78	2	0.39	0.42	0.66			
Within	156.09	168	0.93					
Total	156.87	170						
Group								
High School Students						113	2.58	1.01
Adult Students						20	2.42	0.88
Both Represented						38	2.66	0.86

TABLE G-V (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	1.77	2	0.88	1.03	0.36			
Within	144.52	168	0.86					
Total	146.29	170						
Group								
High School Students						113	2.55	0.95
Adult Students						20	2.63	1.01
Both Represented						38	2.80	0.80
Cardiovascular Manifestations								
Source								
Between	1.10	2	0.55	0.52	0.59			
Within	176.94	168	1.05					
Total	178.04	170						
Group								
High School Students						113	2.09	1.09
Adult Students						20	1.92	0.92
Both Represented						38	1.92	0.86

TABLE G-V (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	2.21	2	1.11	1.24	0.29			
Within	149.50	168	0.89					
Total	151.71	170						
Group								
High School Students						113	1.79	0.96
Adult Students						20	1.45	0.62
Both Represented						38	1.83	1.01
Behavioral Manifestations								
Source								
Between	0.72	2	0.36	1.96	0.14			
Within	30.76	168	0.18					
Total	31.48	170						
Group								
High School Students						113	1.25	0.49
Adult Students						20	1.11	0.25
Both Represented						38	1.12	0.27

TABLE G-VI

ANALYSIS OF VARIANCE ON THE TEN STRESS FACTOR SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SIZE POPULATION OF SCHOOL LOCATION

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
			Stress Sources					
Work-Related Stressors								
Source								
Between	0.47	3	0.16	0.21	0.89			
Within	123.82	167	0.74					
Total	124.29	170						
Group								
Rural Area						88	3.35	0.87
Small Town						27	3.46	0.81
Suburban Area						27	3.41	0.91
Urban Area						29	3.30	0.84
Time Management								
Source								
Between	0.35	3	0.12	0.16	0.92			
Within	117.92	167	0.71					
Total	118.26	170						
Group								
Rural Area						88	3.50	0.87
Small Town						27	3.46	0.95
Suburban Area						27	3.40	0.68
Urban Area						29	3.54	0.78

TABLE G-VI (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Distress								
Source								
Between	1.13	3	0.38	0.37	0.77			
Within	168.87	167	1.01					
Total	170.00	170						
Group								
Rural Area						88	2.83	0.96
Small Town						27	2.90	1.21
Suburban Area						27	2.64	0.99
Urban Area						29	2.75	0.94
Discipline and Motivation								
Source								
Between	3.29	3	1.10	1.30	0.28			
Within	140.38	167	0.84					
Total	143.67	170						
Group								
Rural Area						88	3.14	0.94
Small Town						27	2.86	0.92
Suburban Area						27	3.00	1.02
Urban Area						29	2.81	0.73

TABLE G-VI (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Professional Investment								
Source								
Between	0.30	3	0.10	0.12	0.95			
Within	136.56	167	0.82					
Total	136.96	170						
Group								
Rural Area						88	2.38	0.87
Small Town						27	2.29	0.92
Suburban Area						27	2.42	1.00
Urban Area						29	2.41	0.91
			Stress Manifestations					
Emotional Manifestations								
Source								
Between	2.36	3	0.79	0.85	0.47			
Within	154.51	167	0.93					
Total	156.87	170						
Group								
Rural Area						88	2.69	1.04
Small Town						27	2.49	0.96
Suburban Area						27	2.51	0.89
Urban Area						29	2.41	0.75

TABLE G-VI (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Fatigue Manifestations								
Source								
Between	3.89	3	1.30	1.52	0.21			
Within	142.40	167	0.85					
Total	146.29	170						
Group								
Rural Area						88	2.70	0.91
Small Town						27	2.44	1.02
Suburban Area						27	2.35	0.92
Urban Area						29	2.75	0.86
Cardiovascular Manifestations								
Source								
Between	2.47	3	0.82	0.78	0.50			
Within	175.56	167	1.05					
Total	178.04	170						
Group								
Rural Area						88	2.06	1.01
Small Town						27	1.84	0.87
Suburban Area						27	1.92	0.96
Urban Area						29	2.22	1.25

TABLE G-VI (Continued)

TSI Factor Variable Code	SS	df	MS	F	p	N	M	SD
Gastronomic Manifestations								
Source								
Between	2.51	3	0.84	0.94	0.42			
Within	149.20	167	0.89					
Total	151.71	170						
Group								
Rural Area						88	1.79	0.99
Small Town						27	1.52	0.80
Suburban Area						27	1.70	0.81
Urban Area						29	1.92	1.04
Behavioral Manifestations								
Source								
Between	0.86	3	0.27	1.56	0.20			
Within	30.62	167	0.18					
Total	31.48	170						
Group								
Rural Area						88	1.21	0.45
Small Town						27	1.08	0.24
Suburban Area						27	1.20	0.43
Urban Area						29	1.33	0.48

APPENDIX H

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SELECTED VARIABLES

TABLE H-I

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY AGE

TSI Factors	20-29 Years	30-39 Years	40-49 Years	50+ Years
Number of Responses	11	52	73	35
Stress Sources				
Work-Related Stressors	3.51	3.42	3.34	3.31
Time Management	3.67	3.60	3.55	3.12
Professional Distress	2.73	2.92	2.80	2.62
Discipline and Motivation	3.24	3.15	2.93	2.95
Professional Investment	2.23	2.36	2.33	2.53
Stress Manifestations				
Emotional Manifestations	2.61	2.70	2.60	2.37
Fatigue Manifestations	2.70	2.74	2.64	2.34
Cardiovascular Manifestations	1.70	2.10	2.24	1.60
Gastronomic Manifestations	2.09	1.78	1.78	1.59
Behavioral Manifestations	1.11	1.19	1.29	1.10
Total Stress	2.56	2.60	2.55	2.35

TABLE H-II

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES OF VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY GENDER

TSI Factors	Male	Female
Number of Responses	80	91
Stress Sources		
Work-Related Stressors	3.28	3.45
Time Management	3.41	3.55
Professional Distress	2.85	2.75
Discipline and Motivation	3.12	2.93
Professional Investment	2.47	2.29
Stress Manifestations		
Emotional Manifestations	2.45	2.70
Fatigue Manifestations	2.49	2.72
Cardiovascular Manifestations	2.09	1.98
Gastronomic Manifestations	1.87	1.66
Behavioral Manifestations	1.23	1.19
Total Stress	2.53	2.52

TABLE H-III

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF EDUCATION

TSI Factors	SC	AD	BD	MD	MD+
Number of Responses	8	10	76	26	51
Stress Sources					
Work-Related Stressors	3.06	3.57	3.36	3.22	3.46
Time Management	2.99	3.53	3.43	3.52	3.60
Professional Distress	2.40	2.42	2.79	2.78	2.95
Discipline and Motivation	3.02	3.23	3.05	2.91	2.99
Professional Investment	2.28	2.53	2.29	2.30	2.52
Stress Manifestations					
Emotional Manifestations	2.25	2.94	2.51	2.82	2.55
Fatigue Manifestations	2.27	2.82	2.58	2.55	2.71
Cardiovascular Manifestations	1.58	2.30	1.93	2.20	2.11
Gastronomic Manifestations	1.50	2.23	1.75	1.89	1.67
Behavioral Manifestations	1.09	1.23	1.24	1.19	1.18
Total Stress	2.24	2.68	2.49	2.54	2.58

SC = Some College
AD = Associate's Degree
BD = Bachelor's Degree
MD = Master's Degree
MD+ = Master's Degree Plus

TABLE H-IV

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY YEARS OF TEACHING EXPERIENCE

TSI Factors	1-5 Years	6-10 Years	11-15 Years	16-20 Years	20+ Years
Number of Responses	36	42	32	33	28
Stress Sources					
Work-Related Stressors	3.39	3.57	3.26	3.25	3.30
Time Management	3.34	3.73	3.41	3.48	3.40
Professional Distress	2.44	2.98	2.59	2.93	3.04
Discipline and Motivation	3.07	3.09	2.99	3.11	2.84
Professional Investment	2.09	2.51	2.45	2.33	2.50
Stress Manifestations					
Emotional Manifestations	2.39	2.81	2.71	2.59	2.35
Fatigue Manifestations	2.48	2.80	2.73	2.75	2.21
Cardiovascular Manifestations	1.94	2.09	2.04	2.08	1.97
Gastronomic Manifestations	1.76	1.79	1.74	1.71	1.80
Behavioral Manifestations	1.11	1.22	1.22	1.29	1.20
Total Stress	2.30	2.68	2.51	2.55	2.46

TABLE H-V

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY YEARS OF WORK EXPERIENCE

TSI Factors	No Years	1-5 Years	6-10 Years	11-15 Years	16-20 Years	20+ Years
Number of Responses	40	61	36	16	12	6
Stress Sources						
Work-Related Stressors	3.41	3.39	3.38	3.36	3.06	3.45
Time Management	3.53	3.64	3.41	3.35	3.11	3.21
Professional Distress	3.05	3.00	2.67	2.38	2.08	2.33
Discipline and Motivation	3.01	3.12	3.04	2.96	2.65	2.83
Professional Investment	2.41	2.50	2.33	2.34	1.84	2.21
Stress Manifestations						
Emotional Manifestations	2.81	2.64	2.41	2.53	2.02	2.77
Fatigue Manifestations	2.74	2.59	2.59	2.71	2.28	2.57
Cardiovascular Manifestations	2.39	2.09	1.61	2.11	2.03	1.39
Gastronomic Manifestations	1.82	1.77	1.61	1.96	1.75	1.61
Behavioral Manifestations	1.34	1.24	1.09	1.16	1.06	1.13
Total Stress	2.65	2.60	2.41	2.49	2.19	2.35

TABLE H-VI

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SCHOOL CLASSIFICATION

TSI Factors	AVTS	CHS
Number of Responses	79	92
Stress Sources		
Work-Related Stressors	3.43	3.31
Time Management	3.38	3.58
Professional Distress	2.58	2.98
Discipline and Motivation	2.81	3.20
Professional Investment	2.29	2.45
Stress Manifestations		
Emotional Manifestations	2.57	2.60
Fatigue Manifestations	2.61	2.62
Cardiovascular Manifestations	1.97	2.08
Gastronomic Manifestations	1.81	1.72
Behavioral Manifestations	1.19	1.22
Total Stress	2.46	2.57

AVTS = Area Vocational-Technical School
CHS = Comprehensive High School

TABLE H-VII

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY LEVEL OF STUDENTS TAUGHT

TSI Factors	HS	A	B
Number of Responses	113	20	38
Stress Sources			
Work-Related Stressors	3.32	3.52	3.44
Time Management	3.53	3.32	3.45
Professional Distress	2.93	2.38	2.63
Discipline and Motivation	3.15	2.22	3.04
Professional Investment	2.39	2.06	2.48
Stress Manifestations			
Emotional Manifestations	2.59	2.42	2.66
Fatigue Manifestations	2.56	2.63	2.80
Cardiovascular Manifestations	2.09	1.92	1.92
Gastronomic Manifestations	1.79	1.45	1.83
Behavioral Manifestations	1.25	1.11	1.12
Total Stress	2.56	2.30	2.54

HS = High school students
A = Adult students
B = Both significantly represented

TABLE H-VIII

COMPARISONS OF THE TEN STRESS FACTOR MEAN SCORES AND TOTAL STRESS MEAN SCORES FOR VOCATIONAL AND TECHNICAL EDUCATION TEACHERS BY SIZE POPULATION OF SCHOOL LOCATION

TSI Factors	Rural	Small Town	Suburb	Urban
Number of Responses	88	27	27	29
Stress Sources				
Work-Related Stressors	3.35	3.46	3.41	3.30
Time Management	3.50	3.46	3.40	3.54
Professional Distress	2.83	2.90	2.64	2.75
Discipline and Motivation	3.14	2.86	3.00	2.81
Professional Investment	2.38	2.29	2.42	2.41
Stress Manifestations				
Emotional Manifestations	2.69	2.49	2.51	2.41
Fatigue Manifestations	2.70	2.44	2.35	2.75
Cardiovascular Manifestations	2.06	1.84	1.92	2.22
Gastronomic Manifestations	1.79	1.52	1.70	1.92
Behavioral Manifestations	1.21	1.08	1.20	1.33
Total Stress	2.56	2.44	2.45	2.54

APPENDIX I

OPEN FORM RESPONSES

Open Form Responses

Respondents to this study were requested to identify the sources of occupational stress they perceived to be unique to their positions as vocational and technical education teachers. Those responses have been sorted into the following categories: administration, advisory committees, educational conferences, financial and funding problems, job placement for students, lack of student preparation in basic skills, other student problems, parents, safety, state department of vocational and technical education, vocational student organizations, and miscellaneous.

Sources of Stress Unique to Vocational and Technical Education Teachers in Oklahoma

Administration

1. "Administration is wasting money which could be used for students."

2. "Most of the stress comes from superiors' job justification. Teacher administrators should be facilitators, asking "What can I do for you." Most, however, throw hurdles out regularly that we must clear before we can begin to teach."

3. "Due to inadequacies of my administration and the Business and Industry division I find that I am constantly asked to do their jobs."

4. "Administrators need to teach a class (at least once each year) to understand the difficulty in producing mountains of paperwork."

5. "Administrators in general seem to feel as if they must be secretive, non-committal, etc., which creates unhealthy teacher/administration relations."

6. "Not treating all instructors the same regarding rules about school policies and procedures causes stress."

7. "Administration that doesn't care about me personally."

8. "Our superintendent discourages us from trying anything new, primarily because of the focus on financial restraints."

9. "Other teachers and administrators don't appreciate what we try to do for our students in vocational education."

10. "When we follow the rules about whether a students passes or fails, our administration overrides our decisions (based on documented facts) so that few, if any, students fail. This makes us feel powerless and our work futile."

11. "Dealing with an administration that is sports minded."

12. "I want to be able to do more for the program but administrators have to allow time to learn. We have a great staff and sometimes I feel our administration takes advantage of this. They know we care enough to get the job done, even if we have to do it in the middle of the night."

13. "Administration will not permit spending assistance money on equipment upgrades, maintenance and supplies."

14. "Administration that will not work with the program."

15. "I am forced to function under at least two concepts of what my job responsibilities are."

16. "Present administrative leadership needs to be strengthened."

17. "Principle makes class schedules, yet knows zero about the program or the curriculum."

18. "Other teachers and administration are blind to problems."

19. "Administrators are not knowledgeable in my area of study."

20. "Lack of leadership and motivation by administration is a concern for causing stress."

21. "Administration tries to make the teachers feel inferior or low."

Advisory Committees

22. "Advisory committees." (Duplicated 16 times.)

23. "The need to work with advisory committees is very important - having time to work with advisory members is impossible."

24. "Just the thought of an advisory committee."

25. "Advisory committee mandates."

26. "Advisory committees are hard to come up with in small towns or receive support from."

27. "I feel my advisory committee does not understand their role in my program."

28. "Advisory committees are "just another thing to do."

29. "Advisory committees may help prepare students to enter industry, but a Technology Education program is exploratory. Advisory committee is not entirely useful."

Educational Conferences

30. "Educational conferences." (Duplicated 20 times.)

31. "Summer conferences - too many days."

32. "Summer conferences are an absolute waste of time, money, and effort."

33. "Educational conferences should be stopped."

34. "Educational conferences need improvement."

35. "General educational conferences are a waste of time and money. I would rather attend conferences specifically for what I teach."

Financial and Funding Problems

36. "Using my own car and money." (Duplicated four times.)

37. "Comprehensive High School teachers do not receive a salary comparable with Area VoTech teachers." (Duplicated two times.)

38. "Lack of adequate funding for my program."

39. "Money shortages for equipment is hurting education."

40. "We are required to do more and more forms and paperwork and are not paid any extra."

41. "Traveling to conferences at my own expense"

Job Placement for Students

42. "Employers." (Duplicated two times.)

43. "OJT opportunities." (Duplicated two times.)

44. "Employment opportunities for my students." (Duplicated two times.)

45. "Dealing with employers and arranging employment opportunities for students."

46. "Student placement."

47. "Planning and organizing OJT experiences."

48. "Special needs students cause additional stress on VoTech teachers with regard to employment opportunities. Too many are "dumped" into vo-tech programs without proper placement counseling and/or assessments. All teachers will need further guidance on classroom adaptations and employment for special needs students."

49. "Hold me accountable for student job training and job placement - however, give me freedom to do so. No state or local regulations."

50. "Dealing with employers and arranging employment opportunities."

51. "Job placement."

52. "Arranging employment opportunities for students is very difficult. It is very hard to make the contracts when I am needed in the classroom."

Lack of Student Preparation in Basic Skills

53. "Students are not prepared in basics." (Duplicated 33 times.)

54. "Students not prepared in basics of math, science, etc."

55. "Students not able to read, write and do basic math."

56. "Classes consist of mostly non-readers."

57. "Dealing with students who are not adequately prepared in the basic skills of reading, writing, and math."

58. "Students who do not perform well academically are guided into vocational programs by counselors who are not aware of the course content."

59. "Students who are not adequately prepared for reading and math."

60. "Students with low basic skills are frustrating! I am trained as a nurse, NOT a reading, writing, math instructor."

61. "It takes too much instructor time to get students' basic skills up to where they can be successful in the vocational program."

62. "Students with low reading levels."

63. "I resent the time spent having to teach high school seniors basic math and reading skills. This should have already been done, after all, they are getting ready to graduate."

64. "Students lack reading comprehension and math skills. VoTech cannot fix everything!"

65. "The school "dumps" the students with learning problems on my class thinking that they don't need the basic skills to perform the work."

Other Student Problems

66. "Students not motivated." (Duplicated three times.)

67. "Lack of training to work with special education students." (Duplicated two times.)

68. "Students today have no respect for anything or anyone."

69. "Students suing at the drop of a hat for unfounded reasons are extremely stressful."

70. "Students that are trouble makers in school."

71. "I feel unmotivated and disruptive students, especially those whose behavior prevents others from learning or prevents the teacher from spending the necessary time with those who want to learn, should be removed from the classroom immediately. It should be a violation of the law to leave disruptive students in the classroom taking time away from those who want to learn."

72. "Dealing with adults students with a Special Ed background in high school."

73. "Students that are absent frequently."

74. "Student enrollment."

75. "Dealing with students not willing to take a job after training."

76. "Dealing with LD students."

77. "I E P students"

78. "Students that are not motivated to put forth the effort required."

79. "Teaching students who are really not interested in my course therefore depriving the students who are interested in quality time to prepare for jobs."

80. "Good students are cheated out of learning because of distractions from others who don't care."

81. "Students that are "dumped" by the local schools."

82. "Students lack motivation."

83. "Dealing with students that are "dumped" into vocational classes by school counselors."

84. "Individual student medical problems (convulsions, diabetes, etc)."

85. "Recruiting students."

86. "Special education needs and students."

87. "Use of drugs by students."

88. "High student absenteeism."

89. "Students have become inconsiderate and lack common manners and respect for others."

90. "Students that are "dropped" in class for "no credit" to baby-sit."

91. "The school "dumps" the students that are problems in the other classrooms into mine thinking all they need is a little hard work to calm them down."

Parents

92. "Parents not accepting responsibility for their children."

93. "Dealing with parents that don't care about their children."

94. "Most parents do not teach morals and/or values at home."

95. "Most parents do not side with the teacher when their child is in trouble. Instead they blame the teacher."

96. "Parents of students don't give any support to the program."

97. "Parents try to apply pressure by wanting to "run the program."

Safety

98. "Student safety while working with power tools and equipment."

99. "The responsibility of keeping students from getting hurt during shop work is "very" stressful."

100. "Dealing with a variety of situations that make teachers very liable for student safety."

101. "Safety of other students (firearms, etc.)."

State Department of Vocational and Technical Education

102. "Federal and state mandates to teach a certain way, i.e., pretests/posttests."

103. "Many of the conferences and meetings required by the state department of vo-tech are a waste of time and merely helps some others justify their jobs. These same people are so far away from the realities we face daily that it's hard for me to take their admonitions seriously."

104. "It seems every year the state department of vo-tech has a new "gimic" for us that is of little or no use to us or our students, i.e., pretest/posttest and the enormous amount of time and paperwork it takes to document the results. It's a farce and a waste of time."

105. "Too much "red tape" caused by Oklahoma Department of Vocational and Technical Education. Pretest/posttest and student followups."

106. "VoTech system inconsistency and change."

107. "I feel that the State Department of VoTech should stop waking up each day with a new idea that instructors need to do and then spend an enormous amount of time documenting something that takes away valuable teaching time or adds to the duties of the instructors. We could talk forever about this! State Department needs to stay the _ _ _ _ out of the way and let's have school and train people."

108. "State Director (& OVA) viewed as lacking support for Comp HS programs."

109. "Comprehensive high school programs seems to be "stepchild" of vocational education."

110. "Dealing with a state staff that is lacking in leadership is stressful."

111. "I am stressed because of all the paperwork that we have to do for the Voc Ed Dept."

112. "State department of VoTech requirements and reports."

Vocational Student Organizations

113. "Student organizations." (Duplicated 27 times.)

114. "Contests." (Duplicated 13 times.)

115. "Fund-raisers to help student organizations." (Duplicated five times.)

116. "VICA stifles creativity and lowers educational standards."

117. "Overnight trips are unnecessary and stressful. Watching over students is extremely tiring. Students may party too much and smoke in rooms, etc."

118. "Student organizations take too much time and money."

119. "Creating interest in student organizations."

120. "Student organizations and contests are a waste of money."

121. "During spring Leadership Conferences I am away from my family and am not compensated by the school for the extra time that I am with these students."

122. "Student organizations require a great deal of time."

123. "Contests scheduled on weekends, spring break, etc."

124. "Livestock shows are given the greatest amount of attention - parents have too much control in the stockshows."

125. "Competition between Area VoTechs."

Miscellaneous

126. "Class periods are too short to achieve adequate laboratory training."

127. "Developing curriculum to satisfy college articulation, then using it in class with below average students."

128. "I am not getting the training to keep up with the fast-paced, ever-changing equipment of my industry."

129. "Entire faculty cheats school, parents, and students by covering up their lack of updating technology and knowledge."

130. "Other duties besides teaching. For example - typing for other instructors."

131. "I would have to say my biggest stress is placing into the nursing profession incompetent nurses - ones who should not have made it through the program because of theory/skills that are lacking - yet manage to do so."

132. "No control over changing textbooks."

133. "Lack of time for developing curriculum."

134. "Myself nor any of my students have ever benefitted from the counseling personnel here at the Vo-Tech or at their home school."

135. "The greatest stress on vocational teachers is the continued education classes we must take to stay certified to teach. We can take classes in basket weaving and be certified. What we need are classes with industry to get our certification. College hours are a waste of time and money."

136. "I do not have and am not given the time to change the curriculum to meet the ever changing technology that my students need in order to be successful in the job market."

137. "Not enough time to prepare new lessons and materials due to other requirements."

138. "There are too many duties not related to teaching in this job."

139. "Legislative ignorance. If lawmakers came into the classroom and taught for one day they would change their thinking before enacting stupid laws!"

140. "Keeping up with industry standards - technical update."

141. "The unnecessary paper work, pretests, forms, forms, forms, cause much stress."

142. "Not getting recognition and/or much deserved job promotion are my number one cause of teacher stress."

143. "Students enrolling at anytime - open entry/open exit."

144. "Expected to be active in civic organizations."

145. "Dealing with minor paperwork - dealing with major papertrails."

146. "Trying to uphold a professional image."

147. "In addition to teaching responsibilities, I coordinate a preschool lab. Supervising full time employees, finding substitutes, dealing with parents, budget management, and program improvement are my major sources of stress. I didn't see a place to respond to these stressors on the questionnaire. These are all non-teaching responsibilities."

148. "Need to educate the educator - up grade training."

149. "The most stressful issue for me is the constant, fast-paced change in technology."

150. "High school students are not aware of job opportunities VoTech has to offer."

151. "Conflict with family obligations."

152. "Must leave class to work on computers in the building."

153. "Trying to keep up with clerical demands put on program by the school."

154. "The changing directions of VoTech in the overall program approach."

155. "Changes of philosophy and goals so often."

156. "Outlook for Vocational Education (esp. my division)."

157. "Pretests/posttests is a waste of time and show invalid results."

158. "School board consist of mainly uneducated people."

159. "Not enough discipline within the school."

160. "Filling out graduate surveys."

161. "Excuses from everyone."

162. "Holiday preparation."

163. "The public does not take my program or my students seriously."

164. "Keeping up with current curriculum which seems to change frequently."

165. "Maintaining equipment and facilities seems to be an unending task."

166. "To many people ask for my help."

167. "Students follow me around for attention taking up my valuable time."

168. "Block scheduling has posed many new challenges this year which has increased our hours at school late."

169. "I am overcome with extra-curricular activities."

170. "Lack of morality among faculty and staff."

171. "Unfair treatment between the two vocational programs at my school."

172. "Necessary time needed to answer survey."

173. "Materials and equipment."

174. "Expecting teachers to teach two courses at the same time - business education"

APPENDIX J

UNSOLICITED COMMENTS

Unsolicited Comments

1. "I really don't have time to think about this!"

2. "Thank you! This is the first time in years I have felt VoTech cared about us!"

3. "You have to realize what is the highest priority - work on the priorities - and don't worry about the other."

4. "No major stress problems."

5. "In a school where sports rule, other contest winners receive little recognition (especially for all the work put into them)."

6. "When stress of a project (conference, contest, unprepared students) starts I get to feeling insecure and depressed and leads to procrastinating on my part."

7. "I want every student to be successful and find it hard to accept unmotived students' failures. I sometimes feel unprepared to find answers to motivate them. My other classes are wonderful. I love them."

8. "Sports are overly stressed in school. "Win or else."

9. "I have an outstanding group of kids this year that have made it all worth while or else I would probably strongly be considering a change in occupation."

10. "I feel this survey does not pertain to me."

11. "All of society requires too much from some of us."

12. "Education is inadequately compensating for excellence - financial compensation should be based on merit."

13. "I hate wasting taxpayers money."

14. "I hope H.B. 669 passes."

15. "I place a lot of pressure on myself to personally address every situation or problem I encounter each day. I have high school and adult students together and this creates a unique learning environment."

16. "Vocational educators are sometimes asked to make apple butter out of chicken poop."

17. "Vocational education is not given its proper place in the overall view of the educational process. We must train people to not only have job skills but to have survival skills for themselves and to improve their ability to be self-sufficient in life."

18. "It is often difficult to concentrate on the positive when the negative is so tremendous."

19. "I love teaching students. I hate the politics involved in doing so. Teachers constantly have to justify and prove their worth. If we're not needed, get rid of this system!"

20. "Sometimes I do not have anymore to give."

21. "It would be nice to hear "thank you" once in a while."

APPENDIX K

INSTITUTIONAL REVIEW BOARD CERTIFICATION

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 11-17-95 **IRB#:** ED-96-048

Proposal Title: THE SOURCES AND MANIFESTATIONS OF OCCUPATIONAL STRESS PERCEIVED BY VOCATIONAL AND TECHNICAL EDUCATION TEACHERS IN OKLAHOMA

Principal Investigator(s): Ray Sanders, Kenneth Milner

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING.
APPROVAL STATUS PERIOD VALID FOR ONE CALENDAR YEAR AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Reasons for Deferral or Disapproval are as follows:

Signature: 

Chair of Institutional Review Board

Date: November 27, 1995

VITA

Kenneth Gene Milner

Candidate for the Degree of

Master of Science

Thesis: THE SOURCES AND MANIFESTATIONS OF OCCUPATIONAL STRESS PERCEIVED BY VOCATIONAL AND TECHNICAL EDUCATION TEACHERS IN OKLAHOMA

Major Field: Occupational and Adult Education

Biographical:

Personal Data: Born in Alta Loma, Texas, April 21, 1944, the son of Otto P. and Mildred C. Milner. Married to Coeta Kelley, December 10, 1965.

Education: Graduated from Dickinson High School, Dickinson, Texas, in May 1962; received Bachelor of Science Degree in Trade and Industrial Education from Oklahoma State University in December, 1989; completed requirements for the Master of Science Degree at Oklahoma State University in May, 1996.

Professional Experience: Vocational Instructor/Curriculum Coordinator, Oklahoma Center for Transportation Safety, Central-Tech Area Vocational Technical School, Drumright, Oklahoma, 1991-1996.

Professional Organizations: American Vocational Association, Oklahoma Vocational Association, Phi Kappa Phi, Kappa Delta Pi.