

THE EFFECTS OF SCHOOL SYSTEMS, TEACHER INTERNAL
CHARACTERISTICS, AND STUDENTS ON
VOCATIONAL TEACHER STRESS


BY

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Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements
for the degree of
DOCTOR OF PHILOSOPHY
in
Vocational and Technical Education

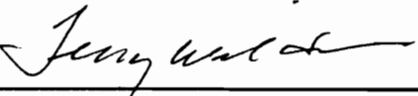
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(ABSTRACT)

Job stress is a multidimensional phenomenon. The researcher sought to examine variables that cause vocational teachers to experience stress in their teaching occupations and to evaluate the effects of these related stressors.

This research evaluated the relationships between school systems and vocational teacher stress, teacher internal characteristics and vocational teacher stress, and students and vocational teacher stress. It also analyzed vocational teacher stress using a proposed causal model that was developed using the literature on teacher stress as a conceptual framework. The model attempted to examine the linkages that exist among vocational teacher stress, school systems, teacher internal characteristics, and students.

Role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, and management style were the areas identified in the literature that could be used as indicators of the school systems category. Role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control, and self esteem were the concepts identified in the literature that could be used as the variables associated with teacher internal characteristics. Class size, student learning, and student behavior were the three areas identified in the literature as student related variables.

This study measured vocational teacher stress using the Tennessee Stress Scale-R. It measured the identified stressors using four other instruments: 1) Teacher Stress Measure; 2) Personal Behavior Inventory; 3) Self Esteem Scale; and 4) Classroom Environment Scale. In addition to these measures, demographic information was collected from the respondents

The study was limited to two separate samples of vocational teachers employed in Virginia. The first sample consisted of vocational teachers teaching in five targeted school systems. The second sample of vocational teachers used in this study were randomly selected from state supplied lists. An overall response rate of 65 percent was obtained.

Multiple regression and LISREL were used to evaluate the effects of the identified stressors on vocational teacher stress. The three regression models were found to be significant at the .05 level. The LISREL model was found to be successful in explaining approximately 72 percent of the variance in the stress experienced by vocational teachers. Two-sample t-tests were used to compare the two samples of teachers represented in the study. Non-respondent follow-up analyses also were conducted. No significant differences were found.

ACKNOWLEDGEMENTS

The efforts of a number of people have enabled me to complete this dissertation. I am extremely grateful for their time, support, encouragement, and inspiration. Without their assistance this personal goal would not have been achieved.

My sincere gratitude and deep appreciation is extended to Dr. Betty Heath-Camp, my doctoral advisor, mentor and friend. She has been very patient and understanding throughout this process. It is her dedication that has kept me focused and motivated. I admire her and her wisdom. I am eternally grateful for her devotion.

A special thank you is extended to Dr. William G. Camp, my co-chairperson. His expertise in the area of research has been a true asset. I wish to thank him for his time, and essential insight and input to this study.

I also would like to thank my other doctoral committee members: Dr. James E. Littlefield, Dr. William T. Price, and Dr. Terry Wildman. I wish to thank them for their time, valuable comments, questions, and continued support.

Many thanks are extended to the administrators and teachers who participated in this study of vocational

teacher stress. This dissertation would not have been possible without their assistance.

I would like to thank my parents, William and Joyce Adams, my grandparents, Marvin and Beulah Barbrey, my sisters, Hope Adams and Jamie Lilley, and my fiance, Roger Cannaday. This goal would not have been achieved without the love and emotional support these individuals have given me. I am thankful for their patience, understanding and encouragement throughout this endeavor.

Thanks are given to a special group of friends who have helped me in many, many ways throughout this process: Bruce Boling, Mark Church, Jennifer Campbell, Renee Felts, Frank Weineister, Irene Wheeler, Sandy Williams, and Mary and Allen Jones.

This dissertation is dedicated to my mother, Joyce Adams. It is her love, intelligence and strength that taught me how to believe in myself and reach for the stars. Thanks Mamma, I love you.

This dissertation also is given in memory to my nana, Evie Beulah Adams and my friend, Marie Dobbins Cannaday. Their love and goodness will continue to enrich my life.

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CHAPTER I

INTRODUCTION

Teachers perform numerous activities and bear enormous amounts of responsibility in their occupations. On a daily basis, teachers encounter a variety of positive and negative interactions with students, other teachers, school administrators and support personnel, parents, and other members of their communities. They are required to complete paperwork, prepare for their classes, plan and prepare for future instruction, evaluate their students' performances, remain up-to-date in their teaching areas, and maintain their instructional programs. Camp and Heath-Camp (1990) contended that "teachers work in a whirlwind of activity and stimuli" (p. 8). Teachers have declared that there is too much to do and too little time to do all of the things they need to accomplish (Alley, 1980; Heath-Camp & Camp, 1990; Wangberg, 1984).

Overview of the Study

It is the combination of some or all of these varied responsibilities and activities that cause teachers to sometimes experience high or unproductive levels of

occupationally-related stress (Alley, 1980; Litt & Turk, 1985; Malik, Mueller, & Meinke, 1991). Stress has been shown by a variety of researchers to affect the overall performance of teachers (Blase, 1986; Kyriacou & Sutcliffe, 1977). The consequences of teacher stress on the quality of teaching have become extremely important to parents, school administrators, and to teachers themselves (Farber, 1984).

Stress, especially unproductive levels of stress, can cause teachers to become ineffective and inefficient in their teaching roles (Cardinell, 1980; Eskridge, & Coker, 1985; Farber, 1984; Shaw, Bensky, & Dixon, 1981). Stress in teachers can negatively influence schools, overall teaching performances, the physical and emotional well-being of teachers, and most importantly, individual students (Harris, Halpin, & Halpin, 1985; Kyriacou, 1987). "The implications are mind boggling when one stops and thinks of the systematic modeling effects that teacher stress reactions and related problems have on students" (Shaw et al., 1981, p. 3).

It is imperative that teachers become conscious of the negative outcomes their stress might impose upon themselves, their students, their schools, and their overall teaching performances (Harris et al., 1985). Teachers need to become aware of those things that cause

them to experience stress and to recognize when their stress reaches unproductive levels (Cardinell, 1980; Eskridge & Coker, 1985; Iwanicki, 1983; Kalker, 1984).

Vocational educators must deal with all of the same responsibilities as other teachers in the school. However, due to the nature of their occupations, vocational teachers often have to perform an assortment of activities not inherent to all teaching positions. These uncharacteristic teaching responsibilities include such things as promoting their courses; recruiting and retaining students for their programs; advising and participating in the activities of their respective vocational student organizations; directing their program-specific advisory committees; investigating, evaluating and acquiring program equipment and materials; working and communicating with community employers; and complying with state and federal mandates related to their programs. As a matter of fact, Heath-Camp, Camp, Adams, Talbert, and Barber (1992), discovered through their research in the area of beginning vocational teachers that approximately a fourth of the negative influences commonly experienced by these teachers were unique to vocational education.

Gage (1977) said that for research in education to be most valuable, it must be directed and conducted

towards specific educational disciplines. Unfortunately, however, many educational researchers have continued to ignore the unique experiences of vocational teachers (Heath-Camp & Camp, 1990). A search of the professional literature on teacher stress and teacher burnout was unsuccessful in uncovering any documents that dealt specifically with vocational teacher stress. Research conducted by Heath-Camp and Camp (1990) on the problems of beginning vocational teachers was the only research found that related to the area of vocational teacher stress. The vast amount of research conducted on teacher stress in general, other teaching areas, and in other areas of employment make it evident that research related to stress is of great importance. Gage's contention that research in education should be discipline-specific signals that research regarding teacher stress needs to be targeted towards specific teaching areas rather than to teachers in general. The apparent lack of research on vocational teacher stress establishes a definite need for research in this area.

Background of the Problem

Researchers in the areas of psychology, sociology, and medicine have studied the topic of stress for many years. There has been, in the past 20 years, an increase in the amount of research conducted in the area of work-

related stress. Employers, employees, and people in general have become enormously interested in the topics of stress, the affects of stress, and stress management (Beehr & Bhagat, 1985; Hubert, 1984; Ivancevich & Matteson, 1980; King, Stanley, & Burrows, 1987; McQuade & Aikman, 1974; Pines, 1982; Selye, 1974, 1978).

Hans Selye (often referred to as the father of the study of modern stress) began his research on stress in the 1930s. His original research focused on the physiological responses exhibited by individuals when confronted with physical demands from their environments. In his later research, Selye expanded his concept of demands to include physiological, psychological, and environmental demands (Goodall & Brown, 1980; Selye, 1974).

Stress can be defined as "an adaptive response, mediated by individual characteristics and/or psychological processes, that is a consequence of any external action, situation, or event that places special physical and/or psychological demands upon a person" (Ivancevich & Matteson, 1980, pp. 8-9). Woven into this definition are three elements important to the overall study of stress: (a) situational demands or stressors cause persons to adapt; (b) individuals tend to react and adapt in different ways to the stressors they are

presented; and (c) some form of physical and/or psychological responses will occur (Alley, 1980; Eskridge & Coker, 1985; Fimian, 1982; Kreitner, 1989).

"Therefore, an individual's perceptions and attitudes toward stressors determine the physical and emotional responses his or her body exhibits as a result of the stress" (Eskridge & Coker, 1985, p. 387).

The study of teacher stress, like the study of stress, is not a new phenomena (Farber, 1984; Fimian, 1982; Fimian & Santoro, 1983; Huston, 1989). As a matter of fact, teacher stress has continued to be studied since the 1930s, when articles on the health and happiness of teachers began to appear in various educational journals (Leach, 1984; Smith & Milstein, 1984).

Stress as it relates to occupations in our society has sparked international interest and concern (Burke, 1987; Cooper & Marshall, 1980). The stress associated with the teaching profession is no different (Docking, 1985; Dunham, 1984; Farber, 1984; Fletcher & Payne, 1982; Huston, 1989; Kremer & Hoffman, 1985; Kyriacou, 1987; Kyriacou & Pratt, 1985; Laughlin, 1984; Makinen & Kinnunen 1986; McIntyre, 1984; Smilansky, 1984). Teacher stress is typically related to a variety of personal, social, physical, and interpersonal events and experiences occurring in the classroom and school

environment (Fimian, 1982). Stressors tend to be psychologically internal and environmentally external to the individual teacher and are inherent in all school environments (Blase, 1982; Iwanicki, 1983).

Most people tend to view all teacher stress as negative. This, however, is not the case. Three different intensities of stress that can be encountered by teachers and individuals have been identified. The three stages of stress are "no stress," "eustress," and "distress" (Alley, 1980; Selye, 1974). Stress can be beneficial or harmful to the teacher (Iwanicki, 1983). If the stressful situation causes a teacher to experience growth or satisfaction it is beneficial (eustress). Stress is harmful when it causes a teacher to experience emotional or physical illness (distress). Personal performance levels tend to be lowest at the no-stress and distress stages. Performance is at its highest during the eustress stage.

Individuals experiencing no stress or extremely low levels of occupational stress can be as unproductive as those coping with too much stress (Selye, 1974). Teachers who are in this stage of stress are under stimulated. These persons eventually may experience a phenomenon referred to as rustout. They usually experience boredom, fatigue, frustration, and general

dissatisfaction with their teaching occupations (Alley, 1980).

Everyone needs some amount of occupational stress (Selye, 1974). Moderate stress is considered to be good stress and is referred to as eustress. It is the optimal amount of stress required by individuals to reach their highest levels of productivity. Educators experiencing moderate amounts of stress usually adapt well to change, relate well to their students, feel that progress is being achieved, and are not overly affected by everyday problems (Alley, 1980). Selye's (1976, 1980) "Inverted U Hypothesis" provided a theoretical framework for this study.

Distress or burnout often occurs when individuals endure high levels of stress over a prolonged period of time. It can cause persons to experience negative physical and psychological problems. Problems associated with distress usually include physical ailments, depression, undue or prolonged anxiety, and abrupt personality changes (Cardinell, 1980; Reece & Brandt, 1984). Distress has been known to cause or aggravate neuroses, coronary heart disease, ulcers, cancer, hypertension, diabetes, and the abuse of alcohol and drugs (Beehr & Bhagat, 1985). Educators who are over stimulated by occupational stress typically find it

difficult to make rational decisions. They are easily exhausted, suffer from increased illness, and often find it tough to face their colleagues and students on a daily basis (Alley, 1980). Their teaching effectiveness deteriorates (Cardinell, 1980; Eskridge, & Coker, 1985; Farber, 1984; Shaw, Bensky, & Dixon, 1981).

Fielding and Gall (1982) found that teachers at all levels of the educational system are experiencing increased levels of job related stress. A survey conducted by Litt and Turk (1985) found that 79 percent of the teachers sampled reported their jobs as major sources of stress. In the book Teacher Burnout (1984), Alschuler stated that "teaching" could be identified as a one-word definition for stress.

Fimian and Santoro (1983) found that 25.5 percent of the teachers who participated in their survey had attended stress workshops and that 49.3 percent of the teachers took mental health days on a regular basis due to their job stress. A small percentage (8 percent) had even sought out professional help for their stress-related problems.

Many teachers have contended that they regretted entering the teaching profession (Wangberg, 1984) and that they would not recommend their professions to their children (Jackson, Schwabb, & Schuler, 1986). Goodlad

(cited in Goodall & Brown, 1980) found that approximately one-fourth of the teachers he surveyed would not become teachers again if given the opportunity. The National Education Association (cited in Goodall & Brown, 1980) reported this figure to be one-third rather than one-fourth. Each year, a large number of competent and successful teachers choose to leave the profession in the pursuit of other careers. Various authors have indicated that the level of stress associated with teaching may be a major reason for these chosen departures (Cardinell, 1980; Eskridge & Coker, 1985; Farber, 1984; Greenberg, 1984; Kyriacou & Sutcliffe, 1979; Litt & Turk, 1985; McGuire, 1979; Truch, 1980).

Each teacher tends to have his or her own job-related stressors (Fimian, 1982; Fimian & Santoro, 1983). Accordingly, a situation which causes one teacher to feel stress may or may not cause another teacher to feel stress (Fimian, 1982; Kyriacou, 1980). The literature reveals numerous reasons why teachers experience occupationally related stress. However, the majority of these documents tend to identify variables associated with school systems, teacher internal characteristics, and students as major contributors to teacher stress levels (Hiebert & Farber, 1984). Heath-Camp and Camp (1990) found that the negative experiences of most

beginning vocational teachers also emerged from these same three broad areas.

Rational for the Study

Camp and Heath-Camp (1990) developed the Teacher Proximity Continuum as a conceptual framework for the classification and analysis of teacher-related phenomena. An in-depth review of the literature on teacher stress revealed that most of the cited causes of stress in teachers could be easily categorized into the eight domains of the Teacher Proximity Continuum: internal, pedagogy, curriculum, program, peer, student, school system, and community. However, in accordance with the findings of the Heath-Camp and Camp (1990) study on beginning vocational teachers, a majority of the negative influences associated with teachers in general also tended to fall into three of the eight domains. These three domains included the internal, student, and system categories.

An empirical research study that investigates these three domains will prove beneficial to an in-depth understanding of the complex issue and nature of teacher stress. Concentrating on how these three domains affect the stress experienced by vocational teachers will comply with Gage's (1977) recommendation that educational research be discipline specific. Directing the study

specifically towards vocational teachers will provide some insight into their unique experiences. It also will help to broaden the scope of research available in an area that appears to be lacking in the professional literature.

As previously cited, many authors have indicated that the study of teacher stress is vital to the teaching profession. Therefore, a study of vocational teacher stress should prove important to vocational educators at all levels. Additional information in this area will enable vocational teachers to determine if they are experiencing productive or unproductive levels of stress. It will assist administrators and teacher educators in creating methods for combating vocational teacher stress that might ultimately prove detrimental to school systems, vocational teachers, and their students. An increased understanding of the phenomena of vocational teacher stress can lead to more precise and effective prevention and intervention strategies and programs. Stress management techniques and stress reduction tactics specifically geared toward the unique needs of vocational teachers can be developed and eventually implemented in school systems and teacher education programs.

Statement of the Problem

The educational literature reveals a spectrum of causes of teacher stress. An overwhelming number of the studies previously conducted indicated that variables associated with school systems, teacher internal characteristics, and students tend to cause the highest levels of stress in teachers (Alley, 1980; Blase, 1982, 1986; Eskridge & Cocker, 1985; Fimian, 1982; Fimian & Santoro, 1983; Hiebert & Farber, 1984)

While many studies have been conducted on teacher stress, few have empirically investigated the causal relationships among specific stressors and teacher stress (Byrne, 1992). Fewer still have researched vocational teacher stress. Therefore, this study attempted to analyze the effects of the following three areas on vocational teacher stress: (a) school systems (b) teacher internal characteristics, and (c) students. For the purposes of this study, teacher stress is defined as "A response by a teacher of negative affect (such as anger, anxiety, or depressions) accompanied by potentially pathogenic physiological changes as a result of the demands made upon the teacher in his or her role as a teacher" (Kyriacou & Sutcliffe, 1977, p. 299).

The procedural problem for this present study was to analyze the effects of school systems, teacher internal

characteristics, and students on the stress levels of vocational teachers using three regression models and one proposed causal model (see Figure 1). The three regression models were evaluated using Linear Regression. The proposed causal model was evaluated using LISREL.

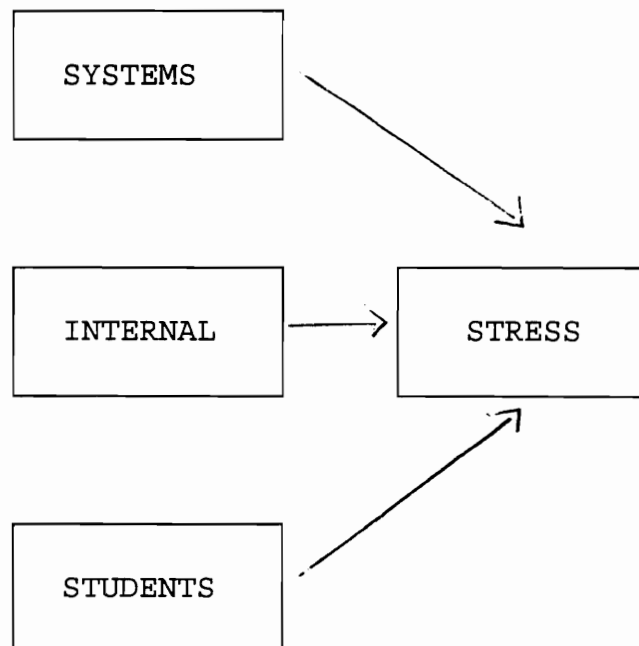


Figure 1. Conceptual Model of Vocational Teacher Stress

Purpose of the Study

The general purpose of this study was to discover the relationships among school systems, teacher internal characteristics, students, and vocational teacher stress. Another purpose of this study was to analyze vocational teacher stress using a proposed causal model that was

developed using the literature on teacher stress to provide a conceptual framework. The model attempted to examine the linkages that exist among vocational teacher stress, teacher internal characteristics, students, and school systems. In this study the investigator specifically:

1. Synthesized the extant literature;
2. Developed a regression model based on nine independent variables related to school systems and one dependent stress variable.
3. Developed a regression model based on six independent variables related to vocational teacher internal characteristics and one dependent stress variable.
4. Developed a regression model based on three independent variables related to students and one dependent stress variable.
5. Developed a proposed causal model of vocational teacher stress;
6. Identified instruments to measure the constructs of the three regression models and proposed causal model of vocational teacher stress;
7. Collected data to facilitate the analyses of the three regression models and proposed causal model of vocational teacher stress;

8. Analyzed the three regression models.
9. Analyzed the proposed causal model of vocational teacher stress using LISREL.

Research Questions

Five major questions were addressed in order to fulfill the stated purposes of this study. The review of the literature provided insight and direction to these questions.

1. What stress levels are experienced by vocational teachers?
2. What is the effect of school systems on vocational teacher stress?
3. What is the effect of teacher internal characteristics on vocational teacher stress?
4. What is the effect of students on vocational teacher stress?
5. What is a plausible pattern of causal relationships among three latent variables (teacher internal characteristics, school systems, and students) and vocational teacher stress?

Assumptions

Six assumptions provided a starting point for this study.

1. The first assumption is that the identified measures of role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, and management style associated with the Teacher Stress Measure (Pettegrew & Wolf, 1982b) (see Appendix B) were able to adequately serve as variables important to the area of school systems (see Appendix A).
2. The second assumption is that the identified measures of role preparedness, job satisfaction, life satisfaction, and illness symptoms associated with the Teacher Stress Measure (Pettegrew & Wolf, 1982b) (see Appendix B), the Personal Behavior Inventory (Collins, 1974b) (see Appendix C), which measures locus of control, and the Self-Esteem Scale (Rosenberg, 1989) (see appendix D) were able to adequately assess the variables important to the area of teacher internal characteristics (see Appendix A).
3. The third assumption is that the measures of teacher perception of class size, student learning, and student behavior associated with the Classroom Environment Scale (Bacharach, Bauer, & Conley, 1986)

(see Appendix E) were able to adequately serve as those variables important to the area of students (see Appendix A)

4. The fourth assumption is that the Tennessee Stress Scale-R (McWilliams, 1984) (see Appendix F) was able to adequately and effectively measure vocational teacher stress levels.
5. The fifth assumption is that linear regression was an appropriate statistical procedure to use for analyzing the effects of three sets of independent variables on a dependent variable, STRESS (see Appendix A).
6. The sixth assumption is that LISREL was an appropriate computer program to use in assessing the causal relationships among vocational teacher stress levels, school systems, teacher internal characteristics, and students (see Appendix A).

Delimitations

1. This study focused on vocational teacher stress from the standpoint and perceptions of those vocational teachers who were involved in the study, especially those who completed and returned the Teacher Stress Packet, a packet compiled by the investigator containing five separate instruments (see Appendixes B, C, D, E, and F), letter (see Appendixes H or I),

consent form (see Appendix L), informational form (see Appendix M), and instructions for the instruments (see Appendix N).

2. This study investigated the stress levels of public school vocational teachers currently teaching in the Commonwealth of Virginia. Teachers participating in the study came from two different groups. The first group included teachers employed in five targeted school systems in Virginia. The second group included a random sample of vocational teachers teaching in other locations throughout Virginia.
3. The researcher evaluated teacher stress based upon the perceptions of the vocational teachers actually involved in the study.
4. The researcher analyzed three separate regression equations, each having its own set of independent variables or stressors related to school systems, teacher internal characteristics, and students.
5. The researcher analyzed the effects of three latent stressors: (a) teacher internal characteristics (b) school systems, and (c) students.
6. The results of this study are based on data collected during the winter months of 1994.

Limitations

1. Due to the nature of the subjects participating in this study, the results cannot be generalized to other school systems, other states, other types of public school teachers, other vocational teachers, or the population of vocational teachers in general.
2. Since stress tends to be experienced by individual teachers differently and caused by a variety of stressors, this proposed causal model is not presented as a complete theory. It is proposed and presented as a general framework for viewing and analyzing three major causes of stress in vocational teachers.
3. As with most survey research, non-representativeness of the sample returns must be considered in interpreting both the internal and external validity of this study.

Definitions

The following definitions refer to terms as they are used in this study.

1. **Agricultural Education** - A vocational education discipline that encompasses the study of economics, technology, politics, sociology, international relations and trade, environmental problems, and agriculture biology. This program offers courses

that provide knowledge and skills basic to employment in agricultural businesses and lead to careers in specialized occupational areas related to agriculture (Virginia Department of Education, 1993).

2. **Burnout** - A phenomenon that occurs when an individual experiences prolonged periods of too much stress or overstimulation in his or her life or occupation. This term may also be referred to as distress (Alley, 1980; Kreitner, 1989). Most researchers refer to job burnout as the emotional, attitudinal, and physical exhaustion that results from job-related stress (Blase, 1982).
3. **Business Education** - A vocational education discipline that provides for occupational exploration in the areas of business and office occupations. It also provides preparation for those students planning to enter business/office occupations or obtain additional education (Virginia Department of Education, 1993).
4. **Classroom Environment Scale** - A self-report instrument that is based on a teacher's perception regarding the environment within his or her classroom (Bacharach et al., 1986) (see Appendix E).
5. **Class Size** - Teacher's perception of the sizes of his or her classes (Bacharach et al., 1986).

6. **Distress** - see Burnout.
7. **Eustress** - Desirable amounts of stress (Kreitner, 1989).
8. **Health Occupations** - A vocational education discipline designed to introduce and prepare students with basic skills for employment in nursing, medical, dental, and allied health occupations. It facilitates students' entry into advanced health occupational programs and enables students to become more knowledgeable consumers of health services (Virginia Department of Education, 1993).
9. **Illness Symptoms** - The reported presence of certain stress-related psychosomatic symptoms in the individual teacher (Pettegrew & Wolf, 1982a).
10. **Job Satisfaction** - A global measure of one's own well-being at work (Pettegrew & Wolf, 1982a).
11. **Life Satisfaction** - A global measure of one's own well-being surrounding his or her life in general (Pettegrew & Wolf, 1982a).
12. **LISREL** - a computer program specifically designed to deal with structural equation models having both latent (unobserved) and observed variables.
13. **Locus of Control** - Individuals' perceptions regarding the amount of control they have over the events which occur in their lives (Hellriegel, Slocum, & Woodman,

1986). People having an internal locus of control tend to believe that the events which occur in their lives are typically due to their own behaviors. People having an external locus of control tend to think that their life events are caused by other external forces and chance.

14. **Management Style** - The management practices of a teacher's administrative personnel (Pettegrew & Wolf, 1982a).
15. **Marketing Education** - A vocational education discipline designed to prepare students for careers in the marketing of goods or services; the buying, transporting, and storing of goods; the promotion of goods and services; marketing research; and marketing management. Through classroom instruction and supervised on-the-job training, it enables students to develop competencies for entry into full-time employment or into advanced educational or training programs (Virginia Department of Education, 1993).
16. **Nonparticipation** - An individual not being directly involved in the decision making process on issues that specifically affect one's own work (Pettegrew & Wolf, 1982a).
17. **Peer Support** - The support obtained from one's peers (Pettegrew & Wolf, 1982a).

18. **Personal Behavior Inventory** - An inventory of how people see their own behavior and the behavior of other people. (Collins, 1974b) It is a self-report instrument based on Rotter's Internal-External scale and designed to measure an individual's locus of control (see Appendix C).
19. **Role Ambiguity** - An employee's inability to clarify his or her work related obligations, rights, objectives, status, and accountability (Byrne, 1992; Farber, 1991). The absence of clear or adequate information about the role one must perform (Pettegrew & Wolf, 1982a).
20. **Role Conflict** - Difficulties that occur when an employee attempts to deal with two or more sets of work related pressures occurring simultaneously (Byrne, 1992; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). The presence of two or more work demands that are incompatible (Pettegrew & Wolf, 1982a).
21. **Role Overload** - The absence of sufficient resources to perform one's role adequately (Pettegrew & Wolf, 1982a)..
22. **Role Preparedness** - Competency or preparation to perform a given role (Pettegrew & Wolf, 1982a).

23. **Rustout** - A phenomenon that occurs when an individual experiences too little stress or understimulation in his or her life or occupation (Kreitner, 1989).
24. **School Stress** - The amount of perceived stress experienced within the school environment (Pettegrew & Wolf, 1982a).
25. **Self-Esteem** - An individual's evaluation of his or her behaviors, abilities, appearance, self-worth, successes, and failures (Hellriegel, Slocum, & Woodman, 1986).
26. **Self Esteem Scale** - A self-report instrument used to determine an individual's self-esteem level (Rosenberg, 1989) (see Appendix D).
27. **Student Behavior** - Teacher's perception of his or her students' classroom behavior (Bacharach et al., 1986).
28. **Student Learning** - Teacher's perception of the amount his or her students learn (Bacharach et al., 1986).
29. **Supervisory Support** - The support obtained from one's supervisory personnel (Pettegrew & Wolf, 1982a).
30. **Stress** - An adaptive response, mediated by individual characteristics and psychological processes, that is a consequence of any external action, situation, or event that places special physical and psychological

demands upon a person (Ivancevich & Matteson, 1980, pp. 8-9).

31. **Stressor** - An event in the environment that causes greater than usual adaptive responses from the body (Cohen, 1978). A stressor can be either positive or negative (Alley, 1980).
32. **Task Stress** - The stress experienced from performing specific job-related tasks (Pettegrew & Wolf, 1982a).
33. **Teacher Burnout** - A condition that results from prolonged teacher stress. It tends to be characterized by physical, emotional, and attitudinal exhaustion (Cunningham, 1983).
34. **The Teacher Proximity Continuum** - A conceptual framework, developed by Camp and Heath-Camp (1990), for the classification and analysis of teacher-related phenomena.
35. **Teacher Stress** - A response by a teacher of negative affect (such as anger, anxiety, or depression) accompanied by potentially pathogenic physiological changes as a result of the demands made upon the teacher in his or her role as a teacher (Kyriacou & Sutcliffe, 1977, p. 299).
36. **Teacher Stress Measure** - A self-report instrument designed to measure job-related stress experienced by teachers (Pettegrew & Wolf, 1982b) (see Appendix B).

- 37. Teacher Stress Packet** - Materials mailed to the vocational teachers selected to participate in this study. The packet included a letter, consent form, informational form, and a battery of five separate instruments: 1) Teacher Stress Measure, 2) Personal Behavior Inventory, 3) Self Esteem Scale, 4) Classroom Environment Scale, and 5) Tennessee Stress Scale-R.
- 38. Technology Education** - A vocational education discipline designed to teach students to understand, use, and control technology. The curriculum covers the development of technology and its effect on people, the environment, and society. Students learn how to adjust to change, to deal with forces that influence their future, and to participate in controlling their future and contributing to a competitive and technologically based society (Virginia Department of Education, 1993).
- 39. Tennessee Stress Scale - R** - A work-related stress inventory for professionals (McWilliams, 1989) (see Appendix F).
- 40. Trade and Industrial Education** - A vocational education discipline designed to develop occupational skills, knowledge, attitudes, and work habits that prepare students to become employed and progress

satisfactorily in trade and industrial fields as skilled or semi-skilled crafts persons. The content of each instructional program is determined by those basic competencies required for employment in a given trade area (Virginia Department of Education, 1993).

- 41. Vocational Education** - Federal and state funded educational programs designed to provide individuals with professional instruction. It has seven program areas: 1) Agricultural Education, 2) Business Education, 3) Health Occupations, 4) Marketing Education, 5) Technology Education, 6) Trade and Industrial Education, and 7) Work and Family Studies (Virginia Department of Education, 1993).
- 42. Vocational Student Organizations** - an organization linked to a specific vocational program. It provides students with a variety of activities which help them to prepare for leadership roles and careers in a vocational area of study (Virginia Department of Education, 1993).
- 43. Work and Family Studies** - A vocational education discipline that holds the work of the family as its fundamental concept. It provides students with educational opportunities to prepare for work in the family enterprise and to explore and prepare for jobs that originate from the family enterprise. Students

are taught career development, job and employability skills, the value of work and the family, and the enhancement of reading, writing, speaking, listening, computing, and reasoning skills (Virginia Department of Education, 1993).

Organization of the Study

Chapter Two contains a review of the literature related to teacher stress. The review focuses on those variables which have been cited to cause teachers to experience stress. Special emphases has been placed on the development of the three regression models and proposed causal Model of Vocational Teacher Stress. Literature shown to support independent, indicator (role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, management style, role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control, self esteem, class size, student learning, and student behavior) and latent variables (teacher internal characteristics, school systems, and students) is identified and discussed. The use of LISREL is introduced.

Instrumentation and the research design are presented in Chapter Three. This chapter includes descriptions of the instruments used to assess the

independent and latent variables illustrated in the three regression models and the causal model. The three regression models and proposed causal model of vocational teacher stress, including all latent and indicator variables, are presented.

The results and analysis of the data are presented in Chapter Four. The ultimate findings of this empirical study of vocational teacher stress, including the three regression models and proposed causal model are presented and illustrated.

Chapter Five interprets the findings of this study. Four sections are included in this last chapter: 1) summary of the study, 2) conclusions and discussion, 3) recommendations, and 4) suggestions for future research.

CHAPTER II

LITERATURE REVIEW

Today's fast-paced and ever-changing environment has caused stress to become a term that is used regularly in our daily language (Eskridge & Coker, 1985; Wangberg, 1984). It is a term which many of us use to describe the frustrations and pressures we experience in our social, personal, and work lives. All of us, at some time in our lives, have encountered stressors, experienced stress, and felt the effects of stress. Stress is actually the body's reaction to stressors we encounter (Kaiser & Polczynski, 1982). Most people experience some type of stress related to their occupations (Eskridge & Coker, 1985).

An Overview of Stress

According to Selye (1974), stress can be caused by physiological, psychological, or environmental factors. Physiological factors pose some type of threat to our physical well being. Psychological stressors typically are incurred through competition, interaction, or perceived needs. Environmental factors involve those surroundings in which we live and work. When confronted with stressors, the body creates extra energy to cope with the expelled fear or apprehension. Stress occurs

when our bodies do not use up all of the extra energy that has been created.

This reaction to stressors was first described by Selye in 1936. It became known as the General Adaption Syndrome (GAS) and includes three distinct stages (a) the alarm reaction; (b) the stage of resistance; and (c) the stage of exhaustion (Selye, 1974, 1980). It should be noted, prior to a description of these three stages, that our abilities to adapt to the stressors we face are limited (Selye, 1974; Sweetland, 1979).

The body's defenses toward stressors are alerted and activated during the alarm resistance stage. Stress levels tend to be highest during this first stage of the GAS. During the stage of resistance, the body's defenses attempt to adapt to the stressors it is being exposed to and stress levels are subsequently reduced. The stage of exhaustion occurs once the body's defenses to adapt successfully to stress have been totally expended. It is during this third stage that physical and mental breakdown occurs, individual performance plummets, and illness may develop (Hubert, 1984).

Individuals suffering from stress often have fatigue, insomnia, reoccurring headaches, unexplained weight loss, gastrointestinal problems, and skin rashes (Cardinell, 1980; Eskridge & Coker, 1985; Maples, 1980).

More serious problems associated with prolonged stress include high blood pressure, cardiovascular difficulties, ulcers, shortness of breath, and colitis.

Many behaviors, especially behavioral changes can be linked to stress. These include abrupt mood swings, lowered tolerance for frustration, increased irritability, loss of caring for others, feelings of helplessness, lack of control, paranoia, suspiciousness, and greater professional risk taking (Cardinell, 1980; Eskridge & Coker, 1985).

Theoretical Framework

The majority of stress we experience, however, is not harmful. As a matter of fact, most researchers contend that we need certain amounts of stress to remain productive (Alley, 1980; Goodall & Brown, 1980; Kaiser & Polczynski, 1982; Kreitner, 1989; Hunter, 1989; Selye, 1980). "Stress is a natural part of life, but when there is too little or too much one suffers" (Goodall & Brown, 1980, p. 20).

Selye (1976, 1980) used the term eustress to describe good or productive amounts of stress. Distress is the term used by researchers to describe bad stress (Alley, 1980; Selye, 1976, 1980). "During both eustress and distress the body undergoes virtually the same

nonspecific responses to the various positive or negative stimuli acting upon it" (Selye, 1976, p. 74).

Productivity levels decrease when individuals are over or under stressed. The relationship between stress and productivity is curvilinear (see Figure 2) (Alley, 1980; Kreitner, 1989). This relationship between stress and productivity is often referred to as the "Inverted-U hypothesis" (Sweetland, 1979). It states that a person experiencing no stress can be as unproductive as a person experiencing too much stress. The hypothesis further states that a person tends to become more productive and effective as his or her stress reaches its optimum level (Alley, 1980; Kreitner, 1989; Sweetland, 1979). The optimum level of stress is illustrated in Figure 2 by the two broken lines.

Persons having too little stress in their lives and occupations may eventually suffer from "rustout", as shown on the far left side of Figure 2 (Kreitner, 1989, p. A7). Extreme amounts of distress, over a prolonged period of time, may cause individuals to experience burnout and to become dysfunctional (Eskridge & Coker, 1985; Hunter, 1989). Burnout is illustrated on the far right side of Figure 2.

Stress is an extremely difficult phenomenon to study because we all tend to experience and react to stressors

and stress differently. The stress we need to be productive and the amount of stress that causes us to be nonproductive are as individual as our own personalities. Situational and personal variables dictate how individuals will react to stressful events (Fimian, 1982). Even though there are both good and bad stress, few people tend to regard stress as a pleasant experience (Pratt, 1978). Most of us view the stress we feel as negative.

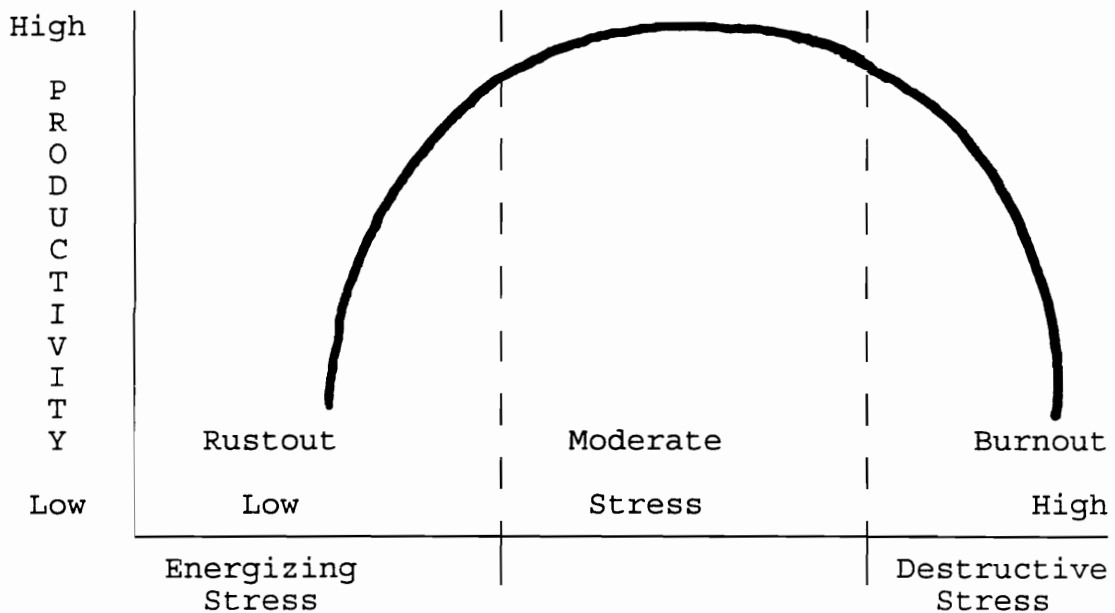


Figure 2. The Two Faces of Stress

From "Career and Stress Management," by R. Kreitner, 1989, Management, p. A7.

Teacher Stress

Teacher stress, like stress in general, is not a new phenomenon (Farber, 1984; Wangberg, 1984). It has continued to be formally studied since the 1930s when a collection of articles on the health and happiness of teachers was published by the National Education Association (Smith & Milstein, 1984). Since that time, a growing multitude of articles, books, papers, and dissertations have been written and published on the topic of teacher stress. Stress, as it relates to the occupation of teaching is a topic that has been around for a long time (Dedrick, Hawkes, & Smith, 1981).

Recently, however, there has been an enormous amount of interest shown towards teacher stress (Cherniss, 1980; Edilwich & Brodsky, 1980; Fimian & Santoro, 1983; Greenberg & Valletutti, 1980; Truch, 1980). According to Fielding and Gall (1982), teachers are increasingly suffering from occupational stress. Public school teachers, at all levels and especially the secondary level (Eskridge & Coker, 1985; Borthwick, Thornell, & Wilkerson, 1982), seem to be experiencing large amounts of stress related to their occupations (Fielding & Gall, 1982; Laughlin, 1984; Wangberg, 1984).

Stress appears to be a common denominator in the lives of today's teachers (Goodall & Brown, 1980).

Teachers, as do others, tend to experience tension when they attempt to cope with their work-related stressors (Blase, 1982). It is this tension that causes teachers to encounter stress.

Many authors have contended that stress associated with teaching has caused many teachers to relinquish their teaching positions (Farber, 1984; Fielding and Gall 1982; McGuire, 1979; Wangberg, 1984). Nearly 50 percent of the teachers who participated in a study conducted by Fielding and Gall (1982) reported that they suffered from extreme stress. The stress felt by 21 percent of these teachers caused them to regularly consider leaving the teaching profession. Teachers have reported that "it just isn't worth it" and that "they are tired" (Alley, 1980, p. 2).

Less than 60 percent of teachers last more than four years in the classroom (Farber, 1984). Goodall & Brown (1980) reported that approximately one-fourth of the teachers surveyed by Goodlad would not become teachers again if given the opportunity. The National Education Association (cited in Goodall & Brown, 1980) reported this figure to be one-third rather than one-fourth.

Teaching has never been an easy job. Hunter (cited in Halpin, Harris, & Halpin, 1985), in a speech to the American Association of School Administrators proclaimed

teaching to be one of the most potentially stressful occupations. Goodall and Brown (1980) have jokingly suggested that "...each graduating teacher be presented with a certificate that says 'one of your main functions as a teacher is to preserve and protect your mental health'" (p. 22).

An endless supply of stressors that plague teachers have been identified (Smith & Milstein, 1984). As a matter of fact, numerous authors have documented an abundance of teaching related stressors (Bloch, 1977; Coates & Thoreson, 1976; Fimian, 1980, 1982, 1984; Fimian & Santoro, 1983; Styles & Cavanagh, 1977; Wangberg, 1984). The stressors associated with teaching tend to be both psychologically internal and environmentally external to the individual teacher and are inherent in all school environments (Alley, 1980).

In today's society, stress has become part of teaching. It can be either beneficial or harmful to the teacher. If a stressful situation causes a teacher to experience growth or satisfaction, it is beneficial. If a stressful situation causes a teacher to experience emotional or physical illness, it is harmful (Iwanicki, 1983).

Since stress tends to affect people in an individual manner, it is difficult to determine exactly what factors

will result in high levels of teacher stress (Harris, Halpin, & Halpin 1985; Iwanicki, 1983). Each teacher tends to have his or her own job-related stressors (Fimian, 1980, 1982; Fimian and Santoro, 1983). A situation which causes one teacher to feel stress may actually energize another teacher (Fimian, 1982).

A variety of demographic variables can be found in the literature which influence the amount of stress experienced by teachers: gender, race, age, years of teaching experience, and years of professional preparation. Female teachers are believed to experience higher levels of tension and stress than their male counterparts (Borthwick, Thornell, & Wilkerson, 1982; Eskridge & Coker, 1985; Laughlin, 1984). Caucasian teachers have a tendency to exhibit more stress than minority teachers (Borthwick, Thornell, & Wilkerson, 1982). Younger teachers seem to be under more stress than older teachers. However, those teachers between the ages of 31 and 44 reported higher levels of stress than did teachers below or above this age range (Eskridge & Coker, 1985). Teachers with fewer years of teaching experience tended to exhibit higher levels of stress (Borthwick, Thornell, & Wilkerson, 1982; Laughlin, 1984). Teachers having additional professional preparation are reported to suffer less stress (Eskridge & Coker, 1985).

Coates and Thoreson (1976) conducted a review of over 20 studies on teacher stress. They discovered five prominent teacher stressors among beginning teachers: (a) challenges to maintain student discipline; (b) challenges to gain students' affection; (c) insufficient knowledge of subject matter; (d) concern over what to do in the case of not having enough materials or making mistakes; and (e) concern over how to relate personally to other faculty, the school system, and students' parents. Coates and Thoreson (1976) identified time demands, difficulties with pupils, and large class numbers as the major stressors for experienced teachers.

Kyriacou and Sutcliffe (1978) conducted a study of teacher stress which included 257 teachers. This study found the following to be teacher stressors: poor attitudes of students toward work, trying to maintain values and standards, covering lessons for absent teachers, pupil misbehavior, poor working conditions, time pressures, poor school ethos, too much work to do, and not enough time to do the work.

Alley (1980) identified four distinct sources of teacher stress: (a) personal, (b) interpersonal, (c) institutional, and (d) societal. Personal sources of teacher stress could be explained by teachers' individual

personalities and included such things as teachers' inner fears, inner drives, ambitions and personality types.

The interpersonal sources identified in Alley's (1980) study emerged from teachers' relationships with other people. Interactions with students and conflicts with colleagues were cited as two major stressors within this area. Institutional stressors tended to be closely related to the interpersonal sources of teacher stress because they often involved relationships with others in the school system. Interactions with teachers' supervisors or principals, school policies, and mainstreaming were listed as institutional sources of teacher stress (Alley, 1980).

Societal sources typically came from outside the schools and usually involved people in the communities. Alley (1980) found three societal stressors related to teaching: (a) attitudes of the public toward schools or teachers, (b) attacks upon school programs by public officials or the media, and (c) attitudes of school board members.

Cichon and Koff's study (1980) of stressful teaching events was successful in uncovering four general categories related to teaching occupations: (a) student-teacher relationships, (b) school systems, (c) job roles, and (d) pedagogical responsibilities. Categories and

stress themes identified through this study were used by Cichon and Koff to develop the Teaching Events Stress Inventory.

The first category of stressful teaching events centered around student-teacher relationships and more specifically, student behaviors. Dominant themes within this category included violence and student discipline. Teachers in the Cichon and Koff (1980) study found dealing with student discipline to be extremely difficult.

Teaching events in the second category identified by Cichon and Koff (1980) related to school systems. Themes identified in this category included such events as: involuntary transfers, overcrowded classrooms, unsatisfactory evaluations, insufficient books and supplies, reorganization of programs and classes, implementation of educational board goals, denial of promotion or advancement, and disagreements with supervisors.

The third category of events reverted back to teacher-student relationships and teachers' job roles related to these relationships. Cichon and Koff (1980) referred to this category as "doing a good job" (p. 101). Themes surfacing in this category of teaching events included the following: maintaining self control when

angry at students, teaching students who were below average in achievement, being held accountable for students' academic performance, and being held responsible for students' behavior.

The teaching events in the fourth category induced the least amount of stress in teachers. These events centered around teachers' pedagogical responsibilities: conducting teacher-parent conferences, teaching bilingual students, discussing student problems, completing additional college coursework, attending inservice meetings, evaluating students, attending principal conferences, and preparing lesson plans. Cichon and Koff (1980) inferred that teachers experienced less stress related to these events because they tended to exert greater direct control over these events.

Dedrick, Hawkes, and Smith (1981) designed a study to determine how teachers perceived 11 sources of teacher stress previously identified by other researchers. The overall rankings, established in Phase I (Dedrick, Hawkes, & Smith, 1981) and Phase II (Hawkes & Dedrick, 1983) of their study, are provided in Table 1.

Of these 11 stressful items, three were related to students and seven were related to school systems. When asked to list three things they did not like about their jobs, the teachers in this study identified items similar

Table 1

Over-All Rank Order of Stressful Items

| Phase I Results | | Phase II Results | |
|-----------------|--|------------------|--|
| <u>Ranking</u> | <u>Item</u> | <u>Ranking</u> | <u>Item</u> |
| 1. | Disruptive students | 1. | Lack of time to accomplish tasks |
| 2. | Lack of time to accomplish tasks | 2. | Disruptive students |
| 3. | Student apathy | 3. | Financial pressure |
| 4. | Non-teaching duties | 4. | Student apathy |
| 5. | Financial pressure | 5. | Lack of positive feedback from administrators |
| 6. | Lack of support from parents/community | 6. | Lack of input into curriculum/administrators decisions |
| 7. | Dealing with multi-ability students | 7. | Lack of support from parents/community |
| 8. | Lack of positive feedback from parents/community | 8. | Lack of recognition for teaching excellence |
| 9. | Lack of input into curriculum/administrators decisions | 9. | Non-teaching duties |
| 10. | Lack of recognition for teaching excellence | 10. | Dealing with multi-ability students |
| 11. | Lack of colleague support | 11. | Lack of colleague support |

From "Teacher Stress: Phase II of a Descriptive Study" by R. R. Hawkes and C. V. Dedrick, 1983, NASSP Bulletin 67(461), p. 79.

to those already believed to induce teacher stress (Dedrick, Hawkes, & Smith, 1981). The things that teachers tended to dislike about their occupations

included a variety of issues relating to the following ten areas: paperwork, school administration, nonteaching duties, low pay, parents and community, student apathy, discipline, other teachers, lack of time to accomplish tasks, and work load.

Teachers participating in a study conducted by Blase (1982) listed the following as their most difficult stressors: student apathy, student discipline, poor student attendance, paperwork, irresponsible teachers, obtrusive supervisors, and non-supportive parents. They identified paperwork and preparation work as major causes of teacher stress. Coping with these work-related stressors often caused the teachers in Blase's investigation to experience feelings of emotional fatigue, frustration, helplessness, stagnation, boredom, and loss of motivation and enthusiasm.

Fimian (1982) contended that teacher stress is typically related to a variety of personal, social, physical, and interpersonal events and experiences occurring in the classroom and school. Fimian (1982) categorized teacher stressors into 12 areas:

- (a) personal competence; (b) self-relationship;
- (c) conflicting values; (d) social approval;
- (e) isolation; (f) expectations; (g) self-fulfillment;
- (h) deficiencies in the work environment; (i) ego needs;

(j) self-inflicted stress; (k) professional constraints;
(l) student-teacher relationship.

A study conducted by Fimian and Santoro (1983) uncovered a wide variety of stressors related to the teaching profession. These stressors are listed below:

- lack of recognition, promotion, and advancement;
- deficient salaries;
- inadequate time to spend with individual students;
- unmotivated students;
- widespread abilities of students in the same class
- ineffective discipline policies;
- insufficient time for preparation;
- extremely large classes;
- fast-paced school day;
- isolation from other adults; and
- poor attitudes/behaviors of the administration;

Role-related stress is a function of the teacher's personality and teaching preparation. Iwanicki (1983) contended that classroom discipline problems, dealing with special-needs students, finding time to participate in professional development activities, and developing good relationships with school administrators, teachers and parents are possible sources of role-related stress in teachers.

Iwanicki (1983) also found that a variety of societal sources caused teachers to feel stress. The public's poor opinion of education has caused teachers to suffer from lowered self esteem. Negative opinions have led the public to insist that teachers perform more, at a time when the financial support for education is being lessened. The propensity for higher performance has inflicted stress on too many teachers.

When developing the Teacher Stress Inventory, Fimian (1984) identified six categories of stressors for teachers. The categories Fimian identified were:

- 1) Personal/Professional stressors;
- 2) Professional Distress;
- 3) Discipline and Motivation;
- 4) Emotional Manifestations;
- 5) Biobehavioral Manifestations;
- and
- 6) Physiological-Fatigue Manifestations.

According to Gutpa, (1981) there are three major types of stressors: environmental, organizational, and individual. Smith and Milstein (1984) supported this contention when their study revealed that teacher stressors tended to emerge from both the environment and individual.

Eskridge and Coker (1985) believed that teachers appeared to experience their highest levels of stress in the area of interpersonal relationships. These

relationships included those with school supervisors, colleagues, and students.

Harris, Halpin, and Halpin (1985) conducted a study of teacher stress which investigated the following categories: professional inadequacy, principal-teacher relationships, collegial relationships, group instruction and job overload. Student discipline, student attitudes toward school, physical violence, preparation time, teaching role definition, administrators, lack of resources, and work loads were cited by the teachers who participated in this study as the major stressors encountered in these areas.

The stress categories identified in Blase's (1986) qualitative study were organizational, student (or student behavior), administrative, teacher, parent, occupational personal, academic program, and negative public attitude. This study also uncovered five negative feeling states associated with teacher stress: anger, depression, anxiety, self-blame, and physical symptoms.

Hiebert and Farber (1984) reviewed 71 articles on teacher stress and discovered that 70 percent of the articles contained no data support for the cited findings. Only 30 percent of the articles reviewed offered any empirical support for the claims that were made regarding teacher stress.

Hiebert and Farber (1984) divided the articles they reviewed into four distinct categories: Type 1, 2, 3, and review articles. Type 1 articles contained no data and were basically the authors' opinions about teacher stress. Type 2 articles offered data collected from self-support instruments and type 3 articles offered data that came from third-party sources. Review articles attempted to provide syntheses on teacher stress by summarizing available data. They found teacher-student conflict and discipline-related problems to be the two most commonly cited stressors for teachers. Hiebert and Farber also found staff interpersonal interactions, working conditions, time pressures, inadequate teacher preparation, and role ambiguity and perceived role conflict as other teacher stressors regularly cited in the literature.

Hiebert and Farber (1984) concluded that findings supporting teaching as a stressful occupation were contradictory. Some of the studies reviewed found teaching to be stressful while others did not find it to be any more stressful than other occupations. However, Hiebert and Farber also noted that the studies did not establish that teaching is not stressful.

Kaiser and Polczynski (1982) contended that five of the seven categories in Cooper and Marshall's framework

for studying stress were applicable to the occupation of teaching. The following five categories could be applied to teaching: a) factors intrinsic to the job, b) role in the organization, c) relationships within the organization, d) career development, and e) organizational structure or climate. Four of the five categories cited above were researched in this causal study of teacher stress. They include: a) factors intrinsic to the job, b) role in the organization, c) relationships within the organization, and d) organizational structure or climate

Researchers have linked factors intrinsic to the job with qualitative and quantitative work overload (Kaiser & Polczynski, 1982). For teachers, work overload may include such things as class size, number of preparations, and availability of teacher aides.

Work roles, or roles in the organization, have been cited by many researchers as a major factor leading to job stress. An ambiguous work role, often referred to as role ambiguity, can increase job related stress (Kaiser & Polczynski, 1982).

Productive and positive relationships with co-workers are important in any job setting. Workers who did not trust the people they worked with reported that their mistrust lead to poor communications, low job

satisfaction, and job-related threats (French & Caplan, 1973). These feelings caused workers to suffer from increased job related tensions and frustrations.

Organizational structures or climates threatening to workers' autonomies and identities were other sources of work-related stress. Organizational climates limiting workers' participation in the decision-making process, hindering communication, restricting behaviors, and encouraging organizational politics have been shown to cause employees to suffer from a variety physical, personal, and job-related ailments. Workers employed by these types of organizations have been shown to experience poor physical health, depression, and lower work motivation, life satisfaction, and job satisfaction (Kaiser & Polczynski, 1982; Margolis, Kroes, & Quinn, 1974).

According to Sutton and Huberty (1985), the negative effects of employee stress on organizations are significant. Employees who die prematurely cost organizations more than \$19 billion per year. Worker absenteeism and hospitalization cost organizations another \$10 to \$20 billion per year. Heart-related diseases (often linked to stress) cost organizations \$8 billion annually and result in 32 million lost workdays. Teachers suffering from stress often show reductions in

efficiency. They are often late or absent from school (Eskridge & Coker, 1985).

The effects of stress on the quality of teaching have become very important to parents, school administrators, and to teachers themselves (Farber, 1982, 1984). Fuller (cited in Fimian, 1982) found that teachers act differently when they are confronted with stressful situations or events. Teachers faced with normal situations or events tend to react in the following order: (a) concern for individual students; (b) concern about what their students are learning; (c) classroom performance; and (d) basic survival. Teachers under stress react in exactly the opposite order with basic survival taking precedence over the other three.

The school, teacher performance, and the physical and emotional well-being of the teacher can be affected by stress (Blase, 1986; Kyriacou & Sutcliffe, 1977). Teachers who have high levels of stress may be less sympathetic toward students, may exhibit a lower tolerance for classroom frustration, may spend less time preparing for their classes, may not take as much care when planning their lessons, and eventually may choose to leave the teaching profession (Farber, 1984).

Teachers experiencing stress may become less committed and dedicated to their teaching

responsibilities (Farber, 1984). Farber and Miller (1981) and Blase (1986) found that occupational stress actually diminished teachers' overall work performance. Teachers' stress often undermined their instructional effectiveness and detracted from their general performance effectiveness (Blase, 1986).

Kyriacou and Sutcliffe (1978) found teachers to be under considerable stress when they exhibited frustration, exhaustion, and tenseness. A survey conducted by the Instructor (1977) uncovered specific symptoms associated with teacher stress. These symptoms included migraine and sinus headaches, allergies, colds, post nasal drip, hypertension, bladder, kidney, and bowel disorders, colitis, nervous stomach, acne, and weight problems.

In a study conducted by Landsmann (1979), teachers most frequently reported stress, tension, and anxiety as their major health concerns. Occupational stress was a major reason for absenteeism in 75 percent of these teachers. A survey conducted by the Chicago Teachers' Union (cited in Landsmann, 1979) revealed that 56.6 percent of the teachers who participated had suffered physical or mental illness related to their teaching occupations.

Fimian and Santoro (1983) conducted a study that uncovered several emotional, behavioral, and physical manifestations that tended to develop due to the stress teachers experienced in their teaching occupations. The six most frequently reported emotional manifestations of teacher stress were frustration, mental exhaustion, excessive worrying, anxiety, depression, and feeling pressure. The six most frequently reported behavioral manifestations of teacher stress were separating one's personal and work lives, acting defensively to others, allowing one's social and professional lives to deteriorate, sleeping more than usual, and dealing with students on a nonpersonal basis. The six most frequently reported physical manifestations of teacher stress were physical exhaustion, headaches, fatigue, physical weakness, stomach acid, and heart palpitations.

In 1983, Fimian and Santoro found that 25.5 percent of the teachers who participated in their survey had attended stress workshops and that 49.3 percent of these teachers took a mental health day on a regular basis due to their job stress. A small percentage (8 percent) had even sought out professional help for their stress related problems. Nearly 51 percent of the respondents perceived their attitudes toward teaching occupations as growing negative. An overwhelming majority of these

teachers (87.1 percent) reported their jobs as moderately-to-very stressful.

Teachers need to be conscious of the negative affects their stress might have on themselves, their students, and their overall teaching performance. (Harris, Halpin, and Halpin 1985). Unfortunately, students are ultimately the ones who suffer when teachers experience unproductive levels of stress (Eskridge & Coker, 1985). Teachers need to learn to recognize and identify the symptoms and causes of their stress. They need to be able to distinguish those individualized symptoms which signal extreme levels of stress. Ignoring these symptoms can eventually cause teachers to undergo teacher burnout. (Iwanicki, 1983). They must attempt to avoid burnout by controlling their stress with stress reduction and management techniques. (Eskridge & Coker, 1985)

Teacher stress and teacher burnout are not synonymous terms. Most teachers experience stress; however this does not indicate that most teachers are burned out (Farber, 1984). Burnout occurs when the stress and frustration associated with teaching results in chronic physical and emotional illness (Iwanicki, 1983). An important factor distinguishing stress from burnout is that stress has positive and negative effects.

Burnout is essentially the most extreme negative effect associated with prolonged periods of high stress that remains unrelieved. "Burnout can be regarded as the final step in a progression of unsuccessful attempts to cope with negative stress conditions" (Farber, 1984, p. 324). While burnout is not the issue of this study, it is interesting to note that Farber (1984) found teachers to be worn-out rather than burned-out.

Development of Regression and Causal Models

The conception of the three regression and causal models of vocational teacher stress has come from a variety of sources: (a) an extensive review of the literature related to the topic of teacher stress; (b) an analysis and reorganization of the five functional distance levels and eight domains included in the Teacher Proximity Continuum (Camp & Heath-Camp, 1990); and the personal knowledge and experience of the researcher. The literature revealed that teacher stress is the result of numerous stressors and that with each study new causes of teacher stress could in fact be identified depending on the study's major focus areas. Development of models including all of the stressors identified in the literature would be an improbable, if not impossible task. It is important to note that there are basically two distinct types of stressors that affect humans

(Goodall & Brown, 1980): (a) those which come from outside the individual, and (b) those which come from within the individual. Stressors which come from outside the individual are related to work and environmental demands. The second type of stressors, those from within, are linked to personal values, attitudes, and self-concept. This study attempted to evaluate both internal and external stressors affecting vocational teachers.

The researcher chose to develop regression and causal models which include independent, indicator, and latent variables that represent many of the stressors experienced by teachers. This section of the literature review will discuss four components vital to the development of the regression and causal models under investigation:

- a) a discussion of the reorganization of the functional distance levels and domains included in the Teacher Proximity Continuum;
- b) a review of pertinent literature related to the importance of evaluating school systems;
- c) a review of pertinent literature related to the importance of evaluating teacher internal characteristics; and

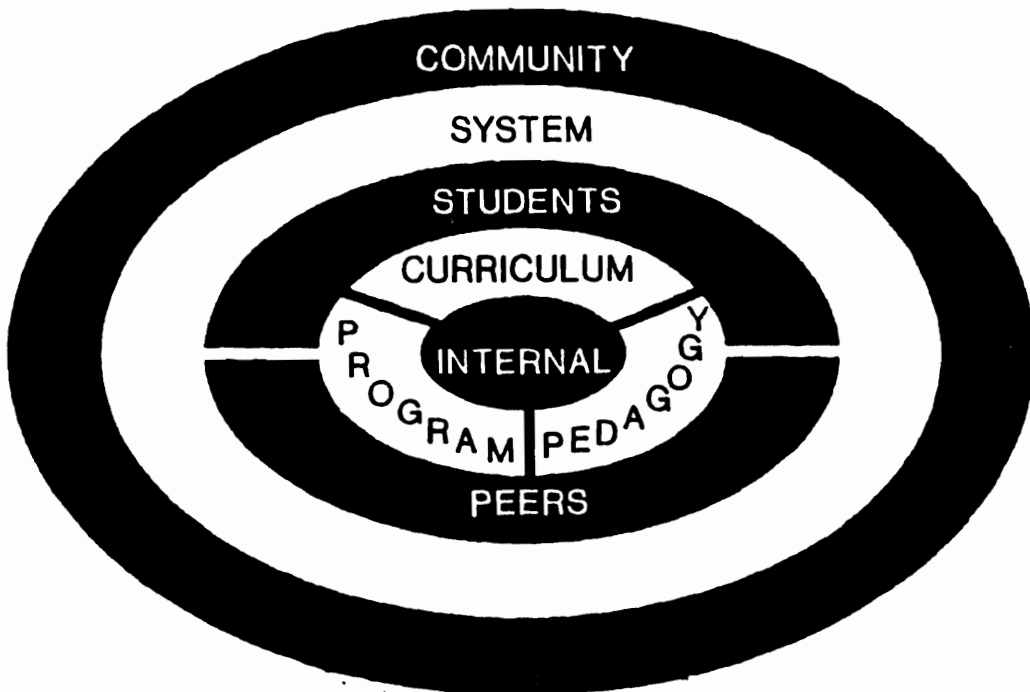
d) a review of pertinent literature related to the importance of evaluating students.

Teacher Proximity Continuum

The Teacher Proximity Continuum (see Figure 3) is a conceptual framework, developed by Camp and Heath-Camp (1990), for the classification and analysis of teacher-related phenomena. The continuum includes five levels of functional distance (personal characteristics, professional skills, interpersonal, educational system, and extra-system) and eight separate domains (internal, pedagogy, curriculum, program, peer, student, system, and community).

The Teacher Proximity Continuum is a theoretically sound and empirically-verifiable framework (Camp & Heath-Camp, 1990). It has been used to classify over 5,000 events and influences affecting teachers behaviors. Originally, for the purpose of this study, the researcher began classifying teacher stressors using the distance levels and domains associated with the Teacher Proximity Continuum. However, it soon became evident that many of these domains might be more effective for the study of teacher stress if they were combined to include a variety of the stressors identified in the literature. It was discovered that a majority of the stressors could be placed into three broad areas: 1) school systems,

2) teacher internal characteristics, and 3) students. Heath-Camp and Camp (1990) also discovered these three areas to contain the highest number of stressors.



| Domains | Functional Distance/Description |
|-------------------|--|
| | Personal Characteristics |
| Internal | Experiences arising from factors within the teacher. |
| | Professional Skills |
| Pedagogy | Experiences related to the short term planning, delivery, evaluation, and improvement of instruction. |
| Curriculum | Experiences related to the intermediate term planning of course content and preparation for instruction. |

| | |
|------------------|---|
| Program | Experiences that arise in conjunction with the long term planning and operation of the department or program. |
| | Inter-personal Relationships |
| Students | Experiences resulting from interactions with students. |
| Peers | Experiences arising from interactions with persons with co-workers who are neither superior nor subordinates. |
| | Intra-System |
| System | Experiences arising from persons and forces within the educational system with which the teacher is required to comply. |
| | Extra-System |
| Community | Experiences arising from outside the administrative and physical bounds of the educational system. |

Figure 3. Teacher Proximity Continuum

From "The Teacher Proximity Continuum: A Conceptual Framework for the Analysis of Teacher-Related Phenomena" by W. G. Camp and B. Heath-Camp, 1990, Paper presented at the Annual meeting of the American Vocational Education Research Association, Cincinnati, Ohio.

School Systems

The areas evaluated under the SYSTEMS category include role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, and management style. The literature identified supporting these nine categories as plausible variables in the regression and causal models of vocational teacher stress can be found in Table 2.

Kaiser and Polczynski (1982) found work roles, qualitative and quantitative work overload, and role conflict to be important determinants in the amount of

stress suffered by many teachers. French and Caplan (cited in Kaiser & Polczynski, 1982) discovered that individuals experiencing qualitative and quantitative work overload related to their occupations often endured job tension, job dissatisfaction, lower self-esteem, threat, embarrassment, high cholesterol levels, and increased heart rates.

Stress in teachers tended to increase when they believed they had lost control of their time and when they experienced qualitative and quantitative overdemands in their teaching occupations. "Qualitative overdemand refers to having too many demands to meet adequately. Qualitative overdemand refers to job complexity, that is, work demands perceived as too difficult to complete satisfactorily" (Blase, 1986, p. 23). Teachers experienced the highest degrees of stress when whatever was happening deprived them of time, interfered with their instruction, and was quantitatively and qualitatively overdemanding.

Role ambiguity, as it relates to work roles, has been cited by many researchers as a major factor leading to job stress. According to Kahn (cited in Kaiser & Polczynski, 1982), those who suffered from role ambiguity in their occupations experienced less job satisfaction, more job-related tension, increased feelings of futility,

and decreased self-confidence. Those individuals whose work roles required them to be responsible for others (such as teaching) suffered more cardiovascular heart disease than those whose work roles required responsibilities associated with things (French & Caplan, 1973).

Role conflict tends to arise when employees attempt to deal with two or more sets of work related pressures simultaneously (Byrne, 1992; Kaiser & Polczynski, 1982). Compliance with one of the pressures makes it difficult to comply with the other work related pressure. Kaiser and Polczynski (1982) contended that there are four types of role conflict present in teaching occupations: intrasender, intersender, interrole, and person-role.

Intrasender conflict occurs when teachers are asked to achieve two conflicting objectives or when teachers are given contradictory directions from two or more people. Teachers who are expected to play two or more incompatible roles often experience interrole conflict in their occupations. And, person-role conflict exists when teachers are asked to do something in conflict with their own personal values. Fimian (1982) discovered that teachers experienced stress when teaching students values, some of which might actually conflict with their own.

Table 2

System Related Variables Identified in the Literature

| Indicator Variable | Literature Identified |
|----------------------------|--|
| Role Ambiguity (RLEAMB) | Blase & Matthews, 1984 Byrne, 1992 Cedoline, 1982 Cunningham, 1982, 1983 Farber, 1991 Gutpa, 1981 Harris, Halpin, & Halpin, 1985 Hiebert & Farber, 1984 Hipps & Halpin, 1992 Kaiser & Polczynski, 1982 Kyriacou & Sutcliffe, 1977 Pettegrew & Wolf, 1982 |
| Role Conflict (RLECONF) | Byrne, 1992 Blase, 1986 Cedoline, 1982 Cunningham, 1982, 1983 Farber, 1991 French & Caplan, 1973 Greenberg, 1984 Harris, Halpin, & Halpin, 1985 Hiebert & Farber, 1984 Hipps & Halpin, 1992 Iwanicki, 1983 Kaiser & Polczynski, 1982 Kyriacou & Sutcliffe, 1977 Litt & Turk, 1985 Pettegrew & Wolf, 1982 |
| School Stress (SCHSTRS) | Blase, 1986 Coates & Thoreson, 1976 Farber, 1984 Fimian, 1982 Fimian & Santoro, 1983 Hiebert & Farber, 1984 Kyriacou & Sutcliffe, 1978 Pettegrew & Wolf, 1982 |
| Task Stress (TSKSTRS) | Alley, 1980 Blase, 1982, 1986 Cichon & Koff, 1980 Coates & Thoreson, 1976 Fimian, 1984 |

- Task Stress
(continued)
- Harris, Halpin, & Halpin, 1985
Hawkes & Dedrick, 1983
Hiebert & Farber, 1984
Kaiser & Polczynski, 1982
Kyriacou & Sutcliffe, 1978
Pettegrew & Wolf, 1982
- Supervisory Support
(SUPVSUP)
- Alley, 1980
Bacharach, Bauer, & Conley, 1986
Blase, 1986
Blase & Matthews, 1984
Byrne, 1992
Cichon & Koff, 1980
Coates & Thoreson, 1976
Eskridge & Coker, 1985
Farber, 1991
Farber & Miller, 1981
Fimian & Santoro, 1983
Greenberg, 1984
Harris, Halpin, & Halpin, 1985
Hawkes & Dedrick, 1983
Hipps & Halpin, 1992
Iwanicki, 1983
Litt & Turk, 1985
Pettegrew & Wolf, 1982
- Nonparticipation
(NONPART)
- Alley, 1980
Byrne, 1992
Fimian, 1982
Fimian & Santoro, 1983
Hiebert & Farber, 1984
Iwanicki, 1983
Kaiser & Polczynski, 1982
Kyriacou & Sutcliffe, 1978
Pettegrew & Wolf, 1982
- Peer Support
(PEERSUP)
- Alley, 1980
Blase, 1986
Byrne, 1992
Coates & Thoreson, 1976
Cunningham, 1982, 1983
Eskridge & Coker, 1985
Farber, 1984
Farber & Miller, 1981
Fimian, 1982
Hawkes & Dedrick, 1983
Iwanicki, 1983
Kaiser & Polczynski, 1982
Hiebert & Farber, 1984
Maslach & Jackson, 1984
Pettegrew & Wolf, 1982

| | |
|-----------------------------|--|
| Role Overload (RLEOVER) | Alley, 1980 Blase, 1982, 1986 Byrne, 1992 Cichon & Koff, 1982 Coates & Thoreson, 1976 Dedrick, Hawkes, & Smith, 1981 Fimian, 1984 Fimian & Santoro, 1983 French & Caplan, 1973 Gutpa, 1981 Harris, Halpin, & Halpin, 1985 Hawkes & Dedrick, 1983 Hiebert & Farber, 1984 Hipps & Halpin 1992, Iwanicki, 1983 Kaiser & Polczynski, 1982 Kyriacou & Sutcliffe, 1978 Pettegrew & Wolf, 1982 |
| Management Style (MNGMT) | Dedrick, Hawkes, & Smith, 1981 Fimian & Santoro, 1983 Harris, Halpin, & Halpin, 1985 Hawkes & Dedrick, 1983 Hipps & Halpin 1992 Pettegrew & Wolf, 1982 |

Some other sources of stress identified in the literature as relating to school systems included: administrators, peer relationships and isolation, physical environment, and promotional opportunities. Principals or other supervisors and administrators are major sources of stress and frustration for teachers (Blase, 1986; Eskridge & Coker, 1985; Farber, 1984; Fimian, 1982). Administrators who do not include teachers when making critical decisions regarding curriculum, grade staffing patterns, pupil-teacher ratios, organizations, performance expectations, and

evaluation procedures cause teachers to experience stress (Iwanicki, 1980).

According to Farber (1984), most suburban and urban school teachers felt that administrative meetings did not prove helpful in solving their problems. Farber (1984) also discovered that most suburban and urban school teachers felt that they did not receive support or encouragement from their principals and that they did not feel a "sense of community" among their schools' faculty and administrators. Peer isolation, the formation of cliques, the pessimism of other teachers, and the dispensing of rumors have caused teachers to experience stressful situations (Gutpa, 1981). Some teachers actually felt as if they were divorced from society. Peer isolation has been found to create stress in teachers (Farber, 1984; Fimian, 1982). A study conducted by Blase (1986) found that irresponsible teachers caused conscientious ones to feel stressed.

Elements associated with a school's physical environment may cause stress to develop in many teachers (Fimian, & Santoro, 1983). These elements included such things as rooms that were too small, too large, too hot in the summer, or too cold in the winter, drafty windows, flickering, insufficient, or too much light, cold cement floors, dirty classrooms, and poor acoustics.

A study by Eskridge (1984) found that teachers at all levels rated low salary, lack of promotional opportunities, and large classes as sources of stress. Fimian and Santoro (1983) discovered that teachers felt as though they lacked recognition, promotion, and advancement opportunities. Teachers often encountered stress when they failed to reach their own or others expectations.

Teacher Internal Characteristics

Many authors have concluded that it is extremely important to analyze teachers' internal characteristics when studying teacher stress (Cichon & Koff, 1980; Fielding & Gall, 1982; Harris, Halpin, & Halpin, 1985; Rabkin & Struening, 1976). Personality and ideology factors have been found by a variety of researchers to contribute to individuals' susceptibility to stress and that these factors also dictated how individuals' handled the stress they encountered (Beasley, Myette, & Serna, 1983; Cichon & Koff, 1980; Fimian, 1982; Golladay & Noel, 1978; Harris, Halpin, & Halpin, 1985; Olander & Farrell, 1970). Kaiser and Polczynski (1982) stated that personality characteristics actually contributed to the amount of stress teachers were able to tolerate.

Some researchers believe that teachers' internal characteristics (e.g., teacher personality

characteristics, ideology, self-esteem, and locus of control) contribute to their susceptibility to stress and that these factors also dictate how teachers handle the stress they encounter (Beasley, Myette, & Serna, 1983; Byrne, 1992; Cichon & Koff, 1980; Golladay & Noel, 1978; Harris, Halpin, & Halpin, 1985; Olander & Farrell, 1970; Wangberg, 1984). Harris, et al. (1985) said that it is important to determine a teacher's personality, ideology, sex, and age when investigating teacher stress.

Each teacher tends to have his or her own job-related stressors (Fimian, 1980, 1982; Fimian and Santoro, 1983). Therefore, a situation which causes one teacher to experience stress may or may not cause another teacher to experience stress (Fimian, 1982). The teacher internal characteristics examined in this study included role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control, and self esteem. The literature supporting these six as variables in studying teacher stress is identified in Table 3.

Iwanicki (1983) found that role-related stress was a function of the teacher's personality and teaching preparation. Perceived professional competence has been found to be a source of stress for many teachers (Fimian & Santoro, 1983). Teachers have been known to experience stress because of their lack of occupational confidence

in a particular work or instructional environment. Rapid changes in the world and technologies have caused teachers to feel incompetent and experience stress due to their inability to always remain current and up-to-date in their areas of expertise (Fimian & Santoro, 1983). Teachers who regularly set unrealistic goals for themselves and their students may become stressed (Fimian, 1982).

Table 3

Internal Related Variables Identified in the Literature

| Indicator Variable | Literature Identified |
|--------------------------------|---|
| Role Preparedness (RLEPREP) | Cichon & Koff, 1980 Coates & Thoreson, 1976 Fimian, 1982 Fimian & Santoro, 1983 Gutpa, 1981 Hiebert & Farber, 1984 Iwanicki, 1983 Pettegrew & Wolf, 1982 |
| Job Satisfaction (JOBSAT) | Blase, 1986 Eskridge, 1984 Farber, 1984 Fimian, 1984 Fimian & Santoro, 1983 French & Caplan, 1973 Kaiser & Polczynski, 1982 Margolis, Kroes, & Quinn, 1974 Pettegrew & Wolf, 1982 |
| Life Satisfaction (LIFESAT) | Fimian, 1984 Fimian & Santoro, 1983 Gutpa, 1981 Kyriacou & Sutcliffe, 1977 Pettegrew & Wolf, 1982 |

| | |
|-------------------------------|--|
| Illness Symptoms (ILLSYMP) | Blase, 1986 Eskridge & Coker, 1985 Fimian, 1984 Fimian & Santoro, 1983 <u>Instructor</u> , 1977 Kyriacou & Sutcliffe, 1977, 1978 Landsmann, 1979 Pettegrew & Wolf, 1982 |
| Locus of Control (LOCUS) | Byrne, 1992 Cedoline, 1982 Cichon & Koff, 1980 Farber, 1991 Fielding & Gall, 1982 Fimian, 1982 Goodall & Brown, 1980 Halpin, Harris, & Halpin, 1985 |
| Self Esteem (ESTEEM) | Byrne, 1992 Farber, 1991 Fimian, 1982, 1984 Goodall & Brown, 1980 Hogan & Hogan, 1982 Maslach, 1982 Motowidlo, Packard, & Manning, 1986 |

Fielding and Gall (1982) and Halpin, Harris, and Halpin, 1985) found locus of control to be a teacher characteristic bearing a strong correlation with teacher stress. Teachers with an external locus of control had less positive attitudes toward students than teachers with a more internal locus of control. They also discovered that teachers with an external locus of control reported greater stress than those teachers with an internal locus of control.

Students

Teachers' relationships with students was by far the most noted category identified in the literature.

Twenty-six of the articles reviewed identified students as a major source of stress for teachers.

The Classroom Environment Scale was used in this study to analyze the effects of students on teacher stress. This same scale was used by Byrne (1992) in a similar causal model of teacher stress. It is specifically designed to evaluate teachers' perceptions of their classroom environments and analyzes class sizes, student learning and student behavior (Bacharach et al., 1986). The literature supporting these as variables related to students is identified in Table 4.

In 1982, Blase developed a theory about teacher stress that was socially and psychologically grounded. This theory was based on the findings of empirical data collected directly from public school teachers. Blase (1982) referred to this theory as the Teacher Performance-Motivation Theory (TP-M Theory). It suggested that the dynamic and reciprocal relationships existing between teachers and their students were critical in understanding various dimensions of teacher work performance. Teachers reactions with their students, both effective (regenerative) and ineffective (degenerative) were postulated to explain changes in teacher performance over time.

While exploring the degenerative cycle of teacher-student relationships, Blase (1982) observed that teachers' responses to a variety of interrelated variables could be used to describe teachers' reactions to prolonged work-related stress. These variables included coping resources, rewards, work satisfaction, work involvement, work motivation, and work effort. Teachers' stress levels increased as their relationships with their students deteriorated. Their overall work performance and responses to these variables also decreased during the degenerative cycle of teacher-student relationships. Teachers who perceive their relationships with their students to be breaking down or deteriorating often feel stress (Goodall & Brown, 1980). Fielding and Gall (1982) found that teachers with negative attitudes toward students reported more stress than teachers with positive attitudes toward students.

In another study, Blase (1986) found that teachers considered students' behaviors as major sources of stress. Four subcategories of student behavior were identified through this qualitative study: a) student discipline, b) student apathy, c) low student achievement, and d) student absences. Feelings of frustration, rage, and resentment were often connected to teachers' stress levels, especially as their stress

related to student behavior (Blase, 1986). Student misbehavior has been continually ranked as the number one cause of teacher stress (Eskridge & Coker, 1985, Goodall & Brown, 1980)).

The largest of these four subcategories was student discipline. Verbal abuse, fighting, screaming, vandalizing school property, cheating, teasing, violent outbursts, and drug use were the items teachers most often identified in this subcategory. Teacher stress associated with student discipline often forced teachers to take on roles they found distasteful and incongruent with the type of educational environment needed to facilitate effective teaching and learning. The teachers in Blase's (1986) study cited the following as undesirable roles: baby sitter, heavy, police, and harsh authoritarian.

The National Education Association (cited in Goodall & Brown, 1980) contended that much of the job-related stress encountered by teachers was caused by their inability to control the classroom situation. Fimian (1982) found that teachers encountered stress when they believed they had lost control of their classrooms. Fimian and Santoro (1983) found that teachers who had to constantly monitor student behavior became frustrated. Laughlin (1984) established strong relationships among

pupil control in the classroom, student discipline, and teacher stress. A majority (58 percent) of the teachers who participated in a study conducted by Feitler and Tokar (1982) ranked student misbehavior as their number one occupational stressor. Hoerr and West (1992) found classroom discipline and discipline related problems as primary stressors for beginning teachers and major sources of stress in experienced teachers.

Student discipline or student behavior (or misbehavior) has been cited as a major producer of teacher stress by many educational researchers. However, Pettegrew and Wolf (1982a) found that the criterion of student discipline was extremely difficult to measure or evaluate. They discovered through their study that "burned-out" teachers were less likely to report the discipline problems they experienced in their classrooms. These teachers actually overlooked student discipline problems (Pettegrew & Wolf, 1982a). This finding supports the Inverted U hypothesis discussed previously in this chapter. It adds further substance to the assertions made by other researchers regarding the negative effects that unproductive levels of teacher stress can have on students, schools, and overall teaching performances (Cardinell, 1980; Eskridge & Coker,

1985; Farber, 1984; Harris et al., 1985; Kyriacou, 1987; Shaw et al., 1981).

The teachers in Blase's (1986) qualitative study also experienced stress when their students displayed apathy, demonstrated low achievement, and were regularly absent from school. Student apathy was described by the teachers in Blase's (1986) study to illustrate students' nonchalant, indifferent or negative attitudes toward education and learning. In fact, many other authors have been successful in identifying students' negative attitudes toward learning and their hostile, disruptive behaviors in the classroom as primary stressors (Bardo, 1979; Kyriacou & Sutcliffe, 1977, 1979; Fielding & Gall, 1982).

Low achievement was described by the teachers in Blase's study as students not reaching identified learning goals, students inability to understand, and students unpreparedness for class. Fimian (1982) found that teachers tended to feel frustration when they were unable to meet all of their students' needs. This frustration, in particular, caused teachers to feel great amounts of job-related stress (Fimian & Santoro, 1983).

Table 4

Student Related Variables Identified in the Literature

| Indicator Variable | Literature Identified |
|------------------------------|--|
| Class Size (SIZE) | Bacharach, Bauer, & Conley, 1986 Byrne, 1992 Cichon & Koff, 1980 Coates & Thoreson, 1976 Eskridge, 1984 Fimian & Santoro, 1983 Kaiser & Polczynski, 1982 |
| Student Learning (LEARN) | Bacharach, Bauer, & Conley, 1986 Blase, 1986 Byrne, 1992 Cichon & Koff, 1980 Fielding & Gall, 1982 Fimian, 1982, 1984 Fimian & Santoro, 1983 Hawkes & Dedrick, 1983 Kyriacou & Sutcliffe, 1978 Pratt, 1978 |
| Student Behavior (BEHAVE) | Bacharach, Bauer, & Conley, 1986 Blase, 1982, 1986 Byrne, 1992 Cichon & Koff, 1980 Coates & Thoreson, 1976 Dedrick, Hawkes, & Smith, 1981 Eskridge & Coker, 1985 Feitler & Tokar, 1982 Fielding & Gall, 1982 Fimian, 1982 Fimian & Santoro, 1983 Goodall & Brown, 1980 Harris, Halpin, & Halpin, 1985 Hawkes & Dedrick, 1983 Hiebert & Farber, 1984 Hipps & Halpin, 1992 Hoerr & West, 1992 Iwanicki, 1983 Laughlin, 1984 Pratt, 1978 |

Structural Equation Modeling

Structural equation modeling (sometimes referred to as path analysis or causal modeling) permits the researcher to study patterns of causation among a set of variables (Pedhazur, 1982). "A structural equation model is used to specify the phenomenon under study in terms of putative cause-and-effect variables and their indicators" (Joreskog & Sorbom, 1989, p. 1) A theory related to the variables under study enables the researcher to develop proposed causal links between the variables and to illustrate these links graphically with path diagrams.

The data collected in structural equation modeling is analyzed essentially to test the theory depicted by the causal model. Data that do not support the model tend to cast doubt on the theory that was used to produce the model (Pedhazur, 1982). However, data which are consistent with the model do not necessarily prove the theory. Once analyzed, data which are consistent with the model simply indicate that the theory has not been rejected; support for the theory under study has been established (Pedhazur, 1982).

LISREL

LISREL (Linear Structural Relations Analysis) is actually a computer program, originally developed by Karl G. Joreskog. It was designed specifically for the

analysis of causal models or structural equations (Joreskog & Sorbom, 1989). "LISREL is a very versatile approach that may be used for the analysis of causal models with multiple indicators of latent variables, reciprocal causation, measurement errors, correlated errors, and correlated residuals to name a few" (Pedhazur, 1982, pp. 637-638). It provides the researcher with options not available through traditional regression analyses.

In LISREL models, the unobserved variables are referred to as latent or true variables and the observed variables are called manifest variables. Latent variables, those which cannot be analyzed by a single variable, are often present in the social sciences (Joreskog & Sorbom, 1989; and Pedhazur, 1982). Latent dependent variables in LISREL models are referred to as eta variables (η) and are considered to be exogenous. The latent independent variables are endogenous and designated as xi (ξ).

CHAPTER III

RESEARCH METHODS

This chapter describes the methods that were employed by the researcher to determine how school systems, teacher internal characteristics, and students affect vocational teacher stress. It also describes the study's population, the data collection procedures, instruments used, and data analysis procedures. Proposed regression and causal models are presented. The research questions that were addressed in this study include:

1. What stress levels are experienced by vocational teachers?
2. What is the effect of school systems on vocational teacher stress?
3. What is the effect of teacher internal characteristics on vocational teacher stress?
4. What is the effect of students on vocational teacher stress?
5. What is a plausible pattern of causal relationships among three latent variables (teacher internal characteristics, school systems, and students) and vocational teacher stress?

Population

The study was limited to two separate groups of vocational teachers employed in Virginia. The first

group consisted of vocational teachers teaching in five targeted school systems located in central and southwest Virginia. These five systems were selected because of the researcher's working relationship with the vocational administrators employed by these systems. These systems are diverse in their vocational programs and offered variety to the study. All vocational teachers employed by these five school systems were encouraged to participate in the study.

The second group used in this study were a stratified, randomly selected sample of vocational teachers from state supplied lists consisting of teachers employed in the seven vocational areas: 1) Agricultural Education, 2) Business Education, 3) Health Occupations, 4) Marketing Education, 5) Technology Education, 6) Trade and Industrial Education, and 6) Work and Family Studies. Teachers employed by the five school systems included in the first group were eliminated from the random selection process. The researcher chose to select 26 vocational teachers from each of the seven vocational areas. Twenty-six was selected as the number for three prevailing reasons. First, it provided the researcher with the possibility of obtaining the necessary number of respondents needed to run LISREL. Second, this number equaled 182 (26 X 7); the same number of possible

respondents available at the five targeted school systems. Lastly it was a simple and efficient way to obtain a more balanced number of responses from the seven different vocational areas. It should be noted that during the period of this study, the Work and Family Studies teachers were involved in major program and curriculum transformations.

All information regarding the identity of teachers participating in the study and the individual responses they supplied is recognized as highly personal in nature and has been held extremely confidential. Information as it relates to individual teachers is not reported in the study and will not be shared with vocational administrators. Vocational administrators will only receive general types of information. Likewise, the identities of the five school systems are not revealed in the study.

The first school system participating in the study has one high school and two middle schools. A total of 21 vocational teachers are employed by this system (see Table 5). It has two Agriculture teachers, six Business teachers, one Health Occupations teacher, one Marketing teacher, one Technology teacher, eight Trade and Industrial teachers, and two Work and Family Studies teachers. During the time of this study, this school

system was in the midst of preparing for and implementing block scheduling.

The second school system in the study has one high school and one middle school. A total of 17 vocational teachers are employed by this system (see Table 5). It has four Agriculture teachers, five Business teachers, one Health Occupations teacher, one Marketing teacher, three Trade and Industrial teachers, and three Work and Family Studies teachers. It is the only school system in the study that is deemed an inner-city system.

The third school system used in the study has three high schools, two middle schools, and one vocational center. A total of 35 vocational teachers are employed by the third school system (see Table 5). It has four Agriculture teachers, six business teachers, four Health Occupations teachers, three Marketing teachers, four Technology teachers, ten Trade and Industrial teachers, and four Work and Family Studies teachers.

The fourth school system in the study employs 32 vocational teachers and has two high schools and three middle schools (see Table 5). It has seven Business teachers, one Health Occupations teacher, two Marketing teachers, nine Technology teachers, eight Trade and Industrial teachers, and five Work and Family studies teachers.

Table 5
Targeted School Systems

| Systems | #1 | #2 | #3 | #4 | #5 | Totals |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|------------|
| Agriculture | | | | | | |
| Middle Sch | 1 | 2 | 0 | 0 | 0 | 3 |
| High Sch | 1 | 2 | 4 | 0 | 0 | 7 |
| Voc Center | 0 | 0 | 0 | 0 | 1 | 1 |
| Business | | | | | | |
| Middle Sch | 0 | 1 | 0 | 2 | 2 | 5 |
| High Sch | 6 | 4 | 5 | 5 | 19 | 39 |
| Voc Center | 0 | 0 | 1 | 0 | 2 | 3 |
| Health | | | | | | |
| Middle Sch | 1 | 0 | 0 | 0 | 0 | 1 |
| High Sch | 0 | 1 | 0 | 1 | 0 | 2 |
| Voc Center | 0 | 0 | 4 | 0 | 1 | 5 |
| Marketing | | | | | | |
| Middle Sch | 0 | 0 | 0 | 0 | 0 | 0 |
| High Sch | 1 | 1 | 0 | 2 | 11 | 15 |
| Voc Center | 0 | 0 | 3 | 0 | 0 | 3 |
| Technology | | | | | | |
| Middle Sch | 0 | 0 | 0 | 4 | 1 | 5 |
| High Sch | 1 | 0 | 4 | 5 | 10 | 20 |
| Voc Center | 0 | 0 | 0 | 0 | 1 | 1 |
| Trade & Industry | | | | | | |
| Middle Sch | 2 | 0 | 0 | 0 | 0 | 2 |
| High Sch | 6 | 3 | 0 | 8 | 0 | 17 |
| Voc Center | 0 | 0 | 10 | 0 | 16 | 26 |
| Work/Family | | | | | | |
| Middle Sch | 0 | 1 | 1 | 3 | 1 | 6 |
| High Sch | 2 | 2 | 1 | 2 | 10 | 17 |
| Voc Center | 0 | 0 | 2 | 0 | 2 | 4 |
| TOTALS | 21 | 17 | 35 | 32 | 77 | 182 |

The largest and fifth school system in this study has two vocational centers, seven high schools, and only one middle school having vocational education personnel (see Table 5). This system employs 1 Agriculture teacher, 23 Business teachers, 1 Health Occupations teacher, 11 Marketing teachers, 12 Technology teachers, 16 Trade and Industrial teachers, and 13 Work and Family Studies teachers.

Data Collection Procedures

Researchers at Virginia Polytechnic Institute and State University using the responses of human subjects in their studies must obtain permission from the Institutional Review Board. This study of vocational teacher stress was reviewed by the board and the researcher was granted the necessary clearance to conduct the research. The memorandum granting this permission is shown in Appendix Q.

The researcher was able to gain entry into the five targeted school systems via the systems' respective vocational directors. State supplied lists of teachers in the seven vocational areas were used for the random selection of vocational teachers throughout the remainder of Virginia.

Vocational directors in the five targeted school systems were first asked to attend a meeting where they

were informed of the purpose, design, and procedures of the study. Pertinent information related to the study was introduced and discussed during this meeting. At this meeting, vocational directors verbally agreed to allow their vocational teachers to participate in the study and to disseminate teacher stress packets in their respective school systems. Secondly, during the winter months of 1994, vocational directors were mailed a personal letter (see Appendix G), school system consent form (see Appendix K), and the teacher stress packets needed for their vocational teachers to participate in the study. Each teacher stress packet contained a letter (see Appendix H), consent form (see Appendix L), informational form (see Appendix M), instructions for the instruments (see Appendix N), Teacher Stress Measure (see Appendix B), Personal Behavior Inventory (see Appendix C), Self Esteem Scale (see Appendix D), Classroom Environment Scale (see Appendix E), and Tennessee Stress Scale-R (see Appendix F).

Vocational directors were contacted by telephone two weeks after they had been forwarded research materials to determine the number of vocational teachers who had returned the completed stress packets. At this time, the researcher arranged to pick up the completed stress packets and obtain a list of the vocational teachers

within each of the targeted school systems. These lists were used for the purpose of recording those vocational teachers who had and had not returned the completed stress packets.

Vocational teachers appearing on these lists who had not returned the stress packets were personally contacted by the researcher. They were mailed a letter (see Appendix J) that reminded them of the study and the teacher stress packet. Teachers were once again solicited for their voluntary participation in the study of vocational teacher stress. Enclosed with this letter was another consent form (see Appendix L) and informational form (see Appendix M). Teachers returning the consent and informational forms were forwarded another teacher stress packet. The researcher continued to record those teachers who returned the packets. Vocational teachers who failed to return the packets following the second mailing were contacted through reminder post cards (see Appendix O) and personal telephone calls. These occurred within three to four weeks after the second mailing of the teacher stress packets.

The teachers who were randomly selected were mailed a personal letter briefly describing the study and requesting their participation (see Appendix I).

Enclosed with this letter was a consent form (see Appendix L), informational form (see Appendix M), instructions for the instruments (see Appendix N), and the five instruments (see Appendixes B, C, D, E, and F). Teachers responding to the study were recorded. Vocational teachers not responding were mailed a reminder post card two to three weeks following the initial mailing (see Appendix O).

The percentage of non-respondents in this study of vocational teacher stress appeared to be relatively high. Therefore, the researcher chose to conduct follow-up of a random selection of non-respondents from each of the two major groups--teachers in the targeted school systems and those obtained through the random selection of teachers in the remainder of Virginia. A total of 28 teachers (14 from each of the two groups and 2 from each vocational area) were personally contacted by telephone to participate in a non-respondent survey consisting of 21 questions--1 question representative of each of the indicator variables identified in the study. Questions asked in the non-respondent follow-up study were randomly selected from the five tests in the original study and have been categorized and presented in Appendix P.

Instrumentation

A battery of five previously developed instruments was used in this study: a) Measure of Teacher Stress (see Appendix B), b) Personal Behavior Inventory (see Appendix C), c) Self-Esteem Scale (see Appendix D), d) Classroom Environment Scale (see Appendix E), and e) the Tennessee Stress Scale-R (see Appendix F). Vocational teachers participating in the study also were asked to complete a participant consent form (Appendix L), and a brief informational form (Appendix M) containing a variety of background variables (age, gender, levels of teaching, years of teaching experience, school system, and vocational area). The complete teacher stress packet required approximately one hour for each of the vocational teachers to complete.

Teacher Stress Measure

Pettegrew and Wolf (1982a) conducted a validity study of several measures of teacher stress and developed the Teacher Stress Measure (see Appendix B) consisting of 13 different subcategories and 70 items. Items in the instrument are measured on a 6-point Likert-type Scale. Participant responses can range from strong agreement to strong disagreement (6 = Strong agreement, 5 = Moderate agreement, 4 = Slight agreement, 3 = Slight disagreement,

2 = Moderate disagreement, 1 = Strong disagreement)
(Pettegrew & Wolf, 1982b).

The reliabilities of the statements within the subcategories were measured by Cronbach's alpha. The coefficient alphas calculated for each of the variables used in the Pettegrew and Wolf (1982a) study are located in Table 6. The Pettegrew and Wolf (1982a) investigation of teacher stress measures also found the structural reliability and predictive validity associated with their subcategories to meet or exceed standards related to these constructs.

Nine of the subcategories identified by Pettegrew and Wolf (1982a) were used as indicator variables in this study to assess the latent variable, School Systems. These nine variables include: role ambiguity, role conflict, role overload, school stress, task stress, supervisory support, nonparticipation, peer support, and management style (see Appendix A). These variables as well as topics associated with these variables were found in the literature to be important to the study of teacher stress.

The remaining four subcategories (role preparedness, job satisfaction, life satisfaction, and illness symptoms) in the Teacher Stress Measure were used as indicator variables to assess the latent variable Teacher

Internal Characteristics (see Appendix A). These variables specifically relate to items inherent to individuals and their individual personality characteristics. These four variables were combined with two additional variables, Locus of Control and Self Esteem (see Appendix A).

Table 6

Alpha Reliabilities for Teacher Stress Variables

| Variable | Alpha |
|---------------------|-------|
| Role Ambiguity | .79 |
| Role Conflict | .82 |
| Role Overload | .76 |
| Role Preparedness | .57 |
| Nonparticipation | .76 |
| School Stress | .89 |
| Management Style | .74 |
| Job Satisfaction | .86 |
| Life Satisfaction | .91 |
| Supervisory Support | .89 |
| Peer Support | .84 |
| Task Stress | .84 |
| Illness Symptoms | .82 |

From "Validating Measures of Teacher Stress" by L. S. Pettegrew and G. E. Wolf, 1982, American Educational Research Journal (19)3, p. 381.

Personal Behavior Inventory

The Personal Behavior Inventory (see Appendix C) is an instrument designed to evaluate how people see their own behavior and the behavior of other people (Collins, 1974a). It is a self-report instrument based on Rotter's Internal-External Scale (Rotter, 1966) and designed to

measure an individual's locus of control. The Personal Behavior Inventory was used in this study to measure the Locus of Control variable. This indicator variable was combined with other identified variables to assess the latent variable, Teacher Internal Characteristics (see Appendix A).

The Personal Behavior Inventory uses a 5-point Likert-type scale to measure 46 items related to either external or internal locus of control. It requires participants to report their level of agreement or disagreement to each of the statements (1 = I disagree very much, 2 = I disagree pretty much, 3 = I disagree a little, 4 = I agree a little, 5 = I agree pretty much, and 6 = I agree very much) (Collins, 1974b).

According to Byrne (1992), the Personal Behavior Inventory has been extensively used and validated across a wide variety of populations. Furthermore, many researchers have chosen to use the Personal Behavior Inventory when studying teachers (Byrne, 1992; Friedman, Lehrer, & Stevens, 1983; Kyriacou & Sutcliffe, 1979). In a recent study of teacher burnout, Byrne (1992) used the Personal Behavior Inventory to assess teachers' locus of control.

Self-Esteem Scale

The self-esteem variable was combined with other identified variables to assess the latent variable, Teacher Internal Characteristics (see Appendix A). Vocational teachers' self-esteem was measured using the Self-Esteem Scale (Rosenberg, 1989) (see Appendix D). The 10 items compiled in the Self Esteem Scale are measured on a 4-point Likert-type scale (1 = Strongly agree, 2 = Agree, 3 = Disagree, and 4 = Strongly disagree). Byrne (1983) reported a test-retest reliability of .62 and convergent validity coefficients ranging from .56 to .79. The Self Esteem Scale was used by Byrne (1992) to assess the self-esteem of the teachers participating in her study of teacher burnout.

Classroom Environment Scale

The latent variable, Students, was measured using the Classroom Environment Scale (Bacharach et al., 1986) (see Appendix E) . This scale contains 11 statements that are divided into three subcategories: class size, student learning, and student behavior. All statements are measured on a 4-point Likert-type scale (1 = Definitely true, 2 = Somewhat true, 3 = Somewhat false, and 4 = Definitely false). . An internal consistency reliability coefficient of 60 has been reported by the authors of this scale (Bacharach et al., 1986; Byrne,

1992). Byrne (1992) used this same instrument when investigating teacher burnout.

Tennessee Stress Scale-R

The Tennessee Stress Scale-R (see Appendix F) is a 60-item, work-related stress inventory designed for professionals. (Schnorr & McWilliams, 1988).

Participants are asked to respond yes or no to each of the statements. It provides a measure of stress in three areas: (a) stress producers, (b) stress coping mechanisms, and (c) stress symptoms. In this study, the scores obtained in these three areas were used to assess the latent variable vocational teacher stress.

The Tennessee Stress Scale-R was used by Schnorr and McWilliams (1988) to analyze levels and areas of stress of professionals in selected service professions and to establish national norms of stress for these professions. Schnorr and McWilliams (1988) administered the Tennessee Stress Scale-R to 800 professionals working in the areas of education, medicine, government service, industry, business, and counseling. Teachers scoring 15 or below on this measurement are considered to be experiencing a low level of stress. Those scoring 16 to 30 are believed to be experiencing a moderate level of stress. Teachers scoring above 30 on the Tennessee Stress Scale-R

are experiencing a severe amount of stress in their teaching occupations.

Data Analysis

To achieve the purposes associated with this study, vocational teachers were mailed a teacher stress packet and asked to complete a battery of five separate instruments: 1) Teacher Stress Measure, 2) Personal Behavior Inventory, 3) Self Esteem Scale, 4) Classroom Environment Scale, and 5) Tennessee Stress Scale-R. Returned instruments were evaluated using descriptive statistics, multiple regression, and LISREL.

Multiple regression analysis is a statistical procedure used to analyze the variability of a dependent variable (Pedhazur, 1982). It is a method "...suited for analyzing the collective and separate effects of two or more independent variables on a dependent variable" (Pedhazur, 1982, p. 6). Multiple regression was used in this study to evaluate the effects posed by a variety of independent variables on vocational teacher stress. More specifically, vocational teacher stress scores were regressed on independent variables related to school systems, teacher internal characteristics, and students.

The nine independent variables related to school systems are role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer

support, role overload, and management. Vocational teacher stress was regressed on these nine independent variables. The effects of these variables were evaluated. The multiple regression equation corresponding to these nine independent variables can be stated as:

$$\text{Vocational Teacher Stress (Y)} = a + \text{Role Ambiguity}(bX_1) + \text{Role Conflict}(bX_2) + \text{School Stress}(bX_3) + \text{Task Stress}(bX_4) + \text{Supervisory Support}(bX_5) + \text{Nonparticipation}(bX_6) + \text{Peer Support}(bX_7) + \text{Role Overload}(bX_8) + \text{Management}(bX_9).$$

Role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control and self esteem are the six independent variables related to teacher internal characteristics. The effects of these six independent variables on vocational teacher stress were evaluated using multiple regression. The multiple regression equation associated with these six independent variables can be stated as:

$$\text{Vocational Teacher Stress (Y)} = a + \text{Role Preparedness}(bX_1) + \text{Job Satisfaction}(bX_2) + \text{Life Satisfaction}(bX_3) + \text{Illness Symptoms}(bX_4) + \text{Locus of Control}(bX_5) + \text{Self Esteem}(bX_6).$$

Vocational teacher stress was regressed on three independent variables related to students. These three independent variables include teacher perception of class

size, teacher perception of student learning, and teacher perception of student behavior. The multiple regression equation associated with these three independent variables can be stated as:

$$\text{Vocational Teacher Stress (Y)} = a + \text{Class Size}(bX_1) + \text{Student Learning}(bX_2) + \text{Student Behavior}(bX_3).$$

The proposed causal or structural equation model presented in this study (see Figure 4) was analyzed using LISREL. LISREL was chosen over typical path analysis because it permits the researcher to analyze unobserved variables using a variety of observed variables. Therefore, the constructs of the model can be measured by two or more fallible measures (Pedhazur, 1982). LISREL is extremely versatile and also can be used in the analysis of reciprocal causation, measurement errors, correlated errors, and correlated residuals (Pedhazur, 1982). LISREL is able to accommodate both recursive and nonrecursive models.

The proposed causal model in this study (see Figure 4) consists of three latent exogenous variables (E_1 , E_2 , and E_3). Indicator variables associated with these exogenous variables and the appropriate corresponding instrument statements are identified in Appendix A.

The latent variable, School Systems (SYSTEMS), is E_1 and was measured by nine indicators (X_1 , X_2 , X_3 , X_4 , X_5 ,

$X_6, X_7, X_8,$ and X_9). Teacher Internal Characteristics (INTERNAL), the second latent variable, is identified as E_2 and was measured by six indicators ($X_{10}, X_{11}, X_{12}, X_{13}, X_{14},$ and X_{15}). The latent variable, E_3 in the Model of Teacher Stress, depicting Students (STUDENTS) was measured by 3 indicator variables ($X_{16}, X_{17},$ and X_{18}). Teacher Stress (STRESS), depicted by η_1 was measured using three indicators ($Y_1, Y_2,$ and Y_3). These indicator variables are described with the appropriate corresponding instrument statements in Appendix A.

According to the proposed model, SYSTEMS, INTERNAL, and STUDENTS directly affect STRESS. Furthermore, the model shows that SYSTEMS is correlated with INTERNAL which is correlated with STUDENTS and that SYSTEMS is correlated with STUDENTS. Following is the structural equation model associated with the proposed model in this study.

$$\begin{bmatrix} \eta_1 & 0 & 0 \\ 0 & \eta_2 & 0 \\ 0 & 0 & \eta_2 \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \end{bmatrix} \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \end{bmatrix} = \begin{bmatrix} \eta_1 \end{bmatrix} \beta$$

Measurement models for the proposed causal model of vocational teacher stress are as follows:

Y variables

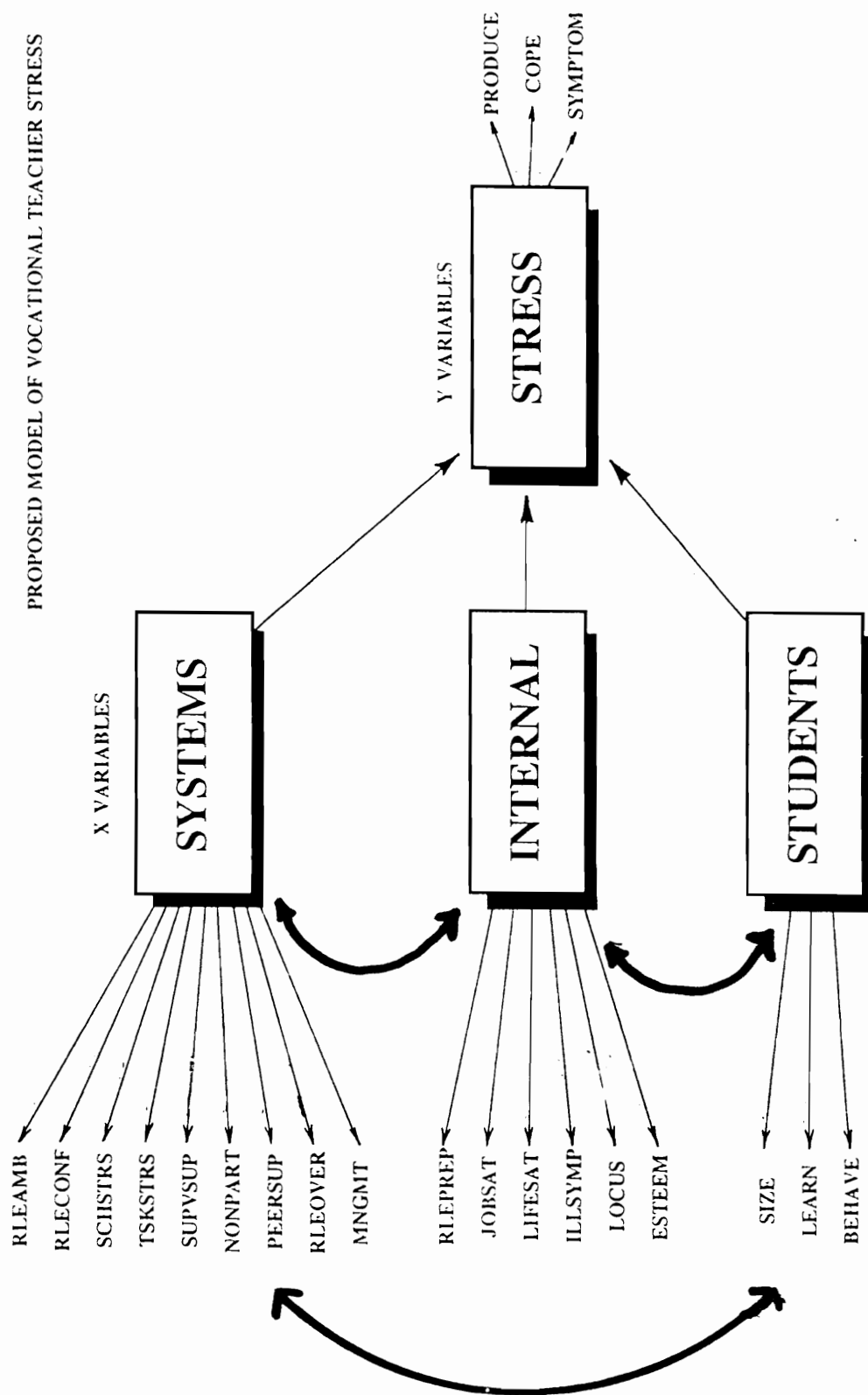
$$\begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} \begin{bmatrix} \eta_1 \end{bmatrix} = \begin{bmatrix} \psi_1 \\ \psi_2 \\ \psi_2 \end{bmatrix}$$

X Variables

$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \\ X_5 \\ X_6 \\ X_7 \\ X_8 \\ X_9 \\ X_{10} \\ X_{11} \\ X_{12} \\ X_{13} \\ X_{14} \\ X_{15} \\ X_{16} \\ X_{17} \\ X_{18} \end{bmatrix} \begin{bmatrix} \lambda_1 & 0 & 0 \\ \lambda_2 & 0 & 0 \\ \lambda_3 & 0 & 0 \\ \lambda_4 & 0 & 0 \\ \lambda_5 & 0 & 0 \\ \lambda_6 & 0 & 0 \\ \lambda_7 & 0 & 0 \\ \lambda_8 & 0 & 0 \\ \lambda_9 & 0 & 0 \\ 0 & \lambda_{10} & 0 \\ 0 & \lambda_{11} & 0 \\ 0 & \lambda_{12} & 0 \\ 0 & \lambda_{13} & 0 \\ 0 & \lambda_{14} & 0 \\ 0 & \lambda_{15} & 0 \\ 0 & 0 & \lambda_{16} \\ 0 & 0 & \lambda_{17} \\ 0 & 0 & \lambda_{18} \end{bmatrix} \begin{bmatrix} \xi_1 \\ \xi_2 \\ \xi_3 \end{bmatrix} = \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \\ \zeta_4 \\ \zeta_5 \\ \zeta_6 \\ \zeta_7 \\ \zeta_8 \\ \zeta_9 \\ \zeta_{10} \\ \zeta_{11} \\ \zeta_{12} \\ \zeta_{13} \\ \zeta_{14} \\ \zeta_{15} \\ \zeta_{16} \\ \zeta_{17} \\ \zeta_{18} \end{bmatrix}$$

The data collected from the two groups (targeted systems and random selection) of vocational teachers represented in this study were compared using two-sample t-tests. The 21 questions in the non-respondent study were compared to the same questions in the original study using two-sample t-tests.

PROPOSED MODEL OF VOCATIONAL TEACHER STRESS



SYSTEMS (School Systems):

| | |
|---------------------------------|--------------------------------------|
| X ₁ = Role Ambiguity | X ₅ = Supervisory Support |
| X ₂ = Role Conflict | X ₆ = Nonparticipation |
| X ₃ = School Stress | X ₇ = Peer Support |
| X ₄ = Task Stress | X ₈ = Role Overload |
| | X ₉ = Management Style |

INTERNAL (Teacher Internal Characteristics):

| | |
|-------------------------------------|------------------------------------|
| X ₁₀ = Role Preparedness | X ₁₃ = Illness Symptoms |
| X ₁₁ = Job Satisfaction | X ₁₄ = Locus of Control |
| X ₁₂ = Life Satisfaction | X ₁₅ = Self Esteem |

STUDENTS (Students):

| |
|--|
| X ₁₆ = Teacher Perception of Class Size |
| X ₁₇ = Teacher Perception of Student Learning |
| X ₁₈ = Teacher Perception of Student Behavior |

STRESS (Teacher Stress):

| |
|---|
| Y ₁ = Stress Producers |
| Y ₂ = Stress Coping Mechanisms |
| Y ₃ = Stress Symptoms |

Figure 4. Proposed Causal Model of Vocational Teacher Stress

CHAPTER IV
ANALYSIS OF THE DATA

The general purpose of this study was to discover the relationships among school systems, teacher internal characteristics, students, and vocational teacher stress. Another purpose of this study was to analyze vocational teacher stress using a proposed causal model that was developed using the literature on teacher stress to provide a conceptual framework. The model attempted to examine the linkages that exist among vocational teacher stress, teacher internal characteristics, students, and school systems. More specifically, to achieve the purpose of the study, the researcher sought to answer the following research questions:

1. What stress levels are experienced by vocational teachers?
2. What is the effect of school systems on vocational teacher stress?
3. What is the effect of teacher internal characteristics on vocational teacher stress?
4. What is the effect of students on vocational teacher stress?
5. What is a plausible pattern of causal relationships among three latent variables (teacher internal characteristics, school

systems, and students) and vocational teacher stress?

Two selected groups of vocational teachers in Virginia were mailed teacher stress packets and asked to individually complete five separate instruments: 1) Teacher Stress Measure, 2) Personal Behavior Inventory, 3) Self Esteem Scale, 4) Classroom Environment Scale, and 5) Tennessee Stress Scale-R. The first group consisted of vocational teachers employed by five selected school systems. The second was a stratified, randomly selected group of vocational teachers teaching in other locations in Virginia. Returned instruments were evaluated using descriptive statistics, multiple regression, and LISREL.

The findings of this study will help vocational teachers to better understand the stress they experience in their occupations. The findings also will help school administrators to recognize and understand the stress that is experienced by the vocational teachers they direct. Lastly, the findings of this study can be used by vocational teachers and administrators to develop and implement strategies to lessen and alleviate those things that tend to produce the greatest amount of stress in vocational teachers' occupations

The descriptive data associated with this study is presented first. Findings related to the five research

questions are presented next. Comparisons made between the targeted school systems and random selection teachers follows the discussion of the research questions. Non-respondent analyses are described after the teacher-group comparisons.

Findings

Descriptive Data

A total of 364 stress packets were distributed to vocational teachers employed in the state of Virginia. Exactly one-half (182) of these stress packets were mailed to vocational teachers employed by five targeted school systems in central and western Virginia (see Table 5). Another 182 stress packets were distributed to a stratified random selection of vocational teachers employed by other school systems throughout the state of Virginia. All seven vocational areas (Agriculture, Business, Health, Marketing, Technology, Trade and Industrial, and Work and Family Studies) were represented in the study. A total of 235 stress packets, representing 85 males (36%) and 150 females (64%), were returned (see Table 7 and Table 8). A response rate of 65 percent was obtained.

School system #4 had the highest rate of return with 84% of its vocational teachers returning completed stress

packets (see Table 7). Marketing was the vocational area achieving the highest rate of return. Eighty-six percent of the marketing teachers who received the stress packets returned them for analyses (see Table 8).

Table 7

Stress Packets Mailed and Received by School Systems and Random Selection

| School System | Packets Mailed | Packets Returned | Percentage Returned |
|---------------|----------------|------------------|---------------------|
| System #1 | 21 | 11 | 52.0% |
| System #2 | 17 | 7 | 41.0% |
| System #3 | 35 | 25 | 71.0% |
| System #4 | 32 | 27 | 84.0% |
| System #5 | 77 | 43 | 56.0% |
| Random Sample | 182 | 122 | 67.0% |
| Totals | 364 | 235 | 65.0% |

Table 8

Stress Packets Mailed and Received by Vocational Area

| Teaching Area | Packets Mailed | Packets Returned | Percentage Returned |
|-----------------------|----------------|------------------|---------------------|
| Agriculture | 37 | 27 | 73.0% |
| Business | 73 | 42 | 57.5% |
| Health | 34 | 28 | 82.0% |
| Marketing | 44 | 38 | 86.0% |
| Technology | 52 | 22 | 42.0% |
| Trade & Industrial | 71 | 41 | 58.0% |
| Work & Family Studies | 53 | 37 | 70.0% |
| Totals | 364 | 235 | 65.0% |

Table 9 displays the respondents' years of teaching experience. Respondents' years of teaching experience

ranged from 1 year to 38 years. Twelve respondents did not provide this information. Forty vocational teachers (40/223 = 18%) possessed five or less years of teaching experience. Forty-five vocational teachers (20%) had 6 to 10 years of teaching experience; 28 (12%) had 11 to 15 years experience; 35 (16%) had 16 to 20 years experience; 44 (20%) had 21 to 25 years experience; 24 (11%) had 26 to 30 years experience; and 7 (3%) vocational teachers had 31 or more years of teaching experience.

Table 9

Respondents' Years of Teaching Experience

| Years Teaching | Number of Respondent | Years Teaching | Number of Respondents |
|----------------|----------------------|----------------|-----------------------|
| 1 | 3 | 20 | 7 |
| 2 | 7 | 21 | 8 |
| 3 | 5 | 22 | 14 |
| 4 | 13 | 23 | 8 |
| 5 | 12 | 24 | 6 |
| 6 | 10 | 25 | 8 |
| 7 | 11 | 26 | 7 |
| 8 | 6 | 27 | 7 |
| 9 | 8 | 28 | 4 |
| 10 | 10 | 29 | 5 |
| 11 | 7 | 30 | 1 |
| 12 | 8 | 31 | 1 |
| 13 | 3 | 32 | 2 |
| 14 | 5 | 33 | 1 |
| 15 | 5 | 34 | 1 |
| 16 | 6 | 35 | 1 |
| 17 | 2 | 36 | 1 |
| 18 | 12 | 37 | 0 |
| 19 | 8 | 38 | 1 |

Respondents Reporting Years of Teaching = 223
 Respondents Not Reporting Years of Teaching = 12
 Total Packets Returned = 235

Respondents' ages ranged from 22 years to 63 years. Table 10 shows the respondents' ages. Ten vocational teachers chose not to report their ages. There were 26 (26/225 = 11%) teachers between the ages of 22 and 30; 60 were between the ages of 31 and 40 (27%); 102 were between the ages of 41 and 50 (45%); 33 were between the ages of 51 and 60 (15%); and 4 were over 60 (2%) years of age.

Table 10

Respondents' Ages

| Age | Number of Respondents | Age | Number of Respondents |
|-----|-----------------------|-----|-----------------------|
| 22 | 1 | 43 | 10 |
| 23 | 3 | 44 | 10 |
| 24 | 1 | 45 | 11 |
| 25 | 2 | 46 | 13 |
| 26 | 5 | 47 | 13 |
| 27 | 2 | 48 | 13 |
| 28 | 2 | 49 | 6 |
| 29 | 4 | 50 | 6 |
| 30 | 6 | 51 | 5 |
| 31 | 5 | 52 | 5 |
| 32 | 9 | 53 | 7 |
| 33 | 5 | 54 | 1 |
| 34 | 4 | 55 | 2 |
| 35 | 3 | 56 | 3 |
| 36 | 3 | 57 | 0 |
| 37 | 5 | 58 | 6 |
| 38 | 7 | 59 | 2 |
| 39 | 6 | 60 | 2 |
| 40 | 13 | 61 | 1 |
| 41 | 10 | 62 | 2 |
| 42 | 10 | 63 | 1 |

Respondents Reporting Age = 225

Respondents Not Reporting Age = 10

Total Packets Returned = 235

In Virginia, sixth, seventh, and eighth grades are typically housed in middle schools or junior high schools. The high schools generally consist of ninth grade, tenth grade, eleventh grade and twelfth grade. Table 11 reports the total number of respondents teaching in each of these grades. Most of the respondents teach more than one grade level. A majority of those vocational teachers responding to the stress packets reported that they teach grade 11 (207 respondents, 88%) and grade 12 (212 respondents, 90%).

Table 11

Grades Taught by Respondents

| Grade | Number of Respondents Teaching Grade | Percentage ¹ of Total Returned |
|----------|--------------------------------------|---|
| Grade 6 | 27 | 11.0% |
| Grade 7 | 46 | 19.5% |
| Grade 8 | 65 | 28.0% |
| Grade 9 | 124 | 53.0% |
| Grade 10 | 177 | 75.0% |
| Grade 11 | 207 | 88.0% |
| Grade 12 | 212 | 90.0% |
| Adults | 18 | 8.0% |

¹ Percentages exceed 100 because most teachers teach in multiple grades

Table 12 reports the highest degree earned by vocational teachers responding to the study. Seven of the respondents chose not to report their highest degree. A majority of these teachers (121/228 respondents or 53%)

Table 12

Highest Degree Earned by Respondents

| Degree Earned | Number of Respondents | Percentage of Total Reporting |
|-------------------------------|-----------------------|-------------------------------|
| High School | 5 | 2.0% |
| Post Secondary | 18 | 8.0% |
| Bachelors | 121 | 53.0% |
| Masters | 82 | 36.0% |
| Certificate of Advanced Study | 2 | 1.0% |
| Doctoral | 0 | 0.0% |
| Post Doctoral | 0 | 0.0% |
| Totals | 228 | 100.0% |
| Nonreport = 7 | | |

possess a bachelor's degree. In addition, a substantial number (82/228 respondents or 36%) of the respondents hold a master's degree.

Table 13

Respondents' Number of Children

| Number of Children | Number of Respondents | Percentage of Total Reporting |
|--------------------|-----------------------|-------------------------------|
| 0 | 52 | 22.0% |
| 1 | 46 | 19.5% |
| 2 | 89 | 38.0% |
| 3 | 32 | 14.0% |
| 4 | 7 | 3.0% |
| 5 | 5 | 2.0% |
| 10 | 1 | 0.5% |
| Totals | 232 | 100.0% |
| Nonreport = 3 | | |

Most (76% or 179 respondents) of the vocational teachers responding to this study reported that they were currently married. A majority of the 232 respondents (78% or 180 respondents) had one or more children (see Table 13).

Research Questions

While reviewing the findings to the questions posed in this study of vocational teacher stress, it will be important to have information regarding variable names and the means, standard deviations, and correlations of the variables. Table 14 is a guide to variable names.

Table 14

Guide to Study Variables

| Variable Name | Variable |
|---------------------|----------|
| Role Ambiguity | RLEAMB |
| Role Conflict | RLECONF |
| School Stress | SCHSTRS |
| Task Stress | TSKSTRS |
| Supervisory Support | SUPVSUP |
| Nonparticipation | NONPART |
| Peer Support | PEERSUP |
| Role Overload | RLEOVER |
| Management Style | MNGMT |
| Role Preparedness | RLEPREP |
| Job Satisfaction | JOBSAT |
| Life Satisfaction | LIFESAT |
| Illness Symptoms | ILLSYMP |
| Locus of Control | LOCUS |
| Self Esteem | ESTEEM |
| Class Size | SIZE |
| Student Learning | LEARN |
| Student Behavior | BEHAVE |
| Stress Score | STRESS |

Table 15 contains the means and standard deviations for all of the variables used in this study of vocational teacher stress and the correlations associated with these variables are illustrated in Table 16.

Table 15

Study Variables' Means and Standard Deviations

| Variable | Mean | Standard Deviation |
|----------|-----------|--------------------|
| RLEAMB | 10.56596 | 4.073957 |
| RLECONF | 15.30213 | 5.96197 |
| SCHSTRS | 19.47659 | 6.057637 |
| TSKSTRS | 34.22979 | 8.466523 |
| SUPVSUP | 10.21702 | 5.217464 |
| NONPART | 20.68936 | 6.944322 |
| PEERSUP | 6.63404 | 3.023079 |
| RLEOVER | 15.64681 | 5.637059 |
| MNGMT | 13.65106 | 5.103789 |
| RLEPREP | 11.81702 | 3.597917 |
| JOBSAT | 15.67660 | 5.824873 |
| LIFESAT | 10.69787 | 5.098830 |
| ILLSYMP | 15.34043 | 6.358508 |
| LOCUS | 172.46380 | 18.750090 |
| ESTEEM | 15.59575 | 4.282042 |
| SIZE | 2.22128 | .952939 |
| LEARN | 16.65106 | 2.814331 |
| BEHAVE | 7.94894 | 2.410259 |
| STRESS | 25.48511 | 10.232070 |

Research Question # 1: What stress levels are experienced by vocational teachers?

For the purpose of this study, vocational teacher stress scores were obtained using the Tennessee Stress Scale-R--a self-report instrument designed for professionals, including teachers. Vocational teachers scoring 15 or below on this measurement are considered to

Table 16 Correlations

| | X ₁ | X ₂ | X ₃ | X ₄ | X ₅ | X ₆ | X ₇ | X ₈ | X ₉ | X ₁₀ | X ₁₁ | X ₁₂ | X ₁₃ | X ₁₄ | X ₁₅ | X ₁₆ | X ₁₇ | X ₁₈ | X ₁₉ | |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--|
| X ₁ | | | | | | | | | | | | | | | | | | | | |
| BLEAMB | 1.0 | | | | | | | | | | | | | | | | | | | |
| X ₁ | | | | | | | | | | | | | | | | | | | | |
| BLECOMP | 0.549 | 1.0 | | | | | | | | | | | | | | | | | | |
| X ₁ | | | | | | | | | | | | | | | | | | | | |
| SCHSTRS | 0.391 | 0.644 | 1.0 | | | | | | | | | | | | | | | | | |
| X ₄ | | | | | | | | | | | | | | | | | | | | |
| TSKSTRS | 0.294 | 0.566 | 0.541 | 1.0 | | | | | | | | | | | | | | | | |
| X ₅ | | | | | | | | | | | | | | | | | | | | |
| SUPVSUP | 0.439 | 0.485 | 0.459 | 0.255 | 1.0 | | | | | | | | | | | | | | | |
| X ₆ | | | | | | | | | | | | | | | | | | | | |
| NONPART | 0.471 | 0.472 | 0.492 | 0.356 | 0.578 | 1.0 | | | | | | | | | | | | | | |
| X ₇ | | | | | | | | | | | | | | | | | | | | |
| PEERSUP | 0.246 | 0.276 | 0.250 | 0.166 | 0.366 | 0.492 | 1.0 | | | | | | | | | | | | | |
| X ₈ | | | | | | | | | | | | | | | | | | | | |
| RECOVER | 0.419 | 0.666 | 0.495 | 0.598 | 0.310 | 0.307 | 0.161 | 1.0 | | | | | | | | | | | | |
| X ₉ | | | | | | | | | | | | | | | | | | | | |
| WNGMT | 0.409 | 0.481 | 0.388 | 0.289 | 0.689 | 0.661 | 0.396 | 0.343 | 1.0 | | | | | | | | | | | |
| X ₁₀ | | | | | | | | | | | | | | | | | | | | |
| BLEPREP | 0.393 | 0.443 | 0.297 | 0.364 | 0.239 | 0.357 | 0.196 | 0.324 | 0.285 | 1.0 | | | | | | | | | | |
| X ₁₁ | | | | | | | | | | | | | | | | | | | | |
| JOBSAT | 0.464 | 0.481 | 0.416 | 0.304 | 0.436 | 0.523 | 0.423 | 0.372 | 0.444 | 0.451 | 1.0 | | | | | | | | | |
| X ₁₂ | | | | | | | | | | | | | | | | | | | | |
| LIPESAT | 0.447 | 0.455 | 0.332 | 0.449 | 0.304 | 0.493 | 0.321 | 0.362 | 0.353 | 0.419 | 0.582 | 1.0 | | | | | | | | |
| X ₁₃ | | | | | | | | | | | | | | | | | | | | |
| ILLSYMP | 0.357 | 0.540 | 0.528 | 0.637 | 0.318 | 0.367 | 0.236 | 0.576 | 0.321 | 0.270 | 0.358 | 0.556 | 1.0 | | | | | | | |
| X ₁₄ | | | | | | | | | | | | | | | | | | | | |
| LOCUS | -0.223 | -0.268 | -0.251 | -0.236 | -0.229 | -0.277 | -0.302 | -0.178 | -0.233 | -0.214 | -0.284 | -0.415 | -0.338 | 1.0 | | | | | | |
| X ₁₅ | | | | | | | | | | | | | | | | | | | | |
| ESTREM | 0.407 | 0.320 | 0.215 | 0.398 | 0.239 | 0.308 | 0.257 | 0.241 | 0.212 | 0.389 | 0.305 | 0.587 | 0.427 | -0.380 | 1.0 | | | | | |
| X ₁₆ | | | | | | | | | | | | | | | | | | | | |
| SIZE | 0.088 | 0.170 | 0.059 | 0.136 | 0.020 | 0.008 | 0.003 | 0.105 | -0.015 | 0.003 | 0.021 | 0.021 | 0.215 | -0.038 | 0.081 | 1.0 | | | | |
| X ₁₇ | | | | | | | | | | | | | | | | | | | | |
| LEARN | 0.289 | 0.312 | 0.211 | 0.216 | 0.151 | 0.351 | 0.190 | 0.278 | 0.220 | 0.230 | 0.417 | 0.324 | 0.217 | -0.286 | 0.247 | 0.019 | 1.0 | | | |
| X ₁₈ | | | | | | | | | | | | | | | | | | | | |
| BEHAVE | 0.281 | 0.218 | 0.126 | 0.245 | 0.078 | 0.105 | 0.141 | 0.149 | 0.126 | 0.186 | 0.325 | 0.160 | 0.164 | -0.141 | 0.202 | 0.150 | 0.360 | 1.0 | | |
| X ₁₉ | | | | | | | | | | | | | | | | | | | | |
| STRESS | 0.417 | 0.533 | 0.456 | 0.593 | 0.263 | 0.349 | 0.253 | 0.558 | 0.297 | 0.384 | 0.368 | 0.542 | 0.689 | -0.375 | 0.504 | 0.072 | 0.278 | 0.194 | 1.0 | |

be experiencing a low level of stress. Those scoring 16 to 30 are believed to be experiencing a moderate level of stress. Vocational teachers scoring above 30 on the Tennessee Stress Scale-R are experiencing a severe amount of stress in their teaching occupations. The lowest score obtained in this study on the Tennessee Stress Scale-R was a 2 and the highest score acquired was a 52. The median score achieved in this study of vocational teacher stress was a 27--moderate stress.

The stress levels experienced by the vocational teachers represented in this study are illustrated in Tables 17, 18, and 19. Table 17 shows vocational teacher stress level according to gender. Vocational teacher stress levels according to the five school systems and random selection group are shown in Table 18. Stress levels according to vocational teaching areas are depicted in Table 19.

A majority (126 or 84%) of the female vocational teachers represented in this study scored within the moderate to severe stress ranges on the Tennessee Stress Scale-R (see Table 17). A score of 26, acquired by 10 female vocational teachers, was the score obtained most frequently by female respondents. The majority of males (67 or 78%) participating in this study of vocational teacher stress also scored within the moderate range to

severe ranges (see Table 17). Scores of 20 and 23 were obtained most frequently by male vocational teachers. Each of these scores were acquired by seven percent of the males. The data indicate that a larger percentage of the female respondents are experiencing severe stress. The stress scores generated by male and female respondents were found to be significantly different (t -value = 2.006, $p < .04$). The reader may refer to Table 17 for additional information regarding the stress levels of female and male participants.

Table 17

Vocational Teacher Stress Level According To Gender*

| Stress Score | Low Stress < = 15 | Moderate Stress < = 30 | Severe Stress > = 31 | Total N = 235 |
|----------------|----------------------|---------------------------|-------------------------|------------------|
| FEMALE: | | | | |
| Total | 24 | 72 | 54 | 150 |
| Percentage | 16% | 48% | 36% | |
| MALE: | | | | |
| Total | 18 | 43 | 24 | 85 |
| Percentage | 21% | 51% | 28% | |
| Total # | 42 | 115 | 78 | 235 |
| Total % | 18% | 49% | 33% | |

* Stress scores obtained on the Tennessee Stress Scale-R

As shown in Table 18, all of the vocational teachers (100%) employed by School system #1 scored from moderate to severe on the Tennessee Stress Scale-R. Most of the teachers in school system #1 scored within the moderate

range. School system #2 had a relatively even distribution of stress scores with the highest percentage (43%) falling within the moderate range. School system #3 has most (88%) of its stress scores occurring in the low to moderate ranges. The majority (89%) of the stress scores obtained by the vocational teachers in school system #4 are in the moderate to severe ranges. Likewise, a majority of the teachers in school system #5 (86%) and the random sample (81%) scored within the moderate to severe ranges.

Vocational teachers teaching in school system #4 and those represented in the random selection group have the highest percentages of teachers experiencing severe stress (see Table 18). Each of these two groups had 37% of its vocational teachers scoring 31 or above on the Tennessee Stress Scale-R. Teachers employed by school system #3 appear to be experiencing the least amount of stress in their teaching occupations (see Table 18). Thirty-two percent of the vocational teachers represented by school system #3 received a stress score of less than or equal to 15. The lowest score attained in this study, a score of 2, was achieved by two teachers: one in school system #3 and one in the random selection group. The highest score, a score of 52 was received by a teacher in the random selection group. Table 18 provides

further information regarding the stress levels obtained by vocational teachers according to their respective groups.

Table 18

Vocational Teacher Stress Level According To School Systems and Random Selection

| Stress Score | Low Stress < = 15 | Moderate Stress < = 30 | Severe Stress > = 31 | Total N = 235 |
|------------------|----------------------|---------------------------|-------------------------|------------------|
| SYSTEM #1 | | | | |
| Total | 0 | 8 | 3 | 1 |
| Percentage | 0% | 73.0% | 27.0% | |
| SYSTEM #2 | | | | |
| Total | 2 | 3 | 2 | 7 |
| Percentage | 28.5% | 43.0% | 28.5% | |
| SYSTEM #3 | | | | |
| Total | 8 | 14 | 3 | 25 |
| Percentage | 32.0% | 56.0% | 12.0% | |
| SYSTEM #4 | | | | |
| Total | 3 | 14 | 10 | 27 |
| Percentage | 11.0% | 52.0% | 37.0% | |
| SYSTEM #5 | | | | |
| Total | 6 | 22 | 15 | 43 |
| Percentage | 14.0% | 51.0% | 35.0% | |
| RANDOM | | | | |
| Total | 23 | 54 | 45 | 122 |
| Percentage | 19.0% | 44.0% | 37.0% | |
| Total # | 42 | 115 | 78 | 235 |
| Total % | 18.0% | 49.0% | 33.0% | |

* Stress scores obtained on the Tennessee Stress Scale-R

Teacher stress levels according to vocational teaching areas are depicted in Table 19. Teachers in the area of Work and Family Studies have the greatest percentage (46%) of teachers within the severe stress

range. The second highest percentage (41%) of severe stress scores were acquired by Agriculture teachers. However, teachers in the area of Marketing had the highest percentage (95%) of scores in the moderate to severe ranges.

Table 19

Vocational Teacher Stress Level According To Teaching Area

| Stress Score | Low Stress < = 15 | Moderate Stress < = 30 | Severe Stress > = 31 | Total N = 235 |
|--------------------------|----------------------|---------------------------|-------------------------|------------------|
| AGRICULTURE | | | | |
| Total | 7 | 9 | 11 | 27 |
| Percentage | 26.0% | 33.0% | 41.0% | |
| BUSINESS | | | | |
| Total | 6 | 21 | 15 | 42 |
| Percentage | 14.0% | 50.0% | 36.0% | |
| HEALTH | | | | |
| Total | 9 | 13 | 6 | 28 |
| Percentage | 32.0% | 46.0% | 22.0% | |
| MARKETING | | | | |
| Total | 2 | 25 | 11 | 38 |
| Percentage | 5.0% | 65.0% | 30.0% | |
| TECHNOLOGY | | | | |
| Total | 4 | 12 | 6 | 22 |
| Percentage | 18.0% | 55.0% | 27.0% | |
| TRADE & IND. | | | | |
| Total | 10 | 19 | 12 | 41 |
| Percentage | 25.0% | 46.0% | 29.0% | |
| WORK & FAMILY | | | | |
| Total | 4 | 16 | 17 | 37 |
| Percentage | 11.0% | 43.0% | 46.0% | |
| Total # | 42 | 115 | 78 | 235 |
| Total % | 18.0% | 49.0% | 33.0% | |

* Stress scores obtained on the Tennessee Stress Scale-R

Teachers in Health Education showed the highest percentage (32%) of teachers experiencing low stress. Trade and Industrial teachers had the highest total number (10) of teachers experiencing low stress. These teachers scored 15 or less on the Tennessee Stress Scale-R.

A score of 2, the lowest scored in this study, was achieved by an Agriculture teacher and a Trade and Industrial teacher. A score of 52, the highest received in this study, was attained by an Agriculture teacher.

Research Question # 2: What is the effect of school systems on vocational teacher stress?

Nine independent variables were used in this study to describe the effects of school systems on vocational teacher stress. These variables included role ambiguity (RLEAMB), role conflict (RLECONF), school stress (SCHSTRS), task stress (TSKSTRS), supervisory support (SUPVSUP), nonparticipation (NONPART), peer support (PEERSUP), role overload (RLEOVER), and management style (MNGMT). These nine independent variables were regressed on the dependent variable, stress (STRESS) using the Linear Regression Model.

An F-test was used to determine the significance of the overall model related to school systems. Table 20 presents the analysis of variance summary table. A

significant F for this overall model based on variables related to school systems was calculated ($F = 21.77$, $p < .000$).

The nine independent variables were regressed on STRESS. The multiple regression report is illustrated in Table 21. Role ambiguity (RLEAMB), task stress (TSKSTRS), peer support (PEERSUP), and role overload (RLEOVER) were found to be significant contributors to this regression model. According to the standardized estimates (beta weights), TSKSTRS contributes the most to explaining vocational teacher stress when evaluating the effects of school systems. Task stress also was found to be the variable most highly correlated with the dependent variable, stress.

Table 20

School Systems--ANOVA Summary Table

| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> |
|----------------------------|-----------|-----------|-----------|----------|
| Model | 11402.62 | 9 | 1266.958 | 21.77* |
| Error | 13096.07 | 225 | 58.20478 | |
| Total | 24498.70 | 234 | 104.6953 | |

* $p < .05$

The predicted stress score on the Tennessee Stress Scale-R (TSS-R) when utilizing variables related to school systems is obtained by substituting the numerical

values associated with these nine independent variables into the following equation:

$$\begin{aligned} \text{Predicted Stress Score (TSS-R)} = & -4.115755 + \\ & b_1(\text{RLEAMB}) + b_2(\text{RLECONF}) + b_3(\text{SCHSTRS}) + b_4 \\ & (\text{TSKSTRS}) + b_5(\text{SUPVSUP}) + b_6(\text{NONPART}) + b_7(\text{PEERSUP}) + \\ & b_8(\text{RLEOVER}) + b_9(\text{MNGMT}) \end{aligned}$$

Table 21

School Systems--Multiple Regression Report

| Var. | Parameter Estimate b' | Standard Error | t-Test | Prob. | Standardized Estimate b^* |
|-----------|----------------------------|----------------|--------|--------|--------------------------------|
| Intercept | -4.115755 | 2.420248 | -1.70 | 0.0890 | 0.0000 |
| RLEAMB | .418165 | .155629 | 2.69 | 0.0072 | 0.1665 |
| RLECONF | .119969 | .141325 | .85 | 0.3959 | 0.0699 |
| SCHSTRS | .089430 | .118117 | .76 | 0.4490 | 0.0529 |
| TSKSTRS | .418174 | .080490 | 5.20 | 0.0000 | 0.3460 |
| SUPVSUP | -.117237 | .142279 | -0.82 | 0.4099 | -0.0598 |
| NONPART | .012040 | .111215 | .11 | 0.9138 | 0.0082 |
| PEERSUP | .365383 | .191360 | 1.91 | 0.0562 | 0.1080 |
| RLEOVER | .377869 | .128759 | 2.93 | 0.0033 | 0.2082 |
| MNGMT | .007080 | .153517 | -0.05 | 0.9632 | -0.0035 |

$R^2 = .4654$

The multiple R for this equation was .6822023. It accounted for about 46.54 percent of the variance in the criterion variable.

Research Question # 3: What is the effect of teacher internal characteristics on vocational teacher stress?

The independent variables used in this study to exemplify teacher internal characteristics included role preparation (RLEPREP), job satisfaction (JOBSAT), life

satisfaction (LIFESAT), illness symptoms (ILLSYMP), locus of control (LOCUS), and self esteem (ESTEEM). These six independent variables were regressed on the dependent variable, stress (STRESS) using the Linear Regression Model.

An F test was used to determine the significance of the overall model related to teacher internal characteristics. Table 22 presents the analysis of variance summary table. The F for this overall model based on teacher internal characteristics was found to be significant ($F = 47.87, p < .000$).

The contribution of each independent variable was evaluated. The multiple regression report is in Table 23. Role preparation (RLEPREP), illness symptoms (ILLSYMP), and self esteem (ESTEEM) were found to be significant. According to the standardized estimates (beta weights), ILLSYMP contributes the most to explaining vocational teacher stress when evaluating the effects of teacher internal characteristics.

The predicted stress score on the Tennessee Stress Scale-R (TSS-R) when utilizing variables related to teacher internal characteristics is obtained by substituting the numerical values associated with these six independent variables into the following equation:

$$\begin{aligned} \text{Predicted Stress Score (TSS-R)} &= 8.325430 + \\ &b_1(\text{RLEPREP}) + b_2(\text{JOBSAT}) + b_3(\text{LIFESAT}) + b_4(\text{ILLSYMP}) \\ &+ b_5(\text{LOCUS}) + b_6(\text{ESTEEM}) \end{aligned}$$

Table 22

Teacher Internal Characteristics--ANOVA Summary Table

| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> |
|----------------------------|-----------|-----------|-----------|----------|
| Model | 13657.27 | 6 | 2276.211 | 47.87* |
| Error | 10841.43 | 228 | 47.55014 | |
| Total | 24498.70 | 234 | 104.6953 | |

* $p < .05$

The multiple R for this equation was .746659. It accounted for about 55.75 percent of the variance in the criterion variable.

Table 23

Teacher Internal Characteristics--Multiple Regression Report

| <i>Var.</i> | <i>Parameter Estimate</i> <i>b'</i> | <i>Standard Error</i> | <i>t-Test</i> | <i>Prob.</i> | <i>Standardized Estimate</i> <i>b*</i> |
|-------------|--|-----------------------|---------------|--------------|---|
| Intercept | 8.325430 | 5.852203 | 1.42 | 0.1548 | 0.0000 |
| RLEPREP | .382202 | .146846 | 2.60 | 0.0092 | 0.1344 |
| JOBSAT | .009817 | .099590 | .10 | 0.9215 | 0.0056 |
| LIFESAT | .135020 | .136599 | .99 | 0.3229 | 0.0673 |
| ILLSYMP | .833539 | .086980 | 9.58 | 0.0000 | 0.5180 |
| LOCUS | -.044400 | .027119 | -1.64 | 0.1018 | -0.0813 |
| ESTEEM | .379038 | .136080 | 2.69 | 0.0053 | 0.1586 |

 $R^2 = .5575$

Research Question # 4: What is the effect of students on vocational teacher stress?

Teacher perception of class size (SIZE), student learning (LEARN), and student behavior (BEHAVE) are the three independent variables used in this study to show the effects of students on vocational teacher stress. SIZE, LEARN, and BEHAVE were regressed on STRESS. The Linear Regression Model was utilized.

The F for this overall model based on the independent variables related to students was found to be significant ($F = 7.59, p < .000$). Table 24 displays the analysis of variance summary table.

The contributions of SIZE, LEARN, and BEHAVE were evaluated. Table 25 presents the multiple regression report. LEARN was the only independent variable related to students that was found to be significant ($t = 3.58, p < .0003$). The standardized regression coefficients computed in this model show LEARN to be the most important variable in this model (based on the effects of students) for the explanations of STRESS. LEARN was also found to be the one most highly correlated with the dependent variable, STRESS.

Table 24

Students--ANOVA Summary Table

| <i>Source of Variation</i> | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> |
|----------------------------|-----------|-----------|-----------|----------|
| Model | 2199.241 | 3 | 733.08010 | 7.59* |
| Error | 22299.460 | 231 | 96.53445 | |
| Total | 24498.70 | 234 | 104.6953 | |

* $p < .05$

Table 25

Students--Multiple Regression Report

| Var. | Parameter Estimate b' | Standard Error | t-Test | Prob. | Standardized Estimate b^* |
|-----------|----------------------------|----------------|--------|--------|--------------------------------|
| Intercept | 6.311185 | 4.150846 | 1.52 | 0.1288 | 0.0000 |
| SIZE | .566107 | .682216 | .83 | 0.4066 | 0.0527 |
| LEARN | .875668 | .244822 | 3.58 | 0.0003 | 0.2409 |
| BEHAVE | .419633 | .289086 | 1.45 | 0.1466 | 0.0988 |

 $R^2 = .0898$

The predicted stress score on the Tennessee Stress Scale-R (TSS-R) when utilizing variables related to students is obtained by substituting the parameter estimates (b_j) associated with these three independent variables into the following equation:

$$\text{Predicted Stress Score (TSS-R)} = 6.311185 + b_1(\text{SIZE}) + b_2(\text{LEARN}) + b_3(\text{BEHAVE})$$

With this model, 8.98 percent of the variance in vocational teacher stress of public school teachers in Virginia can be explained. The multiple R for this equation equaled .29967.

Research Question # 5: What is a plausible pattern of causal relationships among three latent variables (teacher internal characteristics, school systems, and students) and vocational teacher stress?

The Proposed Causal Model of Vocational Teacher Stress (see Figure 4, p. 100), introduced in its entirety in Chapter III of this study, consisted of three latent exogenous variables (SYSTEMS, INTERNAL, and STUDENTS). The proposed model suggested one latent dependent variable (STRESS).

SYSTEMS, based on a variety of characteristics identified in the literature as those stress producers related to the school systems in which teachers work was measured by nine indicators (see Table 2, pp. 63-65). The nine indicators associated with SYSTEMS are 1) role ambiguity, 2) role conflict, 3) school stress, 4) task stress, 5) supervisory support, 6) nonparticipation, 7) peer support, 8) role overload, and 9) management style.

In this structural model, INTERNAL was based on factors identified in the literature as important to or related to teachers internal characteristics (see Table

3, pp. 69-70). INTERNAL was dependent upon six indicator variables: 1) role preparation, 2) job satisfaction, 3) life satisfaction, 4) illness symptoms, 5) locus of control, and 6) self esteem.

The latent variable STUDENTS was dependent on three indicator variables: 1) teacher perception of class size, 2) teacher perception of student learning, and 3) teacher perception of student behavior. These were found in the literature to relate specifically to the teacher stress caused by students (see Table 4, p 76).

The latent dependent variable, STRESS was measured by three indicator variables: 1) stress producers, 2) stress coping mechanisms, and 3) stress symptoms. These indicators came from the categories identified in the Tennessee Stress Scale-R (McWilliams, 1984). These same categories were utilized by Schnorr and McWilliams (1988) in their study of the stress experienced by a variety of professionals, including teachers.

LISREL was used to investigate the pattern of causal relationships among school systems (SYSTEMS), teacher internal characteristics (INTERNAL), students (STUDENTS), and vocational teacher stress (STRESS). LISREL estimates for indicator variables and standardized path coefficients for paths between latent variables and STRESS are reported in Table 26. The paths associated

with the proposed causal model and corresponding t-values are illustrated in Figure 5. It should be noted that the first indicator variable (RLEAMB, RLEPREP, SIZE, and PRODUCE) for each latent variable was fixed at a value of one thereby providing LISREL with the starting values it needed in computing the solution. Therefore, LISREL estimates and t-values for these indicator variables were not computed.

Table 26

LISREL Path Estimates

| Indicator Variables | LISREL Estimates | Latent Variables | Standardized Path Coefficients to STRESS |
|---------------------|------------------|------------------|--|
| RLEAMB | 1.000* | | |
| RLECONF | 1.891* | | |
| SCHSTRS | 1.659* | | |
| TSKSTRS | 2.140* | SYSTEMS | 0.138 |
| SUPVSUP | 1.264* | | |
| NONPART | 1.840* | | |
| PEERSUP | 0.508* | | |
| RLEOVER | 1.484* | | |
| MNGMT | 1.272* | | |
| RLEPREP | 1.000* | | |
| JOBSAT | 1.945* | | |
| LIFESAT | 2.019* | INTERNAL | 0.769* |
| ILLSYMP | 2.346* | | |
| LOCUS | -4.658* | | |
| ESTEEM | 1.390* | | |
| SIZE | 1.000 | | |
| LEARN | 20.119 | STUDENTS | -0.066 |
| BEHAVE | 12.653 | | |

* significant paths

All paths leading to SYSTEMS, INTERNAL, AND STRESS were found to be significant. The t-values for these paths all exceeded two in magnitude. Thus, these paths are judged to be significantly different than zero. None of the paths leading to the latent variable STUDENTS were found to be significant. INTERNAL was the only latent variable producing a significant path to the dependent variable STRESS.

Strong correlations were calculated among all three latent independent variables and the latent dependent variable, STRESS. The correlation between SYSTEMS and STRESS equaled .740. The correlation between STUDENTS and STRESS equaled .470. The strongest correlation existed between INTERNAL and STRESS, at .843.

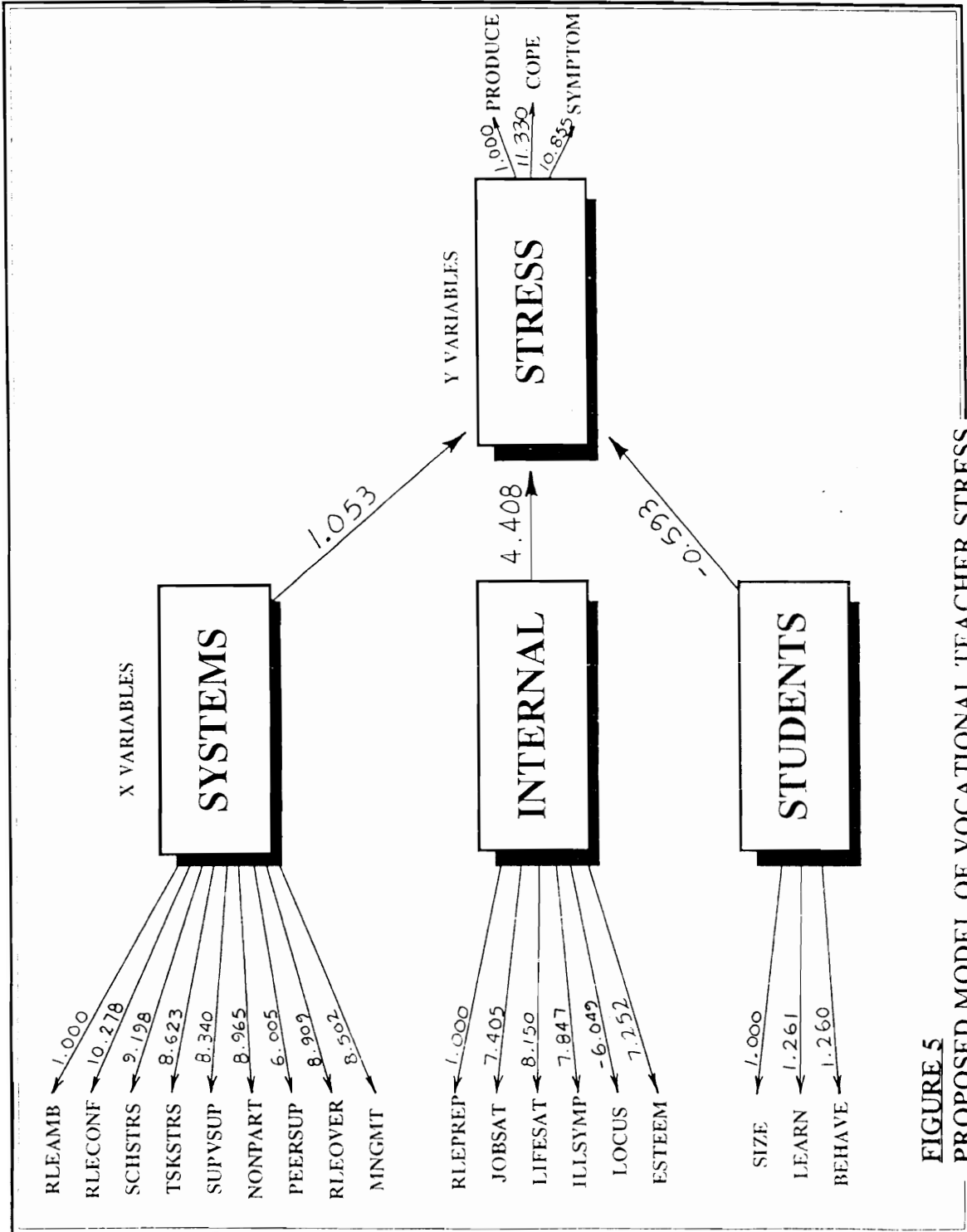


FIGURE 5
PROPOSED MODEL OF VOCATIONAL TEACHER STRESS
T-VALUES

The squared multiple correlations for the X and Y indicator variables have been recorded in Table 27. The squared multiple correlation for X_i is the relative amount of variance in X_i which is accounted for in the three latent variables--SYSTEM, INTERNAL, AND STUDENTS--jointly (Joreskog & Sorbom, 1989). Likewise, The squared multiple correlation for Y_j is the relative amount of variance in Y_j which is accounted for in the latent variable STRESS.

Table 27

Squared Multiple Correlations for X and Y Indicator Variables

| Variable | | R ² |
|-----------------|---------|----------------|
| X ₁ | RLEAMB | .405 |
| X ₂ | RLECONF | .676 |
| X ₃ | SCHSTRS | .503 |
| X ₄ | TSKSTRS | .429 |
| X ₅ | SUPVSUP | .395 |
| X ₆ | NONPART | .472 |
| X ₇ | PEERSUP | .187 |
| X ₈ | RLEOVER | .465 |
| X ₉ | MNGMT | .414 |
| X ₁₀ | RLEPREP | .296 |
| X ₁₁ | JOBSAT | .429 |
| X ₁₂ | LIFESAT | .602 |
| X ₁₃ | ILLSYMP | .522 |
| X ₁₄ | LOCUS | .237 |
| X ₁₅ | ESTEEM | .401 |
| X ₁₆ | SIZE | .011 |
| X ₁₇ | LEARN | .507 |
| X ₁₈ | BEHAVE | .264 |
| Y ₁ | PRODUCE | .706 |
| Y ₂ | COPE | .519 |
| Y ₃ | SYMPTOM | .482 |

The total coefficient of determination is a measure of how well the X or Y variables jointly serve as measurement instruments for the corresponding X or Y latent variables (Joreskog & Sorbom, 1989). The total coefficient of determination for the x variables is .98. The total coefficient of determination for the Y variables is .815. In this case, both of these are remarkably high, indicating that the measurement models are very good (Joreskog & Sorbom, 1989).

The squared multiple correlation for all structural equations computed by LISREL for this proposed model of teacher stress is .719. This is the amount of vocational teacher stress that can be explained by the model.

The chi-square of this model with 183 degrees of freedom was calculated to be 690.40. The goodness of fit index associated with this chi-square is equal to .745.

System and Random Selection Comparisons

To add credibility to the study, the researcher decided to run comparisons, using two-sample t-tests, between the vocational teachers in the targeted school systems and those in the random selection. Scores obtained from these two groups of vocational teachers on the 19 major variables (role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, management

style, role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control, self esteem, and teacher perception of class size, student learning, student behavior, and stress.) represented in this study were compared for differences. The means, variances and results of tests of significance between means and variances of respondents and non-respondents are reported in Table 28.

The *t*-test assumes that the scores in one group have about the same degree of variability as the scores in the second group. Therefore, before preceding with the *t*-tests the researcher tested this assumption to see if the variances were homogeneous. The null hypotheses or *F*-tests related to the variances failed to be rejected in 16 of the 19 compared statements. However, the variables, job satisfaction (JOBSAT), illness symptoms (ILLSYMP), and stress (STRESS) were found to be significant. Special *t*-tests designed to correct for unequal variances were calculated for the scores of these three variables. The *t*-scores reported in Table 28 for job satisfaction, illness symptoms, and stress are the ones obtained through the *t*-test for unequal variances.

Table 28

Means, Variances, and Results of Tests of Significance
Between Means and Variances of Targeted Systems and
Random Selection Vocational Teachers

| Var | Targeted Systems N = 113 | | Random Selection N = 122 | | F ¹ | t ² |
|---------|--------------------------------|----------|--------------------------------|----------|----------------|----------------|
| | Mean | Variance | Mean | Variance | | |
| RLEAMB | 10.389 | 17.133 | 10.730 | 16.182 | 1.059 | 0.639 |
| RLECONF | 15.071 | 32.316 | 15.516 | 38.731 | 1.198 | 0.572 |
| SCHSTRS | 18.894 | 31.221 | 20.016 | 41.454 | 1.328 | 1.422 |
| TSKSTRS | 34.451 | 64.107 | 34.025 | 79.198 | 1.235 | -0.385 |
| SUPVSUP | 9.867 | 23.973 | 10.541 | 30.234 | 1.261 | 0.989 |
| NONPART | 20.841 | 42.689 | 20.549 | 53.704 | 1.258 | -0.321 |
| PEERSUP | 6.681 | 9.237 | 6.590 | 9.120 | 1.013 | -0.231 |
| RLEOVER | 15.177 | 29.147 | 16.082 | 34.076 | 1.169 | 1.231 |
| MNGMT | 13.602 | 23.313 | 13.697 | 28.792 | 1.235 | 0.142 |
| RLEPREP | 11.920 | 12.860 | 11.721 | 13.112 | 1.020 | -0.423 |
| JOBSAT | 15.593 | 27.904 | 15.754 | 39.774 | 1.425* | 0.213 |
| LIFESAT | 10.655 | 24.121 | 10.738 | 24.121 | 1.159 | -0.124 |
| ILLSYMP | 15.009 | 32.491 | 15.648 | 47.916 | 1.475* | 0.769 |
| LOCUS | 172.283 | 302.383 | 172.631 | 399.937 | 1.322 | 0.142 |
| ESTEEM | 15.522 | 15.770 | 15.664 | 20.853 | 1.322 | 0.253 |
| SIZE | 1.982 | 0.750 | 2.443 | 0.959 | 1.280 | 3.804* |
| LEARN | 16.602 | 7.045 | 16.697 | 8.792 | 1.248 | 0.258 |
| BEHAVE | 8.203 | 5.342 | 7.713 | 2.485 | 1.156 | -1.563 |
| STRESS | 24.858 | 84.872 | 26.066 | 123.202 | 1.452* | 0.910 |

¹ F test - tests the homogeneity of variance

² t test - tests the significance of difference between means

* $p < .05$

The null hypotheses related to these 19 variables were that no differences exist between the sample means. The researcher failed to reject the null hypothesis in 18 of the 19 variables. SIZE (or teacher perception of class size) was the only variable that generated a

significant difference between the two groups of vocational teachers who participated in this study.

Non-Respondent Data

Even though the researcher attempted to solicit participation in this study of vocational teacher stress through numerous methods (follow-up letters, reminder post cards, and personal telephone calls), the response rate (235/364 = 65%) remained relatively lower than desired or typically recommended. Therefore, the researcher decided to conduct a study of the non-respondents to assess whether these vocational teachers could be said to have come from the same population as the respondents.

A total of 28 randomly selected non-respondents were contacted by the researcher by telephone and asked to respond to 21 statements (see Appendix P). All of the non-respondents contacted agreed to participate in the non-respondent study.

Each of the responsive statements in the non-respondent study were compared (using two-sample *t*-tests) to the same statements in the original study. The means, variances and results of tests of significance between means and variances of respondents and non-respondents are reported in Table 29.

Table 29

Means, Variances, and Results of Tests of Significance
Between Means and Variances of Respondents and Non-
respondents to the Teacher Stress Packet

| Q# | Original Respondents N = 235 | | Non Respondents N = 28 | | F ¹ | t ² |
|----|------------------------------------|----------|------------------------------|----------|----------------|----------------|
| | Mean | Variance | Mean | Variance | | |
| 1 | 2.145 | 1.220 | 2.357 | 0.905 | 1.35 | -0.976 |
| 2 | 3.234 | 2.496 | 3.429 | 2.032 | 1.23 | -0.622 |
| 3 | 2.817 | 2.509 | 2.964 | 1.517 | 1.65* | -0.578 |
| 4 | 4.294 | 2.277 | 3.893 | 1.507 | 1.51 | 1.352 |
| 5 | 2.519 | 2.079 | 2.929 | 1.994 | 1.04 | -1.423 |
| 6 | 2.566 | 1.802 | 2.786 | 1.878 | 1.04 | -0.817 |
| 7 | 2.387 | 1.478 | 2.643 | 1.719 | 1.16 | -1.043 |
| 8 | 3.562 | 2.555 | 3.750 | 2.046 | 1.25 | -0.595 |
| 9 | 1.974 | 1.358 | 1.964 | 1.591 | 1.17 | 0.043 |
| 10 | 2.421 | 1.168 | 2.643 | 1.571 | 1.35 | -1.007 |
| 11 | 2.302 | 2.203 | 2.286 | 1.471 | 1.50 | 0.056 |
| 12 | 1.915 | 1.728 | 2.107 | 2.099 | 1.21 | -0.724 |
| 13 | 4.209 | 2.038 | 4.464 | 2.332 | 1.14 | -0.890 |
| 14 | 3.591 | 1.311 | 3.357 | 1.053 | 1.25 | 1.034 |
| 15 | 1.642 | 0.436 | 1.571 | 0.624 | 1.43 | 0.527 |
| 16 | 2.221 | 0.909 | 2.393 | 1.062 | 1.17 | -0.893 |
| 17 | 2.894 | 0.737 | 2.679 | 0.893 | 1.21 | 1.240 |
| 18 | 2.038 | 0.858 | 1.786 | 0.767 | 1.12 | 1.372 |
| 19 | 0.477 | 0.251 | 0.464 | 0.258 | 1.03 | 0.123 |
| 20 | 0.894 | 0.096 | 0.821 | 0.152 | 1.59 | 1.134 |
| 21 | 0.613 | 0.238 | 0.500 | 0.259 | 1.09 | 1.150 |

¹ F test - tests the homogeneity of variance

² t test - tests the significance of difference between means

* $p < .05$

The null hypotheses or F-tests related to the variances failed to be rejected in 20 of the compared statements. However, statement number four was found to be significant. A special t-test designed to correct for

unequal variances was calculated. The t-score (1.352) reported in Table 29 is the one obtained through the *t*-test for unequal variances.

The null hypotheses related to these 21 statements were that no differences exist between the sample means. The researcher failed to reject the null hypothesis on all 21 statements. Therefore, the non-respondent study showed no significant difference between the respondents and the non-respondents.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains the following four sections:

- 1) summary of the study, 2) conclusions and discussion,
- 3) recommendations, and 4) suggestions for future research.

Summary of the Study

This study evaluated the relationships between school systems and vocational teacher stress, teacher internal characteristics and vocational teacher stress, and students and vocational teacher stress. It also analyzed vocational teacher stress using a proposed causal model that was developed using the literature on teacher stress to provide a conceptual framework. The model attempted to examine the linkages that exist among vocational teacher stress, school systems, teacher internal characteristics, and students. More specifically, the following research questions were answered:

1. What stress levels are experienced by vocational teachers?
2. What is the effect of teacher internal characteristics on vocational teacher stress?
3. What is the effect of students on vocational teacher stress?

4. What is the effect of school systems on vocational teacher stress?
5. What is a plausible pattern of causal relationships among three latent variables (school systems, teacher internal characteristics, and students) to vocational teacher stress?

Job stress is a multidimensional phenomena. This study, like others that have been previously conducted, found that many things cause teachers to experience occupational stress (Kyriacou & Sutcliffe, 1978; Pelsma & Richard, 1987; and Rogers, 1977). The concepts examined in this study of vocational teacher stress are extremely complex.

The researcher sought to identify and examine those variables that cause vocational teachers to experience stress in their teaching occupations and to estimate the effects of these related stressors. However, when an exhaustive literature search was conducted on vocational teachers and the stress they experience, very little was found.

The Teacher Proximity Continuum, developed by Heath-Camp and Camp (1990), was found to be an effective way to classify the multitudes of stressors identified in the literature on teacher stress (see Figure 3, pp. 59-60).

While classifying these stressors according to the domains established in the Teacher Proximity Continuum, it became apparent that a majority of these teacher stressors could be grouped into three broad areas. These three areas included school systems, teacher internal characteristics, and students. The constructs of this study focused specifically on the teacher stressors affiliated with these three areas.

Role ambiguity, role conflict, school stress, task stress, supervisory support, nonparticipation, peer support, role overload, and management style are the nine areas identified in the literature that could be legitimately grouped within the school systems category (see Table 2, pp. 63-65). Role preparedness, job satisfaction, life satisfaction, illness symptoms, locus of control, and self esteem were the six areas identified in the literature that were classified as teachers internal characteristics (see Table 3, pp. 69-70). Student behavior, class size, and student learning were three variables related to students that appeared in the literature (see Table 4, p. 76).

This study measured vocational teacher stress using the Tennessee Stress Scale-R (McWilliams, 1984) (Appendix F). It measured the identified stressors using four other instruments: 1) Teacher Stress Measure (Pettegrew

& Wolf, 1982b) (Appendix B); 2) Personal Behavior Inventory (Collins, 1974b) (Appendix C); 3) Self Esteem Scale (Rosenberg, 1989b) (Appendix D); and 4) Classroom Environment Scale, (Bacharach et al., 1986b) (Appendix E).

In addition to these measures, demographic information was gathered from the vocational teachers (see Appendix M). The purpose of obtaining this information was to provide a description of study participants.

The study was limited to two separate groups of vocational teachers employed in Virginia. The first group consisted of vocational teachers teaching in five targeted school systems. The second group was randomly selected from state supplied lists. Teachers employed by the five targeted school systems were eliminated from the random selection process.

Vocational directors in the five targeted school systems agreed to distribute teacher stress packets to the vocational teachers in their respective systems. Each teacher stress packet contained a letter (see Appendix H), consent form (see Appendix L), informational form (see Appendix M), instructions for the instruments (see Appendix N), Teacher Stress Measure (see Appendix B), Personal Behavior Inventory (see Appendix C), Self

Esteem Scale (see Appendix D), Classroom Environment Scale (see Appendix E), and Tennessee Stress Scale-R (see Appendix F).

The group of randomly selected vocational teachers were mailed personal letters briefly describing the study and requesting their participation in the study (see Appendix I). Enclosed with these letters were the same teacher stress packets forwarded to the teachers in the five targeted school systems.

The researcher mailed 364 stress packets to vocational teachers in Virginia. A total of 235 vocational teachers returned completed stress packets. An overall response rate of 65 percent was obtained.

An analysis was conducted that compared the selected system teachers to the randomly selected teachers on the 18 independent variables and 1 dependent variable represented in the study. Only one difference was uncovered in the comparisons for the 19 variables compared.

The non-respondent information for this study of vocational teacher stress was procured by contacting 28 (14 from the targeted school systems and 14 from the randomly selected sample) teachers and obtaining the scores on 21 questions representative of the 21 indicator variables. Responsive statements in the non-respondent

study were compared (using two-sample t-tests) to the same statements in the original study. No significant differences were found.

The first research question was answered using the stress scores obtained on the Tennessee Stress Scale-R. The stress levels experienced by the vocational teachers represented in this study are illustrated in Tables 17 (see p. 113), 18 (see p. 115), and 19 (see p. 116).

The second research question was answered by obtaining scores for the nine independent variables related to school systems and the dependent variable, stress. The nine independent variables were regressed on the dependent variable using the Linear Regression Model. The ANOVA summary table and multiple regression report related to this question are depicted in Table 20 (see p. 118) and Table 21 (see p. 119).

The third research question was answered by obtaining scores for the six independent variables related to teacher internal characteristics and dependent variable, stress. These six independent variables were regressed on the dependent variable using the Linear Regression Model. The ANOVA summary table and multiple regression report related to this question are depicted in Table 22 (see p. 121) and Table 23 (see p. 121).

The fourth research question was answered by obtaining scores for the three independent variables related to students and dependent variable, stress. These three independent variables were regressed on the dependent variable using the Linear Regression Model. The ANOVA summary table and multiple regression report related to this question are depicted in Table 24 (see p. 123) and Table 25 (see p. 123).

The fifth research question involved two major tasks. The first part required developing a proposed causal model of vocational teacher stress (see Figure 4, p. 100). Following the theoretical model building, scores were obtained for the nine indicator variables associated with the latent variable SYSTEMS, the six indicator variables associated with the latent variable INTERNAL, the three indicator variables associated with the latent variable STUDENTS, and the three indicator variables associated with the latent variable STRESS. LISREL was then used to investigate the proposed pattern of causal relationships among SYSTEMS, INTERNAL, and STUDENTS to vocational teacher STRESS.

Conclusions and Discussion

Based on the findings generated by this study, the following conclusions can be made and are subsequently discussed:

Research Questions

Research question # 1: What stress levels are experienced by vocational teachers?

Most of the teachers (82%) in this study are experiencing moderate to severe levels of stress in their teaching occupations. This finding supports the work of Goodall and Brown (1980) who stated in their study that stress appears to be a common denominator in the lives of teachers. It also supports Farber's (1984) finding that most teachers experience stress in their occupations.

Researchers contend that humans need certain amounts of stress to remain productive (Alley, 1980; Goodall & Brown, 1980; Kaiser & Polczynski, 1982; Kreitner, 1989; Hunter, 1989; Selye, 1980). Therefore, it may be seen as encouraging to discover that a majority of the respondents in this study appear to be experiencing at least moderate levels of stress in their teaching occupations. This finding may indicate that the vocational teachers who participated in this study are productive at some level in their teaching roles.

The female teachers who participated in this study generally scored higher on the Tennessee Stress Scale-R than did their male counterparts. The difference in stress scores between the female and male respondents was found to be significant at the .05 level. This finding

supports the findings of Borthwick et al. (1982), Eskridge & Coker (1985), and Laughlin (1984).

Research question # 2: What is the effect of school systems on vocational teacher stress?

The relationships associated with school systems are all in the expected direction. More specifically, as role ambiguity, role conflict, school stress, task stress, nonparticipation, and role overload increase in severity so does vocational teachers' stress levels. The stronger the lack of supervisory and peer support, the greater vocational teachers' stress. As administrators' management styles become less participative, vocational teachers' stress progresses. These findings support the conclusions of the researchers listed in Table 2 (pp. 63-65).

The overall regression model of vocational teacher stress using school system variables was found to be significant. Therefore, the nine independent school system variables can be used to explain stress in vocational teachers. With this model, 46.54 percent of the variance in vocational teacher stress was explained.

Role ambiguity, task stress, peer support, and role overload were the system variables found to be the most important in this model for the explanation of vocational

teacher stress. A variety of substantive conclusions can be generated from the findings related to this model.

Role ambiguity was found to cause vocational teacher stress. Teachers who are unable to clarify their work related obligations, rights and objectives, status, and accountability are more likely to experience stress. Occupational stress may be encountered by those vocational teachers who do not possess clear or adequate information about their teaching roles. It appears that the vocational teachers in this study need some form of clarification regarding their work roles. The finding that factors related to role ambiguity cause vocational teachers to experience stress supports the findings of numerous researchers. Refer to Table 2 (pp. 63-65) for a complete list of these researchers.

Task stress was found by this model to generate occupational stress in vocational teachers. The nine tasks identified by this model as contributing to vocational teacher stress included: 1) completing reports and paperwork; 2) dealing with student discipline; 3) complying with state, federal, and school rules and policies; 4) resolving conflicts with parents; 5) decreasing financial support; 6) changing professional standards; 7) maintaining an interesting work environment; 8) time spent outside of normal working

hours; and 9) the needs and problems of fellow faculty. These findings support the work of the researchers listed in Table 2 (pp. 63-65). It appears that vocational teachers may need some additional assistance when dealing with these or other tasks related to their occupations. Vocational teachers should learn how to reduce some of these tasks or reduce the stress caused by these tasks.

The lack of peer support causes vocational teachers to feel greater stress. This finding supports the findings of the researchers listed in Table 2 (pp. 63-65). It indicates that vocational teachers in this study do not feel as though they have the support of other faculty members within their schools.

Vocational teachers experiencing role overload feel stressed. Role overload refers to the absence of sufficient resources to perform one's role adequately. This finding suggests that the vocational teachers in this study are lacking adequate resources. Finding role overload to be a significant stressor in the lives of vocational teachers supports the findings of numerous other researchers identified in Table 2 (pp. 63-65).

Further examination of the standardized estimates in Table 21 (p. 119) will reveal the relative importance of these variables in explaining the stress felt by the vocational teachers who participated in this study.

Variables in this model follow this order of importance: task stress, role overload, role ambiguity, peer support, role conflict, supervisory support, school stress, nonparticipation, and management style.

Research question # 3: What is the effect of teacher internal characteristics on vocational teacher stress?

The correlations affiliated with vocational teacher internal characteristics are all in the expected direction. Vocational teachers having the least amount of preparation in their teaching roles suffered the greatest amount of job related stress. The lack of job or life satisfaction increased vocational teachers' stress. Vocational teachers experiencing illness symptoms reported greater stress. Stress increased as a vocational teachers' locus of control moved towards the external realm. In other words, the less control vocational teachers believe they have over the events that occur in their lives, the more intense their stress. Vocational teachers having lower self esteem had higher stress scores. These findings support the research of others which can be found in Table 3 (pp. 69-70).

The overall regression model of vocational teacher stress using the teacher internal characteristics variables was found to be significant. Therefore, role preparedness, job satisfaction, life satisfaction,

illness symptoms, locus of control, and self esteem can be used to explain stress in vocational teachers. This regression model explained approximately 55.75 percent of the variance in vocational teacher stress.

Role preparedness, illness symptoms, and self esteem were found to be significant contributors in explaining vocational teacher stress. An assessment of the stressors related to this finding leads to some very intriguing conclusions.

First of all, akin to role preparedness, vocational teachers who feel unprepared or incompetent in their teaching occupations encounter stress. Inadequate teacher preparation can lead to stress. Teachers report less stress when they and their peers believe them to be capable of completing school assignments. Vocational teachers who are often compelled to ask others for job-related assistance experience stress. Those teachers who are unable to adapt quickly to changes in the work environment exhibit higher stress levels. These findings support numerous other researchers who have examined role preparedness in their studies of teacher stress (see Table 3 pp. 69-70) This study indicates that vocational teachers who are well prepared and competent in their teaching roles will experience less occupational stress.

The presence of a variety of illness symptoms often indicate stress in vocational teachers. This study found that teachers who have trouble sleeping, those who worry a lot about their work, those who suffer from work-related headaches, and those who have stomach upsets are the ones who are dealing with the largest amounts of stress. Other researchers who have found illness symptoms to be indicative of teacher stress can be found in Table 3 (pp. 69-70). Illness symptoms related to teacher stress should be monitored and not ignored. Implications can prove emotionally, physically, occupationally threatening to vocational teachers, their students, and their school systems.

Vocational teachers' self esteem was found to be important when explaining vocational teacher stress. Teachers with a high self esteem were found to be more confident in their teaching occupations. These teachers reported less stress than those with a lower self esteem. A variety of other research studies have found the inclusion of self esteem to be important when explaining teacher stress (see Table 3, pp. 69-70).

Further examination of the standardized estimates in Table 23 (p. 121) will reveal the relative importance of these teacher internal characteristics in explaining vocational teacher stress. According to the data

collected for this study, the variables in this model follow this order of importance: illness symptoms, self esteem, role preparedness, locus of control, life satisfaction, and job satisfaction.

Research question # 4: What is the effect of students on vocational teacher stress?

The correlations linked to students in this study, though of modest magnitude, are all in the expected direction. Vocational teachers' stress levels grow larger as class sizes increase, student learning decreases, and student behavior worsens. These findings support the findings of the researchers reported in Table 4 (p. 76).

The overall regression model of vocational teacher stress using the student related variables was found to be significant. This model, using class size, student learning, and student behavior explained approximately 8.98 percent of the variance in vocational teacher stress. This modest R-square coefficient may appear surprisingly small considering the fact that a majority of the articles and documents reviewed for this study cited students as being responsible for an enormous amount of stress in most teachers. However, an array of plausible explanations can be explored.

In their study of teacher stress, Dedrick, Hawkes, and Smith (1981) uncovered some contradictory findings regarding students and stress. They found that student discipline was a major stressor for teachers. They also discovered that a majority of teachers cited working with students as one of the most pleasurable or satisfying aspects of their teaching occupations. It may be that the satisfaction generated by students actually counteracts or neutralizes the stress triggered by students.

Student-related problems may actually cause job dissatisfaction and not stress. Many may assume that job dissatisfaction implies job stress; however, Maslach and Jackson (1981) contended that job dissatisfaction does not necessarily indicate job stress. Pelsma and Richard (1987) found that a variety of elements in the work environment are instrumental in determining the amounts of stress and satisfaction that are exhibited by teachers. These include administration, time, students, interruptions, work environment, external and internal support, job market, extrinsic rewards, and evaluation.

Returning now to the student-generated regression model, teachers' perception of student learning was the only variable found to be significant in explaining vocational teacher stress. In fact, the probability

associated with this variable was found to be significant beyond the .0001 level. These findings bring to focus a number of issues important to the study of vocational teacher stress.

Vocational teachers become stressed when their students appear unmotivated and lack the intelligence or necessary knowledge to be successful in their courses or vocational programs. Uninvolved parents, lack of student learning, and students who hold back the rest of the class, cause the vocational teachers in this study to experience student-related stress. The findings of this study support the findings previously established by the researchers identified in Table 4 (p. 76).

When using this same instrument to evaluate the effects of students on teacher stress, Bacharach et al. (1986) emerged with a different conclusion. Their study showed student behavior to be the major determinant in teacher stress. This study shows no support for that conclusion. Several conceivable explanations can be offered concerning the differences.

Vocational classrooms are typically unlike traditional classrooms within the school environment. Vocational students are usually involved in some form of hands-on activities. This fact may help to reduce the amount of student misbehavior that occurs.

Vocational teachers tend to develop somewhat unique relationships with their students. They are usually involved with their students education for longer time frames during the school day and over several school years. They also have the opportunity to work with these students in vocational student organizations and at training sites. This unique educational bond may in fact be responsible for the stress vocational teachers feel related to their students' learning.

Due to state mandates and the nature of the subject matter indicative of vocational programs, vocational classroom tend to have fewer students per class than other courses. Therefore, it is reasonable that teacher perception of class size would be the least reliable in explaining the effects of students on vocational teacher stress. The overcrowding that has been reported to cause stress in other teachers would not tend to affect vocational teachers.

Even though this study failed to produce the expected results regarding students and vocational teacher stress, it is difficult to ignore the impact that students may have on teachers' stress levels. This study did, however, uncover some student-related findings that might be unique to vocational educators. Additional research in this area of students and teacher stress will

continue to be an important issue facing today's educational environment.

Further examination of the standardized estimates in Table 25 (p. 123) will reveal the relative importance of the variables in explaining the job stress of the vocational teachers in this study. The variables in this regression equation follow this order of importance: student learning, student behavior, and class size.

Research question # 5: What is a plausible pattern of causal relationships among three latent variables (school systems, teacher internal characteristics, and students) to vocational teacher stress?

This study used LISREL to test a proposed model of vocational teacher stress. The model, based on information gathered in the literature, illustrated a plausible pattern of causal relationships among three latent variables (school systems, teacher internal characteristics, and students) to a dependent latent variable, vocational teacher stress .

The latent variable, SYSTEMS has nine indicator variables (see Figure 4, p. 100 and Figure 5, p. 128). Each of the coefficients associated with these nine paths were found to be significant, indicating that each of these variables are successful in defining the latent independent variable, SYSTEMS. This finding indicates

that when explaining vocational teacher stress, it is important to evaluate system-related stressors. The order of importance of these stressors is role conflict, school stress nonparticipation, role overload, task stress, management style, role ambiguity, supervisory support, and peer support. The regression model evaluated in research question #2 supports the use of these stressors in explaining vocational teacher stress. Additional research supporting these as system induced-stressors can be found in Table 2 (pp. 63-65).

The latent variable, INTERNAL has six indicator variables (see Figure 4, p. 100 and Figure 5, p. 128). The coefficients associated with each of these six paths were found to be significant, indicating that each of these variables are successful in defining the latent independent variable, INTERNAL. This indicates that it is important to evaluate teacher internal characteristics when researching vocational teacher stress. The order of importance of these internal characteristics is life satisfaction, illness symptoms, job satisfaction, self esteem, role preparedness, and locus of control. The regression model evaluated in research question #3 further supports these as important indicators of vocational teacher stress. Other research supporting

these as important to the evaluation of vocational teacher stress can be found in Table 3 (pp. 69-70).

The latent variable, STUDENTS has three indicator variables (see Figure 4, p. 100 and Figure 5, p. 128). None of the coefficients associated with these three paths were found to significant. Therefore, these indicators were not found to be successful in defining the latent independent variable, STUDENTS. Rejection of the these as indicator variables does not necessarily refute the findings in the literature that emphasizes the importance of student-related stressors on teacher stress. It may be that the wrong indicators related to this latent variable were evaluated. It also may be that the instrument utilized to define these student related indicators was inappropriate.

According to Duncan (1975) and Heise (1975), path coefficients not meeting the criteria of statistical significance should be deleted from the model. However, model trimming is not recommended by McPherson (1976). Trimming of this proposed model of vocational teacher stress would not prove advantageous since the purpose of this portion of the study was to evaluate the effects of the hypothesized indicators and corresponding latent variables. Based on the results of this study, the latent

variable STUDENTS, as defined in this model, does not significantly affect vocational teacher stress.

The latent variable, STRESS has three indicator variables (see Figure 4, p. 100 and Figure 5, p. 128). The coefficients associated with each of these three paths were found to be significant, indicating that each of these variables are contributors to the latent dependent variable, STRESS. The order of importance of these indicator variables is stress producers, stress coping mechanisms, and stress symptoms. These findings have been previously established by research conducted by Schnorr and McWilliams (1988).

The path leading from the unobserved independent variable SYSTEMS to the unobserved dependent variable STRESS was not found to be significant. The coefficient for this path equaled .138. This would signal that the path between these unobserved variables should be deleted from the proposed model of vocational teacher stress. However, it should be noted that the correlation between these unobserved latent variables (SYSTEMS and STRESS) equaled .740. A correlation of this magnitude indicates a strong relationship between these unobserved variables. In other words, as the scores associated with the observed variables in this construct increase so does vocational teacher stress scores. A correlation such as

this should not be ignored. It may be that the direction of this path needs to be redefined in the proposed model of vocational teacher stress. For example, the path may need to be directed toward teachers' internal characteristics. However, this new configuration of variables was not tested by this present study.

The path leading from STUDENTS to STRESS was not found to be significant. The coefficient for this path equaled $-.066$. The correlation between the unobserved latent variables, STUDENTS and STRESS, was $.470$. These findings seem to refute the findings established by other researchers. However, the findings established by other researchers are extremely important to the study of teacher stress and cannot be ignored. The discussion in this study related to research question #4 should be reviewed. The effects that students exert on vocational teachers need to be examined in future studies.

The path leading from INTERNAL to STRESS was found to be significant. The coefficient for this path equaled $.769$. The correlation between the unobserved latent variables, INTERNAL and STRESS, was $.843$. These findings, a significant path and strong correlation between these unobserved variables, support previous research conducted on both stress in general and teacher stress in particular. Research in these areas indicate

that the stress experienced by individuals is dependent upon internal characteristics and that the way individuals handle the stress they experience is as different as the individuals' personalities (Alley 1980; Eskridge & Coker, 1985; Fimian, 1980, 1982; Fimian & Santoro, 1983; Harris et al., 1985; Ivancevich & Matteson, 1980; Iwanicki, 1983; Kreitner, 1989; Kyriacou, 1980; Selye, 1974, 1980, and Sweetland, 1979). Stressors do not affect all individuals in the same manner. The way stress is handled by the vocational teachers represented in this study seems to be more significant than the actual stressors involved.

The total coefficient of determination for the x variables is .98. This finding indicates that the constructs used to measure the three unobserved variables (SYSTEMS, INTERNAL and STUDENTS) are very good (Joreskog & Sorbom, 1989).

The total coefficient of determination for the y variables is .815. This finding indicates that the measurement used to measure vocational teachers' stress levels is effective (Joreskog & Sorbom, 1989).

The squared multiple correlation for all structural equations computed by LISREL for this proposed model of teacher stress is .719. While there appears to be some problems associated with this proposed causal model of

vocational teacher stress, it is still successful in explaining approximately 72 percent of the stress experienced by vocational teachers. This finding indicates that the model under analysis does an extremely good job in identifying those stressors that cause vocational teachers to experience stress in their teaching occupations.

The chi-square of this model with 183 degrees of freedom was calculated to be 690.40. The goodness of fit index associated with this chi-square is equal to .745. While this chi-square may seem large, there exists considerable debate to its significance to the overall fit of the model under analysis. Wheaton, Muthen, Alwin, and Summers, (1977) suggests that a chi square five times the degrees of freedom is reasonable (Hayduk, 1987). Carmines and McIver (1981) suggests that a chi square two to three times the degrees of freedom is more desirable (Hayduk, 1987). The chi-square generated by this model is 3.77 times the degrees of freedom, indicating that it falls within the limit identified by Wheaton et al. (1977).

System and Random Selection Comparison

SIZE (or teacher perception of class size) was the only variable that generated a significant difference between the two groups of vocational teachers represented

in this study. Vocational teachers in the five targeted school systems appeared to have reported the same types of information as those in the random selection. Since no major areas of differences exist between these two groups, it can be argued that the findings of this study can be cautiously generalized to the vocational teachers in the remainder of the state.

Non-respondent Data

No significant differences were found between the respondents and the non-respondents. While a greater response rate would have been preferred, failure to establish a significant difference between the data collected from the respondents and non-respondents tends to lend credibility to the findings generated by this study.

This study, while interesting and appealing to most administrators and vocational teachers, was not a priority in their daily tasks. It is believed that some form of face-to-face contact with the teachers would have proven advantageous. Letters, reminders, encouragement and approval from the teachers' administrators, and numerous personal phone calls did not suffice. Face-to-face contact might have helped to simplify the study and make it a priority for the teachers.

Summary of Study Conclusions

1. Stress appears to be a common denominator in the lives of teachers.
2. Female teachers typically report greater stress than their male counterparts.
3. Teachers who are unable to clarify their work related obligations, rights and objectives, status, and accountability are more likely to experience stress.
4. Vocational teachers may need some assistance completing daily tasks.
5. The lack of peer support causes vocational teachers to experience occupational stress.
6. Role overload is a significant stressor in the lives of vocational teachers.
7. Vocational teachers having the least amount of preparation in their teaching roles suffer the greatest amount of stress.
8. The less control vocational teachers believe they have over the events that occur in their lives, the more intense their stress.
9. The presence of a variety of illness symptoms often indicate stress in vocational teachers.
10. Vocational teachers appear to be very concerned with their students' learning.

11. The variables identified in this study appear to be vocational teacher stressors.

12. The way individual vocational teachers handle the stress they encounter seems to be more important than the stressors.

Recommendations

The following recommendations are suggested based on the findings and conclusions of this study:

1. Vocational teachers should undertake strategies that will help them to reduce the stress they experience in their teaching occupations. This recommendation is based on the findings from the literature that warns against excessive and nonproductive levels of stress.

2. It is evident that the findings of this and other previously conducted studies that stress affects individuals differently. Therefore, it is recommended that vocational teachers should attempt to learn more about their own stress levels, abilities to manage and reduce their stress, and their individual psychological, physical, and emotional reactions to the stress they experience. By reducing their stress, teachers may be able to avoid teacher burnout, a phenomena cited by Schwabb (1983) as one of the most significant challenges facing the future of education.

3. Many of the stressors uncovered in this study could be improved by school system administrators. These include role ambiguity, tasks stress, peer support, and role overload. At least four recommendations can be made based on these findings:

- a. school systems need to clarify teachers occupational roles,
- b. administrators should help in the reduction of extraneous tasks performed by individual teachers,
- c. school systems should incorporate programs that encourage comradeship among its teachers, and
- d. administrators need to work to see that vocational teachers are provided with the resources they need to perform adequately in their occupations.

4. Based on the findings of this and previous studies, administrators should assist teachers with monitoring, managing, and reducing their stress, especially as the stress relates to and affects vocational teachers in their occupations.

5. The findings of this and other studies indicate that excessive stress is evident in many teachers. Therefore, school systems should provide teachers with

programs designed to help them manage and reduce their stress. For example, school systems could implement teacher peer groups, seminars and workshops on stress management, programs designed for stress reduction, wellness programs, supportive and confidential open-door-policies, exercise programs, and professional counseling services.

6. Stress appears to affect individuals differently. Therefore, school administrators should survey their teachers periodically to determine their major sources of stress. This could be accomplished by asking teachers to rank their top 5-10 stressors or stressful experiences for the school year. This process would help administrators direct their concerns related to teacher stress in their school systems.

7. To strengthen future studies such as this one, research related to teacher stress should include a qualitative component that provides for individualized responses, comments, and reactions.

8. Due to this study's response rate, researchers conducting research in this area and of this magnitude should plan for and initiate face-to-face contact with potential participants.

Suggestions for Future Research

Much remains to be learned about stress and how it affects the teachers in our society. The consequences of teacher stress (regardless of the level) on our children, teachers and the school systems in which they teach are extremely momentous and at times detrimental. Therefore, research implications abound from this study. The following are research possibilities:

1. The proposed model of teacher stress developed and used in this study of vocational teacher stress can be used or refined to study the stress experienced by teachers in other teaching areas.

2. The present model can be used in a state, regional or national study to determine the effects of school systems, teacher internal characteristics, and students on teacher stress.

3. The impact of teachers' internal characteristics, identified in this study, suggest that additional empirical research needs to be conducted regarding the effect of these characteristics on teacher stress.

4. The strong correlations generated by this study between school systems and teacher stress and school systems and teachers' internal characteristics indicate

that additional empirical research is needed related to these latent variables.

5. The contradiction between the findings regarding students and vocational teacher stress in this study compared to other studies reported in the literature signals the need for additional empirical research to be conducted regarding how students impact on teacher stress.

6. Studies that compare the stressors and stress levels of teachers in different teaching areas and levels of teaching should be conducted.

7. Research that evaluates how students produce both stress and satisfaction for teachers should be undertaken.

8. Research that replicates this study at different times during the school year would be helpful in targeting high stress periods for teachers.

9. Findings generated by this study suggest important issues regarding the causal ordering of variables in this model. Therefore, it is recommended that the findings from this study should be used in the development of a new causal model to better explain vocational teacher stress.

10. There has been much discussion on the effects of stress on productivity. Therefore it is suggested that a

study be conducted that compares teacher stress levels and teacher productivity levels.

11. Vocational teachers in this study employed by the inner-city system reported higher stress scores. A study should be conducted that evaluates the characteristics of school systems and compares these to teacher stress.

12. Since the vocational teachers in this study who were undergoing organizational changes within their schools and program areas reported the highest stress levels, it is suggested that a study be undertaken that monitors the change in teacher stress levels when significant changes in school systems are occurring

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APPENDIX A

STUDY VARIABLES

A Guide to Study Variables

NOTE: Refer to the regression and proposed model of vocational teacher stress and to the study instruments (Appendixes B, C, D, E, and F) used in the study when reviewing study variables.

Instrument # 1: Teacher Stress Measure (Appendix B)

X1 = Role Ambiguity - RLEAMB

Statements compiled to create X1:
1 + 2 + 3 + 4 + 5

Reverse statements 1, 4, & 5

X2 = Role Conflict - RLECONF

Statements compiled to create X2:
11 + 12 + 13 + 14 + 15

X3 = School Stress - SCHSTRS

Statements compiled to create X3:
26 + 27 + 28 + 29 + 63

X4 = Task Stress - TSKSTRS

Statements compiled to create X4:
45 + 46 + 47 + 48 + 49 + 50 + 51 + 52 + 53

X5 = Supervisory Support - SUPVSUP

Statements compiled to create X5:
54 + 55 + 56 + 57

ALL statements reversed

X6 = Nonparticipation - NONPART

Statements compiled to create X6:
16 + 17 + 18 + 19 + 20 + 65 + 66

Reverse statements 16, 17, 18, & 19

X7 = Peer Support - PEERSUP

Statements compiled to create X7:
58 + 59 + 60

ALL statements reversed

X8 = Role Overload - RLEOVER

Statements compiled to create X8:
6 + 7 + 8 + 9 + 10

X9 = Management Style MNGMT

Statements compiled to create X9:
35 + 36 + 37 + 38 + 39

Reverse statements 35, 36, 37, & 38

X10 = Role Preparedness - RLEPREP

Statements compiled to create X10:
21 + 22 + 23 + 24 + 25

Reverse statements 22, 24, & 25

X11 = Job Satisfaction - JOBSAT

Statements compiled to create X11:
30 + 31 + 32 + 33 + 34 + 61 + 62

Reverse ALL statements except 34

X12 = Life Satisfaction - LIFESAT

Statements compiled to create X12:
40 + 41 + 42 + 43 + 44

Reverse statements 40, 42, & 44

X13 = Illness Symptoms - ILLSYMP

Statements compiled to create X13:
64 + 67 + 68 + 69 + 70

Instrument # 2: Personal Behavior Inventory (Appendix C)

X14 = Locus of Control - LOCUS

All statements (1 thru 46) should be added together to form a respondent's locus of control.

Reverse statements 1, 4, 5, 7, 11, 12, 14, 15, 17, 18, 24, 28, 30, 32, 34, 35, 38, 39, 40, 42, 44, 45, 46

Instrument # 3: Self Esteem Scale (Appendix D)

X15 = Self Esteem - ESTEEM

All statements (1 thru 10) should be added together to form a respondent's self esteem.

Reverse statements 3, 5, 8, 9, & 10

Instrument # 4: Classroom Environment Scale (Appendix E)

X16 = Teacher perception of class size - SIZE

Only statement 1, reversed.

X17 = Teacher perception of student learning - LEARN

Statements compiled to create X17:
2 + 3 + 4 + 5 + 6 + 7

Reverse statements 5, 6, & 7

X18 = Teacher perception of student behavior - BEHAVE

Statements compiled to create X18:
8 + 9 + 10 + 11

ALL statements reversed

*Instrument # 5: Tennessee Stress Scale (Appendix F)***Y1 = Stress Producers - PRODUCE**

Statements compiled to create Y1:

1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 +
12 + 13 + 14 + 15 + 16 + 17 + 18 + 19 + 20

Reverse statements 7 & 8

Y2 = Stress Coping Mechanisms - COPE

Statements compiled to create Y2:

21 + 22 + 23 + 24 + 25 + 26 + 27 + 28 + 29 +
30 + 31 + 32 + 33 + 34 + 35 + 36 + 37 + 38 +
39 + 40

*Reverse statements 21, 26, 27, 28, 29, 32, 34,
35, 37, 38, 39*

Y3 = Stress Symptoms - SYMPTOM

Statements compiled to create Y3:

41 + 42 + 43 + 44 + 45 + 46 + 47 + 48 + 49 +
50 + 51 + 52 + 53 + 54 + 55 + 56 + 57 + 58 +
59 + 60

APPENDIX B**TEACHER STRESS MEASURE**

Teacher Stress Measure

All of us occasionally feel bothered by certain kinds of things at work. These things can often make our day-to-day jobs stressful. Unfortunately, we don't know much about the work-related causes of stress; this makes it difficult to help work become less stressful.

The following questions concern things which sometimes bother people at work. Please answer each question as honestly as possible, but don't spend too much time on any one question. All questions pertain to your work in your particular school setting. All of your answers will remain anonymous.

There are no right or wrong answers here. I hope you will answer these questions as openly and honestly as possible. Thank you for your cooperation and help in this research.

In this section the following scale is used for all statements. **CIRCLE THE ANSWER** which best suits your agreement or disagreement with each statement.

- 6 = STRONG Agreement
- 5 = Moderate agreement
- 4 = slight agreement
- 3 = slight disagreement
- 2 = Moderate disagreement
- 1 = STRONG Disagreement

- | | | | | | | | |
|----|--|---|---|---|---|---|---|
| 1. | I can predict what will be expected of me in my work tomorrow. | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. | I am unclear on what the scope and responsibilities of my job are. | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. | I am uncertain what the criteria for evaluating my performance actually are. | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. | I receive enough information to carry out my job effectively. | 6 | 5 | 4 | 3 | 2 | 1 |

- | | | | | | | | |
|-----|--|---|---|---|---|---|---|
| 5. | When asked, I am able to tell someone exactly what the demands of my job are. | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. | I feel that my job interferes with my family life. | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. | I feel constant pressure from others to improve the quality of my work. | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. | I find that I have extra work beyond what should normally be expected of me. | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. | The criteria of performance for my job are too high. | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. | I am given too much responsibility without adequate authority to carry it out. | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. | I receive conflicting demands from two or more people or groups in the school setting. | 6 | 5 | 4 | 3 | 2 | 1 |
| 12. | I have to buck a rule or policy in order to carry out an assignment. | 6 | 5 | 4 | 3 | 2 | 1 |
| 13. | I have a hard time satisfying the conflicting demands of students, parents, administrators, and teachers. | 6 | 5 | 4 | 3 | 2 | 1 |
| 14. | I am given school-related duties without adequate resources and materials to carry them out. | 6 | 5 | 4 | 3 | 2 | 1 |
| 15. | There is a difference between the way my administrative head thinks things should be done and the way I think they should be done. | 6 | 5 | 4 | 3 | 2 | 1 |
| 16. | My fellow faculty members and I regularly take time during school hours to discuss job-related issues. | 6 | 5 | 4 | 3 | 2 | 1 |
| 17. | I have influence over what goes on in my department/school. | 6 | 5 | 4 | 3 | 2 | 1 |

- | | | | | | | |
|---|---|---|---|---|---|---|
| 18. I'm kept informed of important things that are happening in my department/school. | 6 | 5 | 4 | 3 | 2 | 1 |
| 19. My administrative head asks my opinion on decisions that directly affect me. | 6 | 5 | 4 | 3 | 2 | 1 |
| 20. I feel that it is useless to make suggestions about my work because decisions are made regardless of my attempts to influence them. | 6 | 5 | 4 | 3 | 2 | 1 |
| 21. The teacher training I received was inadequate to enable me to perform my job effectively. | 6 | 5 | 4 | 3 | 2 | 1 |
| 22. I'm prepared to carry out all of the school assignments I receive. | 6 | 5 | 4 | 3 | 2 | 1 |
| 23. I often feel that others have to help me if I am to get the job done properly. | 6 | 5 | 4 | 3 | 2 | 1 |
| 24. I am able to quickly adapt to the changing pressures and situations at work. | 6 | 5 | 4 | 3 | 2 | 1 |
| 25. My fellow faculty members feel that I am capable of performing my job well. | 6 | 5 | 4 | 3 | 2 | 1 |
| 26. There is a lot of strain on most faculty working in my school. | 6 | 5 | 4 | 3 | 2 | 1 |
| 27. The people I work with at school feel frustrated in trying to do their jobs. | 6 | 5 | 4 | 3 | 2 | 1 |
| 28. I would definitely say that my school is a stressful place for faculty to work. | 6 | 5 | 4 | 3 | 2 | 1 |
| 29. I would describe my school as a tightly wound spring ready to explode. | 6 | 5 | 4 | 3 | 2 | 1 |
| 30. All in all, I would say that I am <u>extremely satisfied</u> with my job. | 6 | 5 | 4 | 3 | 2 | 1 |

31. My job is extremely important in comparison to other interests in my life. 6 5 4 3 2 1
32. Knowing what I know now, if I had to decide all over again to take this job, I would definitely do so. 6 5 4 3 2 1
33. In general, my job measures up extremely well with the sort of job I wanted before I took it. 6 5 4 3 2 1
34. If a good friend told me that (s)he was interested in taking a job here, I would have serious reservations about recommending it. 6 5 4 3 2 1
35. My administrative head allows me extensive freedom to plan and organize my own work. 6 5 4 3 2 1
36. My administrative head brings me together with other faculty in joint meetings to make decisions and solve common problems. 6 5 4 3 2 1
37. My administrative head gives me full information about the things which directly involve my work. 6 5 4 3 2 1
38. My administrative head always insists that I solve my own work problems but is available to advise me if needed. 6 5 4 3 2 1
39. My administrative head insists that I stick to my job and leave decisions and planning to him/her. 6 5 4 3 2 1
40. I currently find my life very rewarding. 6 5 4 3 2 1
41. My life is currently quite lonely. 6 5 4 3 2 1
42. I currently find my life very enjoyable. 6 5 4 3 2 1
43. I currently find my life quite boring. 6 5 4 3 2 1

- | | | | | | | |
|---|---|---|---|---|---|---|
| 44. My life is currently <u>very</u> hopeful. | 6 | 5 | 4 | 3 | 2 | 1 |
| 45. Trying to complete reports and paperwork on time causes me a lot of stress. | 6 | 5 | 4 | 3 | 2 | 1 |
| 46. I find that dealing with student discipline problems puts a lot of stress on me. | 6 | 5 | 4 | 3 | 2 | 1 |
| 47. Complying with state, federal and school rules and policies is very stressful. | 6 | 5 | 4 | 3 | 2 | 1 |
| 48. I experience a lot of stress trying to resolve conflicts between parents and the school. | 6 | 5 | 4 | 3 | 2 | 1 |
| 49. Trying to provide a good education in an atmosphere of decreasing financial support is very stressful. | 6 | 5 | 4 | 3 | 2 | 1 |
| 50. There is a lot of stress just keeping up with changing professional standards. | 6 | 5 | 4 | 3 | 2 | 1 |
| 51. Trying to keep my work from being too routine and boring puts a lot of stress on me. | 6 | 5 | 4 | 3 | 2 | 1 |
| 52. Having to participate in school activities outside of the normal working hours is very stressful to me. | 6 | 5 | 4 | 3 | 2 | 1 |
| 53. I find that trying to be attentive to the problems and needs of fellow faculty is very stressful. | 6 | 5 | 4 | 3 | 2 | 1 |
| 54. When you really need to talk to your administrative head (s)he is willing to listen. | 6 | 5 | 4 | 3 | 2 | 1 |
| 55. My administrative head pays attention to what I am saying. | 6 | 5 | 4 | 3 | 2 | 1 |
| 56. My administrative head stands up to outsiders for the people (s)he supervises. | 6 | 5 | 4 | 3 | 2 | 1 |

| | | | | | | |
|--|---|---|---|---|---|---|
| 57. When I have conflicts with parents or students my administrative head gives me the kind of support I need. | 6 | 5 | 4 | 3 | 2 | 1 |
| 58. When you really need to talk with someone, your fellow faculty members are willing to listen. | 6 | 5 | 4 | 3 | 2 | 1 |
| 59. My fellow faculty members pay attention to what I am saying. | 6 | 5 | 4 | 3 | 2 | 1 |
| 60. My fellow faculty members stand up for each other to outsiders. | 6 | 5 | 4 | 3 | 2 | 1 |
| 61. I have high ideals about my work and career. | 6 | 5 | 4 | 3 | 2 | 1 |
| 62. I feel a strong sense of commitment to this job. | 6 | 5 | 4 | 3 | 2 | 1 |
| 63. The emotional overload is high in this school environment. | 6 | 5 | 4 | 3 | 2 | 1 |
| 64. Increasingly, I experience exhaustion and fatigue related to my job. | 6 | 5 | 4 | 3 | 2 | 1 |
| 65. I feel a sense of isolation within this school environment. | 6 | 5 | 4 | 3 | 2 | 1 |
| 66. The atmosphere around this school is impersonal. | 6 | 5 | 4 | 3 | 2 | 1 |
| 67. I have trouble getting to sleep or staying asleep. | 6 | 5 | 4 | 3 | 2 | 1 |
| 68. I worry a great deal about work. | 6 | 5 | 4 | 3 | 2 | 1 |
| 69. I am troubled by headaches at work. | 6 | 5 | 4 | 3 | 2 | 1 |
| 70. I experience stomach upsets. | 6 | 5 | 4 | 3 | 2 | 1 |

THANK YOU FOR YOUR TIME AND HELP

Used with permission: Lloyd S. Pettegrew, Department of Communication, University of South Florida.

APPENDIX C

PERSONAL BEHAVIOR INVENTORY

Personal Behavior Inventory (PBI)

This is an inventory of how people see their own behavior and the behavior of other people. The best answer to each statement is the one which best describes you or your own opinion. There are no right or wrong answers.

Please mark each statement in the left margin according to how much you agree or disagree with it. Please Mark Every One. Write 6, 5, 4, 3, 2, 1, depending on how you feel in each case.

1=I Disagree Very Much

4=I Agree a Little

2=I Disagree Pretty Much

5=I Agree Pretty Much

3=I Disagree a Little

6=I Agree Very Much

For example, if you agree very much with a statement, you would write 6 on the short line preceding the statement, but if you should happen to disagree a little with it, you would put 3 in front of it. Respond to each statement as best you can even if it seems very general, redundant with other information, or difficult to answer with the available alternatives. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

PBI Scale

Remember to indicate the extent of your agreement or disagreement with each item.

1=I Disagree Very Much

4=I Agree a Little

2=I Disagree Pretty Much

5=I Agree Pretty Much

3=I Disagree a Little

6=I Agree Very Much

- _____ 1. Most students don't realize the extent to which their grades are influenced by accidental happenings.
- _____ 2. The average citizen can have an influence in government decision.
- _____ 3. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
- _____ 4. There's not much use in trying too hard to please people, if they like you, they like you.
- _____ 5. Sometimes I can't understand how teachers arrive at the grades they give.
- _____ 6. Getting people to do the right things depends upon ability; luck has little or nothing to do with it.
- _____ 7. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
- _____ 8. People who can't get others to like them don't understand how to get along with others.
- _____ 9. There really is no such thing as "luck."
- _____ 10. In the long run people get the respect they deserve in this world.
- _____ 11. This world is run by the few people in power, and there is not much the little guy can do about it.
- _____ 12. It is hard to know whether or not a person really likes you or not.

- _____13. People's misfortunes result from the mistakes they make.
- _____14. Many times I feel that I have little influence over the things that happen to me.
- _____15. No matter how hard you try some people just don't like you.
- _____16. In my case getting what I want has little or nothing to do with luck.
- _____17. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
- _____18. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
- _____19. The idea that teachers are unfair to students is nonsense.
- _____20. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
- _____21. By taking an active part in political and social affairs the people can control world events.
- _____22. There is a direct connection between how hard I study and the grades I get.
- _____23. It is impossible for me to believe that chance or luck plays an important role in my life.
- _____24. I have often found that what is going to happen will happen.
- _____25. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
- _____26. One of the major reasons why we have wars is because people don't take enough interest in politics.
- _____27. When I make plans, I am almost certain that I can make them work.

- ___ 28. Getting a good job depends mainly on being in the right place at the right time.
- ___ 29. What happens to me is my own doing.
- ___ 30. Most of the time I can't understand why politicians behave the way they do.
- ___ 31. People are lonely because they don't try to be friendly.
- ___ 32. In the long run the bad things that happen to us are balanced by the good ones.
- ___ 33. Capable people who fail to become leaders have not taken advantage of their opportunities.
- ___ 34. Most people don't realize the extent to which their lives are controlled by accidental happenings.
- ___ 35. Sometimes I feel that I don't have enough control over the direction my life is taking.
- ___ 36. How many friends you have depends upon how nice a person you are.
- ___ 37. In the long run the people are responsible for bad government on a national as well as on a local level.
- ___ 38. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune any how.
- ___ 39. Many of the unhappy things in people's lives are partly due to bad luck.
- ___ 40. Without the right breaks one cannot be an effective leader.
- ___ 41. With enough effort we can wipe out political corruption.
- ___ 42. Many times we might just as well decide what to do by flipping a coin.
- ___ 43. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

- _____ 44. There will always be wars, no matter how hard people try to prevent them.
- _____ 45. Many times exam questions tend to be so unrelated to course work that studying is really useless.
- _____ 46. It is difficult for people to have much control over the things politicians do in office.

Used with permission: Barry E. Collins, Department of Psychology, University of California.

APPENDIX D

SELF-ESTEEM SCALE

Self Esteem Scale

By: Morris Rosenberg

Directions: Read each statement that follows and circle the response that best reflects your true feelings. The scale below is used for all statements.

1 = Strongly Agree 3 = Disagree
2 = Agree 4 = Strongly Disagree

1. I feel that I'm a person of worth, at least on an equal plane with others.

1 2 3 4

2. I feel that I have a number of good qualities.

1 2 3 4

3. All in all, I am inclined to feel that I am a failure.

1 2 3 4

4. I am able to do things as well as most people.

1 2 3 4

5. I feel I do not have much to be proud of.

1 2 3 4

6. I take a positive attitude toward myself.

1 2 3 4

7. On the whole, I am satisfied with myself.

1 2 3 4

8. I wish I could have more respect for myself.

1 2 3 4

9. I certainly feel useless at times.

1 2 3 4

10. At times I think I am no good at all.

1 2 3 4

Used with permission: University Press of New England

APPENDIX E

CLASSROOM ENVIRONMENT SCALE

Classroom Environment Scale

By: Samuel B. Bacharach

Directions: Read each statement that follows and circle the response that best reflects your true feelings. The scale below is used for all statements.

1 = Definitely True
2 = Somewhat True

3 = Somewhat False
4 = Definitely False

1. My classes are too large.

1 2 3 4

2. My students are highly motivated.

1 2 3 4

3. My students are quite intelligent.

1 2 3 4

4. Parents see that students do their homework.

1 2 3 4

5. My students do not have sufficient background knowledge for my classes.

1 2 3 4

6. There are always one or two students who hold back the rest of the class.

1 2 3 4

7. No matter what I do, there are always some who seem to learn nothing.
- 1 2 3 4
8. My students are often abnormally unruly.
- 1 2 3 4
9. I have to worry about being physically confronted by my students.
- 1 2 3 4
10. My classroom and the school are objects of vandalism.
- 1 2 3 4
11. Students use drugs and alcohol while in school.
- 1 2 3 4

Used with permission: Samuel B. Bacharach, Department of Organizational Behavior, Cornell University

APPENDIX F

TENNESSEE STRESS SCALE-R

Tennessee Stress Scale-R

Work Related Stress Inventory
For Professionals

Jettie M. McWilliams, Ed.D.

Name _____ Age _____

Sex ____M ____F

Marital Status: Single ____ Married ____

Number of Pets ____

Children: Number _____ Ages _____

Please answer the following:

Your job title:

Staff ____ Mid-Level Management ____ Executive ____

Average hours worked per week _____

Occupational Classification:

Business ____ Education ____ Media ____

Government Service ____ Medical ____ Industry ____

Other ____

Number of women in your organizational group _____

Number of men in your organizational group _____

Related to my work, I would say my overall level of stress is:

Mild ____ Moderate ____ Severe ____

Directions: This inventory contains statements dealing with stress that is related to your work. Please read each statement carefully and respond as it usually relates to you. Mark your answers under the columns headed "Yes" or "No".

| | YES | NO |
|---|-----|-----|
| 1. I compare my job performance with others in my organization. | () | () |
| 2. I take on more responsibility to prove I am as capable as others. | () | () |
| 3. I am overly critical of my performance in my job responsibilities. | () | () |
| 4. I feel my subordinates resent my authority. | () | () |
| 5. My position forced me to develop a more forceful-aggressive role. | () | () |
| 6. I assume a nurturing leadership role. | () | () |
| 7. Higher levels of administration reinforce me for my work. | () | () |
| 8. My colleagues express sufficient appreciation for my hard work done in their behalf. | () | () |
| 9. Meeting constant deadlines at work causes me stress. | () | () |
| 10. I feel vulnerable in my work in that my willingness to take high risk tasks may backfire. | () | () |
| 11. My personal limitations on the job cause me stress. | () | () |
| 12. The idea that I'm not O.K., learned from childhood experiences, affects my professional competencies. | () | () |
| 13. I feel that no matter how hard I try at work, I will not receive the recognition I deserve. | () | () |
| 14. My professional colleagues assume that I will take a passive leadership role. | () | () |

| | YES | NO |
|--|-----|-----|
| 15. The frequencies of interruptions while performing job tasks causes me frustration constantly. | () | () |
| 16. My position makes me feel socially isolated. | () | () |
| 17. Unclear job responsibilities causes me undue stress. | () | () |
| 18. I lack experience in major decision making responsibilities. | () | () |
| 19. Being placed in a leadership role without authority creates a problem for me. | () | () |
| 20. I underestimate my skills and abilities. | () | () |
| 21. When I experience stress at work, I set realistic expectations for myself. | () | () |
| 22. When work becomes difficult, I feel I have "fallen short". | () | () |
| 23. When I am under pressure at work, I express more hostility. | () | () |
| 24. When I am under stress, I am more impatient with others. | () | () |
| 25. When I am stressed, I avoid job tasks which are frustrating. | () | () |
| 26. When I have work pressures, I am able to transcend my stress by seeing the humorous aspects and laugh. | () | () |
| 27. When I am under stress at work, I take time for myself. | () | () |
| 28. When work pressures increase, I make it a point to get sufficient amounts of rest and sleep. | () | () |
| 29. When under stress, I exercise regularly. | () | () |
| 30. When I am under stress at work, I become more depressed and withdrawn. | () | () |

| | YES | NO |
|---|-----|-----|
| 31. When pressure is great at work, I find that my interpersonal relationships deteriorate. | () | () |
| 32. When under stress at work, I turn problems into opportunities. | () | () |
| 33. When things are stressful at work, I overreact to criticism. | () | () |
| 34. When work is stressful, I am able to identify factors that cause me stress. | () | () |
| 35. When personal conflicts arise, I prefer to directly confront people. | () | () |
| 36. When problems arise, I tend to blame others. | () | () |
| 37. When under pressure, I accomplish more. | () | () |
| 38. When under stress, I seek support or advice from a close friend. | () | () |
| 39. When difficulties arise, I allow time to resolve the issue. | () | () |
| 40. When under stress, I find a cocktail before dinner is relaxing. | () | () |

When work is stressful, I have experienced the following:

| | YES | NO |
|---------------------------------|-----|-----|
| 41. High blood pressure | () | () |
| 42. Excessive smoking | () | () |
| 43. Skin irritations | () | () |
| 44. Decrease in sexual interest | () | () |
| 45. Diarrhea | () | () |
| 46. Weight gain | () | () |

| | YES | NO |
|---|-----|-----|
| 47. Nausea | () | () |
| 48. Weight loss | () | () |
| 49. Nervousness | () | () |
| 50. Fatigue | () | () |
| 51. Stomach pains | () | () |
| 52. Ulcers | () | () |
| 53. Headaches | () | () |
| 54. Backaches | () | () |
| 55. Pain or discomfort which is medically undiagnosed | () | () |
| 56. Tightness or soreness of muscles | () | () |
| 57. Professional burnout | () | () |
| 58. Allergies | () | () |
| 59. Sleep problems | () | () |
| 60. Irritability toward others | () | () |

Used with permission: Jettie M. McWilliams, Ed.D.,
Phoenix Regional Center, Phoenix, AZ.

APPENDIX G

LETTER TO VOCATIONAL ADMINISTRATORS

104 A Moss Creek Drive
Forest, VA 24551

Date

Vocational Director and Address

Dear _____:

I met you last year and have spoken with you several times on the telephone regarding my dissertation research in the area of vocational teacher stress. As you already know, I am currently a Marketing Education Teacher at E. C. Glass High School in Lynchburg, Virginia and a doctoral student at Virginia Polytechnic Institute and State University.

I have suffered a variety of delays related to my research and unfortunately have not been able to conduct my research as I had originally planned. I appreciate the patience you have shown me and the assistance you have given me during this preliminary period of my research. Believe it or not, I am now ready to begin the research I attempted to begin last spring!!

_____ has been selected and approved as one of my five targeted school systems in Virginia. I am very grateful that you have agreed to let your vocational teachers participate in my study of vocational teacher stress.

As we discussed earlier, the study will involve the vocational teachers in your school system completing a total of five instruments: (1) Measure of Teacher Stress; (2) Classroom Environment Scale; (3) Self Esteem Scale; (4) Personal Behavior Inventory; and (5) Tennessee Stress Scale-R. I have provided you with an enclosed packet for each of your vocational teachers. Each of the packets contain a letter of explanation, a brief questionnaire, instructions, and the instruments. Please

feel free to peruse this information and to keep one of the packets for your personal files.

I would appreciate it if you could complete the enclosed consent form and distribute these packets to your vocational teachers as soon as possible. Please give me a phone call if you do not have enough packets for all of your vocational teachers.

I have instructed your teachers to return the completed packets to you in a sealed envelope. I will call you in a couple of weeks to see how many of the packets have been returned. I plan to pick up all of the packets when they have been completed. All information collected for this study will be treated confidentially.

You may contact me at one of the phone numbers below should you have any additional questions or concerns regarding my study of vocational teacher stress.

Home: (804) 525-6773

Work: (804) 522-3712

Again, thank you for your time and patience regarding my study of vocational teacher stress.

Sincerely yours,

Elaine Adams

enclosures

APPENDIX H

LETTER TO VOCATIONAL TEACHERS--TARGETED SCHOOL SYSTEMS

104 A Moss Creek Dr
Forest, Virginia 24551

Dear Vocational Teacher:

I am currently a Marketing Education Teacher at E. C. Glass High School in Lynchburg, Virginia and a doctoral student at Virginia Polytechnic Institute and State University. I am going to be conducting my dissertation research in the area of vocational teacher stress. Your vocational administrator has agreed to your voluntary participation in my study.

The entire study will involve you completing a total of five instruments: (1) Measure of Teacher Stress; (2) Classroom Environment Scale; (3) Self Esteem Scale; (4) Personal Behavior Inventory; and (5) Tennessee Stress Scale-R. In this mailing, I have provided you with these instruments, a consent form, the instructions, and an informational form. Please complete these items following the instructions provided below:

- ** Read the instructions provided for the instruments.**
- ** Complete all instruments.**
- ** Place them back into the brown envelope.**
- ** Seal the envelope.**
- ** Return the packet to your vocational director.**

I would appreciate it if you could complete and return the items in this mailing as soon as possible. All information collected for this study will be treated confidentially. Information, as it relates to you as an individual, **WILL NOT** be shared with your vocational administrator and/or school system.

Thank you for participating in my research of vocational teacher stress. Your time and responses are greatly appreciated. You may contact me at one of the phone numbers below should you have any questions or concerns regarding my study of vocational teacher stress.

Home: (804) 525-6773

Work: (804) 522-3712

Sincerely yours,

Elaine Adams

enclosures

APPENDIX I

LETTER TO VOCATIONAL TEACHERS--RANDOM SELECTION

104 A Moss Creek Dr
Forest, Virginia 24551

Dear Vocational Teacher:

Thank you for taking the time to read this letter! I am currently a Marketing Education Teacher at E. C. Glass High School in Lynchburg, Virginia and a doctoral student at Virginia Polytechnic Institute and State University. I am conducting my dissertation research in the area of vocational teacher stress and would appreciate it if you would agree to help me in this endeavor. Teachers who have already participated in the study have informed me that it takes approximately 20-30 minutes to complete. The entire study will involve you completing a total of five instruments: (1) Measure of Teacher Stress; (2) Classroom Environment Scale; (3) Self Esteem Scale; (4) Personal Behavior Inventory; and (5) Tennessee Stress Scale-R. In this packet, I have provided you with these instruments, the instructions, an informational form, a consent form, and a self-addressed, postage paid envelope. Please complete these items following the instructions provided below:

- ** Read the instructions provided for the instruments.**
- ** Complete all instruments, informational form, and consent form.**
- ** Place them into the self-addressed, postage paid envelope and return the entire packet to me within 2 weeks.**

All information collected for this study will be treated confidentially. Information, as it relates to you as an individual, WILL NOT be reported in the study.

Thank you for participating in my research of vocational teacher stress. Your time and responses are greatly appreciated. You may contact me at one of the phone numbers below should you have any questions or concerns regarding my study of vocational teacher stress.

Home: (804) 525-6773

Work: (804) 522-3712

Sincerely yours,

Elaine Adams

enclosures

APPENDIX J

LETTER TO NON-RESPONDENT VOCATIONAL TEACHERS--
TARGETED SCHOOL SYSTEMS

104 A Moss Creek Dr
Forest, Virginia 24551

Dear Vocational Teacher:

I am currently a Marketing Education Teacher at E. C. Glass High School in Lynchburg, Virginia and a doctoral student at Virginia Polytechnic Institute and State University. I am attempting to conduct my dissertation research in the area of vocational teacher stress. Your vocational administrator, _____ has agreed to your voluntary participation in my study.

I know you are extremely busy and have very little time (if any) in your day to take on additional requests. However, teachers who have already participated in this study have informed me that it takes no more than 20-30 minutes to complete. Your voluntary participation in this study will be greatly appreciated! All information collected for this study will be treated confidentially. Information, as it relates to you as an individual, WILL NOT be shared with your vocational administrator and/or school system.

The entire study will involve you completing a total of five instruments: (1) Measure of Teacher Stress; (2) Classroom Environment Scale; (3) Self Esteem Scale; (4) Personal Behavior Inventory; and (5) Tennessee Stress Scale-R. In this mailing, I have provided you with these instruments, the instructions, a brief informational form, consent form, and a pre-paid, self-addressed envelope. Please complete these items as quickly as possible. Some instructions are provided below:

- ** Read the instructions provided for the instruments.**
- ** Complete all instruments.**

**** Place them in the pre-paid, self-addressed envelope.**

**** Seal the envelope and mail by _____.**

Thank you for participating in my research of vocational teacher stress. Your time and responses are greatly appreciated. You may contact me at one of the phone numbers below should you have any questions or concerns regarding my study of vocational teacher stress.

Home: (804) 525-6773

Work: (804) 522-3712

Sincerely yours,

Elaine Adams

enclosures

APPENDIX K

SCHOOL SYSTEM CONSENT FORM

School System Consent Form

The Effects of School Systems, Teacher Internal
 Characteristics, and Students on Vocational Teacher
 Stress

Principal Investigator: Elaine Adams

Name: _____

Title: _____

School System: _____

Total # of Vocational Teachers: _____

I, _____ give permission for the vocational teachers in my school system to participate in the study of vocational teacher stress being conducted by Elaine Adams.

By signing this consent form, I acknowledge that I fully understand the conditions of the research.

Conditions of the research:

1. Participation in the study is voluntary.
2. All information collected will be held strictly confidential.
3. Research packets containing, a letter, instructions, teacher consent form, informational form, Measure of Teacher Stress, Classroom Environment Scale, Self-Esteem Scale, Personal Behavior Inventory, and Tennessee Stress Scale-R will be provided by Elaine Adams.
4. Packets will be distributed by the vocational director, completed and returned by the teachers, and picked up by Elaine Adams.
5. Teachers may obtain their scores once they have been evaluated.
6. Vocational directors may obtain school system information.

VOCATIONAL TEACHER CONSENT FORM

Vocational Teacher Consent Form

The Effects of School Systems, Teacher Internal Characteristics, and Students on Vocational Teacher Stress

Principal Investigator: Elaine Adams

I, _____ voluntarily agree to participate in the study of vocational teacher stress being conducted by Elaine Adams.

By signing this consent form, I acknowledge that I fully understand the conditions of the research.

Conditions of the research:

1. Participation in the study is voluntary.
2. All information collected will be held strictly confidential.
3. Information, as it relates to individual teachers, will not be reported in the study.
4. Information collected for the study will be used to evaluate the effects of teacher internal characteristics, school systems, and students on vocational teacher stress.
5. Vocational teachers will be required to complete five instruments: (1) Teacher Stress Measure; (2) Classroom Environment Scale; (3) Self Esteem Scale; (4) Personal Behavior Inventory; and (5) Tennessee Stress Scale-R.
6. Teachers may obtain their scores once they have been evaluated.
7. Vocational directors (where involved) may only obtain general types information.

TEACHER INFORMATIONAL FORM

Informational Form

Name: _____

Home Address: _____

Home Phone: _____

School Address: _____

School Phone: _____

Vocational Area: _____

Years of Teaching Experience: _____ years

Grades Taught: _____

Highest Degree Earned: _____

Age: _____ Gender: _____

Married: YES _____ or NO _____

Number of Children: _____

APPENDIX N

TEACHER STRESS PACKET INSTRUCTIONS

Teacher Stress Packet
Instructions**I. TEACHER STRESS MEASURE**

1. There are no right or wrong answers.
2. It is extremely important that you provide responses to **ALL** of the statements.
3. Please **CIRCLE** the answer which best suits your agreement or disagreement with the statement:

6 = STRONG AGREEMENT
5 = Moderate Agreement
4 = slight agreement
3 = slight disagreement
2 = Moderate Disagreement
1 = STRONG DISAGREEMENT

4. **DO NOT** circle more than one response. Each statement should have a single item circled.

II. TENNESSEE STRESS SCALE - R

1. There are no right or wrong answers.
2. Please answer the brief information section at the beginning of the inventory.
3. Leave the **STRESS SCORE** area blank.
4. It is extremely important that you provide responses to **ALL** statements.
5. Select either YES OR NO and place a mark in that column
6. **DO NOT** place a mark in both columns. Each statement should have a single column marked.

III. PERSONAL BEHAVIOR INVENTORY

1. There are no right or wrong answers.
2. Please write your response in the spaces that are provided on the form.
3. It is extremely important that you provide responses to **ALL** of the statements.
4. Write 6, 5, 4, 3, 2, or 1 depending on how you feel in each case:

Personal Behavior Inventory (continued)

- 1 = I Disagree Very Much
- 2 = I Disagree Pretty Much
- 3 = I Disagree a Little
- 4 = I Agree a Little
- 5 = I Agree Pretty Much
- 6 = I Agree Very Much

IV. SELF-ESTEEM SCALE

1. There are no right or wrong answers.
2. It is extremely important that you provide responses to **ALL** of the statements.
3. Please **CIRCLE** the answer which best suits your agreement or disagreement with the statement:

- 1 = I Strongly Agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly Disagree

4. **DO NOT** circle more than one response. Each statement should have a single item circled.

V. CLASSROOM ENVIRONMENT SCALE

1. There are no right or wrong answers.
2. It is extremely important that you provide responses to **ALL** of the statements.
3. Please **CIRCLE** the answer which best suits your agreement or disagreement with the statement:

- 1 = Definitely True
- 2 = Somewhat True
- 3 = Somewhat False
- 4 = Definitely False

4. **DO NOT** circle more than one response. Each statement should have a single item circled.

THANK YOU FOR YOUR ASSISTANCE!!!

THANK YOU FOR YOUR ASSISTANCE!!!

THANK YOU FOR YOUR ASSISTANCE!!!

APPENDIX O

REMINDER POST CARD

Dear _____:

I recently mailed you a letter and research packet concerning a study I am conducting about vocational teacher stress. I am very interested in your responses and would like to include them in my research. However, I have not yet received your completed packet. I would greatly appreciate it if you could return the completed packet to me by _____. If it is impossible for you to return it to me by this date, please return the packet to me as soon as possible.

Please contact me at the below address or phone number if you have not received your teacher stress packet, will not be able to participate in the study, or need me to forward you another packet. I am very grateful for your time and cooperation!!

Address: Elaine Adams
104-A Moss Creek Dr.
Forest, VA 24551
Phone: (804) 525-6773

THANKS!!

APPENDIX P

NON-RESPONDENT TELEPHONE QUESTIONNAIRE

NON-RESPONDENT TELEPHONE QUESTIONNAIRE

Question # 1 (*X1 - Role Ambiguity*)**

I receive enough information to carry out my job effectively

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 2 (*X2 - Role Conflict*)

I have a hard time satisfying the conflicting demands of students, parents, administrators, and teachers.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 3 (*X3 - School Stress*)

I would describe my school as a tightly wound spring ready to explode

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 4 (*X4 - Task Stress*)

I find that dealing with student discipline problems puts a lot of stress on me.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 5 (*X5 - Supervisory Support*)**

My administrative head pays attention to what I am saying

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 6 (*X6 - Nonparticipation*)**

I have influence over what goes on in my department/school

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 7 (*X7 - Peer Support*)**

My fellow faculty members stand up for each other to outsiders

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 8 (*X8 - Role Overload*)

I feel that my job interferes with my family life.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 9 (*X9 - Management Style*)

My administrative head allows me extensive freedom to plan and organize my own work.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 10 (*X10 - Role Preparedness*)

I am able to quickly adapt to the changing pressures and situations at work.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 11 (*X11 - Job Satisfaction*)

Knowing what I know now, if I had to decide all over again to take this job, I would definitely do so.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 12 (*X12 - Life Satisfaction*)

I currently find my life quite boring.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 13 (*X13 - Illness Symptoms*)

Increasingly, I experience exhaustion and fatigue related to my job.

| | |
|----------------------|-------------------------|
| 6=STRONG AGREEMENT | 3=slight disagreement |
| 5=Moderate Agreement | 2=Moderate disagreement |
| 4=slight agreement | 1=STRONG Disagreement |

Question # 14 (*X14 - Locus of Control*)

Most people don't realize the extent to which their lives are controlled by accidental happenings.

| | |
|--------------------------|-----------------------|
| 1=I Disagree Very Much | 4=I Agree a Little |
| 2=I Disagree Pretty Much | 5=I Agree Pretty Much |
| 3=I Disagree a Little | 6=I Agree Very Much |

Question # 15 (*X15 - Self Esteem*)

I take a positive attitude toward myself.

| | |
|------------------|---------------------|
| 1=Strongly Agree | 3=Disagree |
| 2=Agree | 4=Strongly Disagree |

Question # 16 (*X16 - Class Size*)

My classes are too large.

1=Definitely True
2=Somewhat True

3=Somewhat False
4=Definitely False

Question # 17 (*X17 - Student Learning*)

There are always one or two students who hold back the rest of the class.

1=Definitely True
2=Somewhat True

3=Somewhat False
4=Definitely False

Question # 18 (*X18 - Student Behavior*)

My classroom and the school are objects of vandalism.

1=Definitely True
2=Somewhat True

3=Somewhat False
4=Definitely False

Question # 19 (*Y1 - Stress Producers*)

The frequency of interruptions while performing job tasks causes me frustration constantly.

YES NO

Question # 20 (*Y2 - Stress Coping Mechanisms*)

When I am under stress, I am more impatient with others

YES NO

Question # 21 (*Y3 - Stress Symptoms*)

When work is stressful I have experienced nervousness.

YES NO

** Indicates scores to be reversed in analysis

APPENDIX Q


INSTITUTIONAL REVIEW BOARD--EXEMPTION LETTER

**Research and Graduate Studies**

Office of the Associate Provost for Research
306 Burruss Hall
Blacksburg, VA 24061-0244
(703) 231-9359 FAX: (703) 231-7522

MEMORANDUM

TO: J. Elaine Adams
Vocational and Technical Education

FROM: Ernest R. Stout 
Associate Provost for Research

DATE: September 8, 1994

SUBJECT: IRB EXEMPTION/"The Effects of Teacher Internal
Characteristics, School Systems, and Students on Vocational
Teacher Stress"
Ref. 94-201

I have reviewed your request to the IRB for exemption for the above referenced project. I concur with Dr. Stewart that the research fall within the exempt status.

Best wishes.

ERS/php

c: Dr. Stewart

VITA

Elaine Adams
 104 A Moss Creek Drive
 Forest, VA 24551
 (804) 525-6773

EDUCATION

PhD 1996 -- Virginia Polytechnic Institute and State University - Blacksburg, VA

Major: Vocational & Technical Education
 Concentration: Marketing Education
 Cognate: Marketing and Management

MS 1988 -- Virginia Polytechnic Institute and State University - Blacksburg, VA

Major: Vocational & Technical Education
 Concentration: Marketing Education
 Cognate: Marketing and Management

BA 1983 -- Radford University - Radford, VA

Major: Marketing
 Minor: Statistics

EXPERIENCE

Aug., 1992-Present

Marketing Teacher Coordinator
 E. C. Glass High School
 Lynchburg, VA

Aug., 1990-Aug., 1992

Research Assistant
 National Center for Research
 in Vocational Education
 Virginia Tech
 Blacksburg, VA

July, 1995-Present

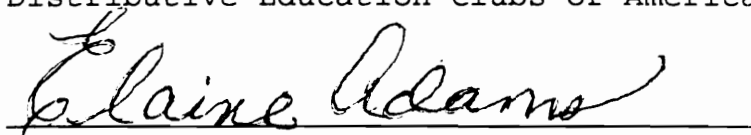
Adjunct Instructor
 Lynchburg College
 Lynchburg, VA

Aug., 1986-Aug., 1990

Professor
 Merchandise Management
 Chowan College
 Murfreesboro, NC

PROFESSIONAL MEMBERSHIP

Phi Delta Kappa
 Omicron Tau Theta
 Delta Pi Epsilon
 American Vocational Association
 Virginia Vocational Association
 American Vocational Education Research Association
 Marketing Education Association
 Virginia Association of Marketing Educators
 Distributive Education Clubs of America



Elaine Adams