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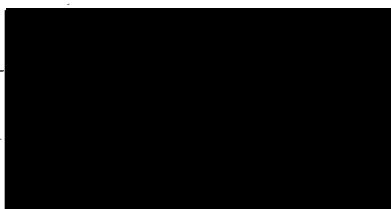
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THE SOURCES AND INTENSITY OF TEACHER STRESS
IN CHILLIWACK TEACHERS

by

David B. F. Clyne

B. A., University of British Columbia, 1970

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
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of

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THE SOURCES AND INTENSITY OF TEACHER STRESS IN CHILLIWACK TEACHERS

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ABSTRACT

Articles on teacher stress have proliferated in the last 15 years. The authors of these articles frequently state that teaching is a very stressful occupation. However, less than 30 percent of these articles are based on data and most of these do not contain results that can accurately demonstrate that teachers are stressed. This study investigated the relationships among the stressors, symptoms of stress, coping strategies and demographic variables of teachers.

Two questionnaires were used in this study. The Sources of Teacher Stress Survey (SOTSS) was developed to provide data about the respondents' perceived stressors, coping strategies and demographic variables. The Symptoms of Stress Inventory (SOSI) was used to measure the respondents' symptoms or intensity of stress. There were 114 teachers who returned booklets with usable data. There were 53 males, 61 females; 54 elementary teachers and 18 secondary teachers.

Pearson correlation coefficient analyses, independent t-tests, or ANOVA procedures with a Neuman-Keuls post hoc comparison were used to analyze the results of the two questionnaires. There were significant relationships among various teacher characteristics, teaching conditions, individual perceived stressors, and the major

perceived teaching stressors and the main symptoms of stress.

There were no significant relationships between the major perceived teaching stressors and the main symptoms of stress experienced by teachers. The first three conclusions were that teachers who experienced three or more overt negative student reactions, who were absent due to sickness in the previous year, or who perceived teaching as very or extremely stressful, experienced more stress than their peers. Teaching a class of 36 or more students is likely to be stressful for most teachers. Teachers are likely to perceive more stressors: when the class size is above 30; when staff meetings are longer than 1.5 hours; when there are inadequate teaching supplies; or when a principal does not show definite leadership. Implications of these results are provided in relation to various levels of the teaching profession and the British Columbia education system. Directions for future research also are proposed.

DEDICATION

To my wife, Andrea, for her invaluable support and patience during the last four years, and to my children, Heather and Travis.

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CHAPTER I

The Problem

Introduction

Stress has been a subject of increasing concern in the modern western world since the beginning of the twentieth century. As the pace of life quickens, modern individuals are faced with a greater frequency of daily events to which they must react. Since reaction to events may result in stress to individuals, Eliot (1979), Pelletier (1977), Woolfork and Richardson (1978) suggest that the twentieth century individuals are subjected to more stressors than their predecessors due to the daily increased frequency of events.

One aspect of stress in the twentieth century that has been investigated is job stressors. Authors such as Cherniss (1980), Maslach and Jackson (1981), and Veninga and Spradley (1981) find increasing evidence that job stressors are prevalent in the helping professions or 'people-work'. Some of the helping professionals involved in 'people-work' are poverty lawyers, physicians, prison personnel, social welfare workers (Maslach, 1976), counsellors and teachers (Cherniss, 1980). In the last two decades, considerable opinion-based literature has been written about stress in the teaching profession. Research-based literature on teaching stressors is minimal and confined largely to Great Britain and the United States. However, much of the literature indicates that teaching today is stressful but more research is needed to support or refute the opinion.

Although there are stressors in all jobs, not all people view a situation as a stressor (Albrecht, 1979; McQuade & Aikman, 1974). For example, Mr. Smith may become mad when there is an interroom interruption while he is teaching a math lesson. On the other hand, Ms. Michael may

not care about the same intercom interruption to her math lesson. Furthermore, people react differently to different situations. For instance, Mr. Smith may not be bothered by rush hour but Ms. Michael may become very tense when driving home during rush hour. These two sets of examples illustrate that different people perceive things differently and that a situation becomes a stressor when it bothers a person and when the person does not cope effectively with it.

Rationale for the Investigation

The purpose of this thesis is to investigate the relationships among the perceived sources of teacher stress, the symptoms of teacher stress, the coping strategies of teachers and demographic variables such as teacher age and experience. There are four major reasons for conducting this investigation. First, the results of this investigation should add to the limited data-base on teacher stress research. Second, since there is very little Canadian research on teacher stress, this investigation should produce data for Canada, and, more specifically, for British Columbia. Third, the results of this investigation may provide useful information for the school district in which the study was conducted. Finally, the results of the symptoms of teacher stress may help to determine how stressful teaching is by identifying teachers who are experiencing more stress than their peers and which teaching conditions are likely to produce more stress. These reasons are elaborated below.

Although much has been written about teacher stress in the last two decades, most of the literature has been opinion-based. In a review of teacher stress, literature, Hiebert and Farber (1983) noted that 70.4% of the articles reviewed were opinion-based or general in nature. Some of this

opinion-based literature seems to be misleading. For example, Truch (1980) states that

Some surveys indicate 90 percent of all teachers feel some stress and 95 percent indicate the need for stress management courses. Others estimate that teaching may be the third most stressful occupation on earth, following air traffic controllers and surgeons. (p. 1)

Truch does not cite a reference to substantiate his second statement. Personal contact with Truch (Note 1) established that the statement was taken from a Hunter ERIC document. In Hunter's (1977a) document she wrote that "air traffic control, surgery and teaching are probably three of the most potentially stressful occupations in the world" (p. 1). This statement was also written in another article by Hunter (1977b, p. 122). In neither article does Hunter refer to any surveys that support her statement. As such, Truch's reference to surveys indicating "that teaching may be the third most stressful occupation" (1980, p. 1) appears to be misleading. Research on teacher stress should produce accurate information that may help to reduce misleading effects of opinion-based literature.

While there is an abundance of opinion-based literature on teacher stress, research-based material is more limited. Hiebert and Farber (1983) found that only 29.6% of the literature reviewed was based on some form of research. The research available almost exclusively originates from Great Britain (Dunham, 1976, 1977, 1980, 1981; Kyriacou & Sutcliffe, 1977, 1978a, 1978b, 1979; Rudd & Wiseman, 1962) and the United States (Bloch, 1978; Brodsky, 1977; Cichon & Koff, 1978; Coates & Thoresen, 1976). Canadian research is exceedingly scarce and until

very recently, has been largely restricted to the minimal research done by teachers' federations such as research done for the BCTF Ad Hoc Committee on Stress (1980). The author has not found any intensive Canadian research that has been conducted to determine relationships among the perceived sources of teacher stress, the symptoms of teacher stress, the coping strategies of teachers, and the demographic variables. As a result, Canadian educators are highly dependent on American and British research. Since teaching conditions in Canada, and more specifically in B. C., are, to a certain extent, different from either Great Britain or the United States, intensive Canadian research would supply relevant Canadian data and information.

The third reason for this investigation is to obtain information that may be useful to a distinct population of teachers. The group of teachers most likely to benefit from the investigation are those in Chilliwack, B. C. where the investigation took place. Since half of the teacher population was sampled and 82% of the sample participated, the data from the investigation will indicate the most prevalent perceived sources of teacher stress in the district. Furthermore, relationships among the perceived sources of teacher stress, the symptoms of teacher stress, the coping strategies of teachers, and the demographic variables will be identified. Thus, the data and the relationships found will identify aspects of the teaching profession in Chilliwack that need to be addressed to possibly reduce the sources and symptoms of teacher stress. Conceivably, some of the information obtained from the data and relationships may involve no financial expenditures to institute, but may only necessitate change in habits of the teachers, the principals and/or the district administration staff. An example might be that the perceived

rating of staff meetings of 1.5 hours or less might receive a low stress rating from most of the respondents. So, staff meetings of 1.5 hours or less would appear to be not stressful. However, the perceived stress rating of meetings in excess of 1.5 hours might receive a high stress rating from most of the respondents and so would appear to be stressful. No expenditures would be necessary to encourage principals to keep staff meetings to a maximum of 1.5 hours.

The final reason for this investigation of teacher stress is to compare data from the perceived sources of teacher stress, from the symptoms of stress experienced by teachers, and from the coping strategies used by teachers, with demographic variables. Most data-based research to date has identified the perceived sources of teacher stress. Some researchers have made comparisons between the perceived sources of teacher stress and demographic variables such as teaching experience. However, very few researchers have investigated the relationships among that of the perceived sources of teacher stress, the coping strategies of teachers, the intensity of stress experienced as demonstrated by physiological, behavioral or cognitive symptoms of stress, and demographic variables. Consequently, studies may show that certain teaching situations and certain groups of situations are perceived to be stressful by teachers and thereby conclude that teaching is a stressful occupation. The conclusion, however, could be inaccurate as teacher perception of stress only has been measured. That is, there could be numerous potential stressors that the teachers are coping with quite adequately and therefore are not stress producing. By including a measure of the intensity of stress, this investigation should help to determine how stressful teaching is by identifying teachers who are experiencing more stress

than their peers and teaching conditions that may produce stress.

For example, perhaps teachers who teach a split grade class, such as a Grade 5/6 split, have more symptoms of stress than their fellow teachers. If so, then teachers of split grade classes are likely to be more stressed than their peers.

In conclusion, this investigation was initiated because of a shortage of research-based literature. The results from the investigation may help to reduce the misleading effects of some opinion-based literature. Furthermore, the results will supply relevant Canadian data and information. More specifically, the investigation may identify aspects of the teaching profession in Chilliwack that could be addressed to possibly reduce the intensity of teacher stress within the district. Finally, since much of the current research deals only with the relationships of the perceived sources of teacher stress, the inclusion of the measure of the intensity of teacher stress, of the coping strategies of teachers and of the demographic variables should more accurately determine how stressful teaching is to certain groups of teachers.

Organization of the Thesis

This thesis contains five chapters. Chapter I gives an overview of the problem and provides a rationale for the importance of the investigation. Chapter II contains working definitions of terminology dealing with stress, the survey of literature and the hypotheses. Chapter III outlines the research methodology and discusses the development of one of the instruments utilized. Chapter IV presents the results of the statistical analyses. Chapter V is devoted to the discussion of the findings, conclusions and implications of the study.

CHAPTER II

LITERATURE REVIEW OF STRESS AND TEACHER STRESS

Stress research is confounded by the many different definitions of the concept of stress (Benson, 1976a; Brodsky, 1977; Cox, 1978; Mason, 1975; Pelletier, 1977). The variety of definitions of the concept of stress is further complicated in the research of teacher stress where some authors (Butt, 1980; Edgerton, 1977; Landsmann, 1978; Leffingwell, 1979; Pattavina, 1980) cite few, if any, references on the general concept of stress. This chapter contains an overview of the controversy of defining stress, the models of stress and the definitions used in this thesis. The chapter will include the environmental and personal aspects of the concept of stress and of teacher stress. Finally, the hypotheses for this thesis will be listed, followed by a brief summary of the chapter.

The Concept of Stress

The concept of stress does not have a precise definition. Rather, the concept of stress is poorly defined and so the concept is elusive (Cox, 1978). Benson (1976a) states that the word stress is frequently "ill-defined and overused, meaning different things to different people" (p. 39). Pelletier (1977) finds that the word stress is used loosely and that although everyone is aware of it, we have difficulty defining stress. Howard, Cunningham, and Rechnitzer (1978) write that "the word stress is a much maligned and very imprecise term" (p. 22). Brodsky (1977) feels that the definitions of stress tend to be circular which are a result of people using the word to describe many very different states. For instance, some states are pleasant while other states are unpleasant. Cofer and Appley (1964) give another possible reason for the imprecise definition of stress.

These authors suggest that "it is as though, when the word stress came into vogue, each investigator who had been working with a concept he felt was closely related, substituted the word stress for it and continued in his same line of investigation" (p. 449). Cox (1978) believes that the concept of stress is understood by many people when defined in general terms. However, when stress is defined more precisely, few people understand it. Mason (1975) tries to solve the dilemma of the loose definition of stress by cautioning that the word should be used sparingly and that stress should be defined each time it is used.

A broader analysis of the ways in which stress has been defined is discussed by Coyne and Lazarus (1980). These authors suggest that there have been fundamental changes in the last 30 years regarding the manner in which stress has been conceptualized. Cox (1978) and Lazarus (1969) divide the fundamental changes in the conceptualization of stress into response-based, stimulus-based, and interactional models and definitions of stress. These basic models and definitions of stress will now be discussed in detail and will be followed by the definition of stress used by the author in this thesis. Finally, there will be a brief discussion of the terms stressor and pressure concluding with the author's definitions of these two terms.

Models and Definitions of Stress

Response-based model. In the response-based model, stress is the dependent variable and is defined as a person's response, or patterns of responses, to a noxious or environmental disturbance (Cox, 1978). Physiologically, the response, or stress, is displayed in the symptoms a person exhibits. For example, a continuous noise at work would be the environmental disturbance and the individual's resulting headache or ulcers would be viewed as the stress. An adaptation of Cox's (1978) response-based stress model is shown in

Figure 1.

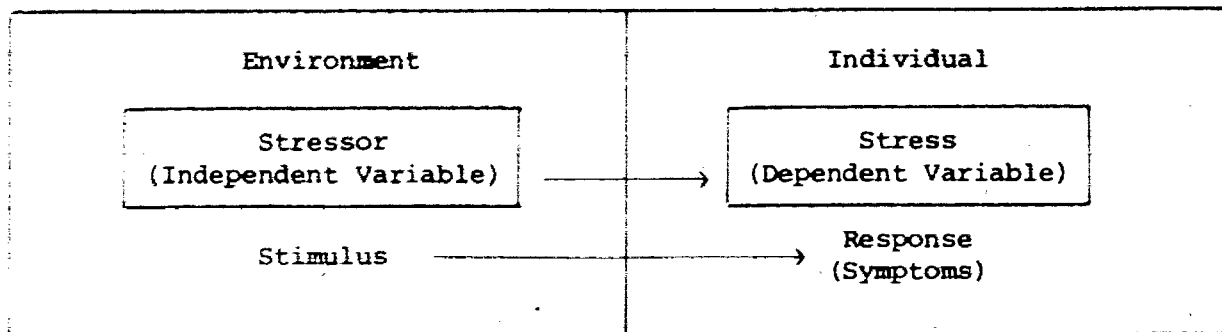


Figure 1. Response-based Stress Model (Adapted from Cox, 1978, p. 4).

One of the initiators of the concept of stress in the 1930's and one of the most influential proponents of the response-based definition of stress is Hans Selye. Selye's (1976) most recent definition of stress is "the nonspecific response of the body to any demand, whether it is caused by, or results in, pleasant or unpleasant conditions" (p. 74). A group of authors that use the response-based model and definition of stress are Howard et al. (1978). These authors define stress as "a set of physiological responses that our body makes to conditions it finds disturbing" (p. 24).

Stimulus-based model. In contrast to the response-based model and definition of stress, the stimulus-based model defines the disturbing environmental stimulus as stress rather than as the response (Cox, 1978; Lazarus, 1969). Using the same example of a continuous noise at work, the noise or stimulus is viewed as stress and a person's response of a headache or ulcers is labelled as strain. Now stress is the independent variable and the strain, or the response, becomes the dependent variable (Cox, 1978). The stimulus-based model of stress is basically the engineering model of stress and strain. An adaptation of Cox's (1978) stimulus-based stress model is shown in Figure 2.

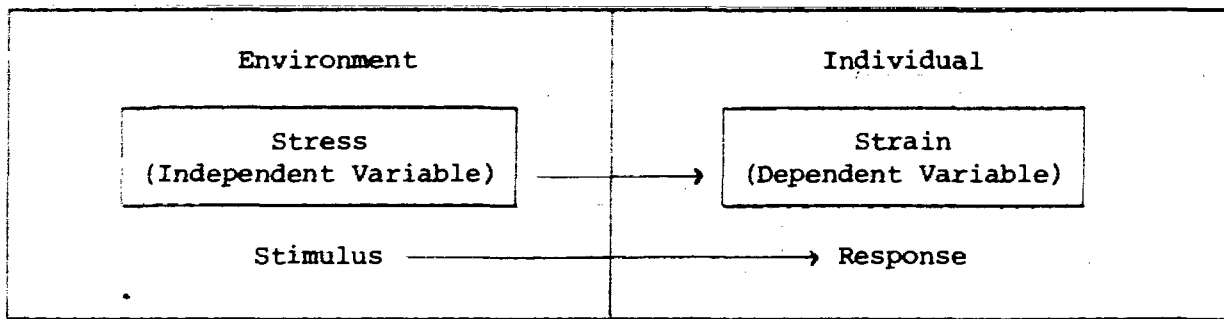


Figure 2. Stimulus-based Stress Model (Adapted from Cox, 1978, p. 12).

Two authors use the stimulus-based definition and model of stress to develop a popular stress checklist. Holmes and Rahe (1967) originated the Social Readjustment Rating Scale of common social or life stress events. This checklist is intended to predict the chances of a person becoming sick as a result of the number and type of stimulus events the person has experienced in the previous two years. There are points that vary from a low of 10 points for "minor violations of the law" to a high of 100 points for "death of a spouse" (p. 216). A person with a high score has a greater chance of becoming ill than one with a low score. Other authors use the stimulus-based definition of stress in their discussions. Veninga and Spradley (1981) defined stress as "anything that places an extra demand on you" (p. 16). Benson (1976a) defines stress "as environmental conditions that require behavioral adjustment" (p. 41).

Interactional model. The third definition and model of stress is the interactional definition and model. In this model, stress results from the complex interaction between the environment and a person. Both the response-based and stimulus-based models and definitions are used in the interactional model and definition because stress is viewed as a combination of the person's interpretation of the environmental stimulus and also of the person's response to the stimulus. The interactional model and

definition differ from the response-based and stimulus-based models and definitions in four distinct ways. First, the interactional definition includes the person's perception of the stimulus which is based on the person's attitudes and traits, past experience, and needs (Cooper, 1981; Kyriacou & Sutcliffe, 1978a). Second, the interactional model of stress contains a person's cognitive appraisal or judgement of threat of the potentially stressful stimulus and of the person's ability to cope (Cooper, 1981; Cox, 1978). Stress occurs if there is an "imbalance between the perceived demand and the person's perception of his capability to meet that demand" (Cox, 1978, p. 18). Third, the critical imbalance results in a response to the perceived stress. The response consists of physiological, emotional, cognitive and behavioral changes in the person. These four changes may be involved in the response-based and stimulus-based definitions but are not clearly delineated as these changes are in the interactional model. Finally, whereas the response-based and stimulus-based models are linear, the interactional model is cyclical since this model contains feedback components (Cox, 1978). For instance, if a person's coping response to a situation is inadequate, then this response may affect the person's perceived ability to cope which may then increase the imbalance between the perceived demand and the person's perception of his or her capability to meet that demand. An adaptation of Cox's interactional model of stress is shown in Figure 3.

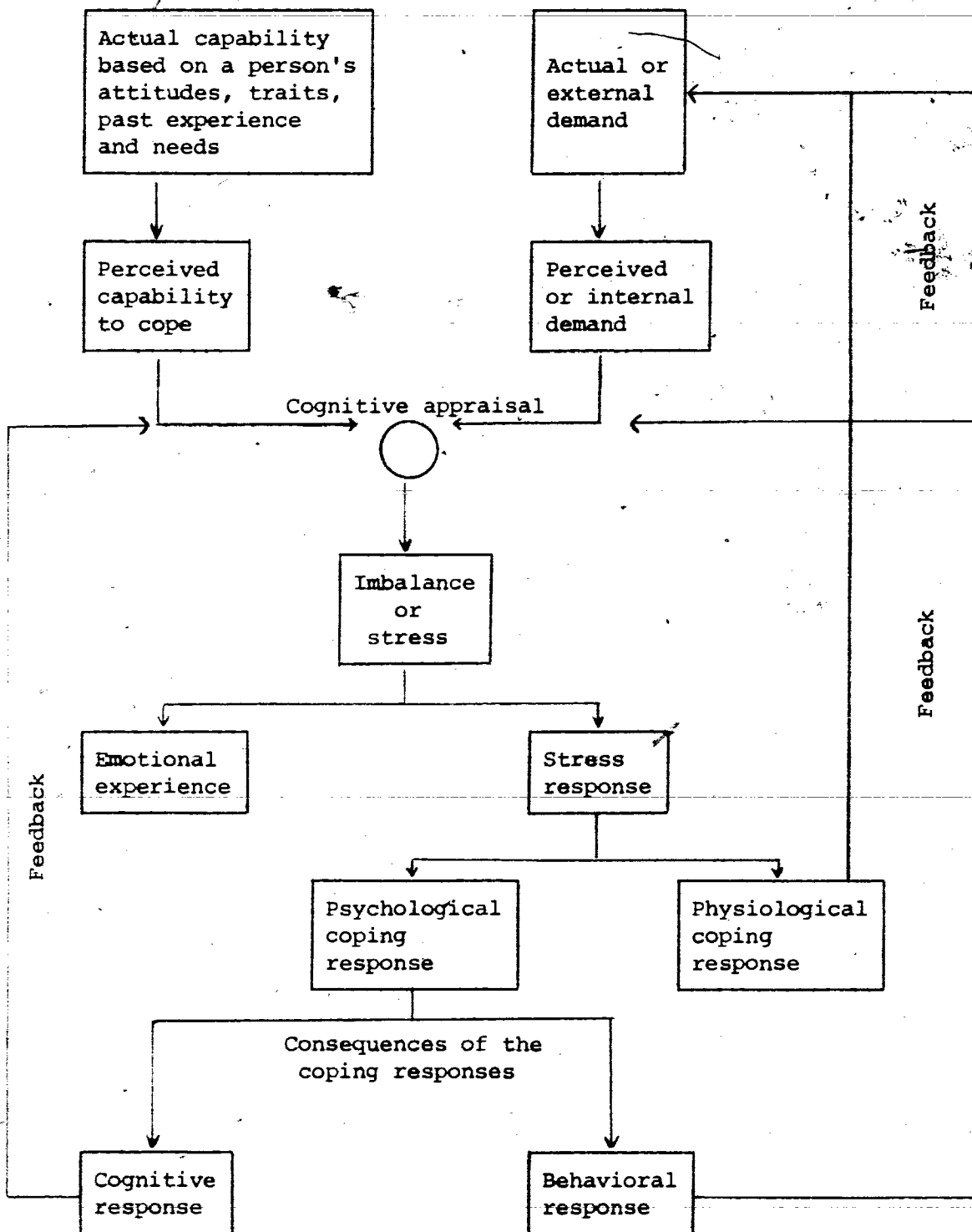


Figure 3. Interactional Stress Model. (Adapted from Cox, 1978, p. 19).

Although the response-based, stimulus-based and interactional definitions and models of stress are currently in use, the interactional definition and model is the most recently developed and is becoming more widely used in the research of stress. One of the earliest developers of the interactional concept of stress is Richard Lazarus. Lazarus and Launier (1978) define stress as "any event in which environmental or internal demands (or both) tax or exceed the adaptive resources of an individual, social system, or tissue system" (p. 296). Woolfork and Richardson (1978) write that "stress is a perception of threat or expectation of future discomfort that arouses, alerts, or otherwise activates the organism" (p. 9). In a recent article Hiebert (1983) states that stress is defined "as a reaction occurring when the demands of a situation exceed a person's self-perceived ability to cope with the situation" (p. 54). In contrast to Selye's (1976) definition of stress and the Social Readjustment Rating Scale developed by Holmes and Rahe (1967) in which people can experience stress as a pleasant or unpleasant emotion, Hiebert claims that stress is experienced only as an unpleasant emotion.

An interactional definition of stress will be used for the remainder of this thesis. Stress is defined as a complex physiological, cognitive and behavioral response that occurs in a person when the person perceives that the demands of a situation are greater than the person's perceived ability to cope with the situation. The individual experiences the stress as an unpleasant emotion. This definition is compatible with the interactional model of stress shown in Figure 3.

Stressor and Pressure

The differentiation between the terms stressor and pressure are an

important part of the concept of stress. These terms will now be discussed and defined.

Stressor and pressure refer to the environmental factors of stress which place a demand on a person. Authors use the word stressor much more frequently than pressure. In the literature survey for this thesis, 15 authors discussed and used only the term stressor; two authors discussed and used only the term pressure; four authors discussed and used both terms. Until recently, stressor and pressure were used interchangeably. These words referred to any environmental stimulus that resulted in a stress response. Recently, an important distinction between stressor and pressure has been made. Stressor refers to demands which create a stress response in a person (Albrecht, 1979; Everly & Rosenfeld, 1981; Girdano & Everly, 1979). Pressure refers to demands which do not create a stress response in a person (Hiebert, 1983). Stressors and pressures may be internal, such as thirst, or external, such as a car driving towards you in your lane (Hiebert, 1983). Stressors and pressures may be real or imagined (Hiebert, 1983). For example, thirst is real if a person has been cross country skiing for three hours without a drink. Thirst is imagined if a person had a long thirst-quenching drink 10 minutes earlier.

The definition of stressor in this paper is a demand which creates a stress response in a person. Pressure will refer to a demand which does not create a stress response in a person.

In summary, the concepts of stress, stressor and pressure have been discussed and defined. Stress is defined as a complex physiological, cognitive and behavioral response that occurs in an individual when the person perceives that the demands of a situation are greater than the person's perceived ability to cope with the situation. Stress is an unpleasant response. A

stressor is a demand which creates a stress response in a person while a pressure is a demand which does not create a stress response in a person. Stressor and pressure may be internal or external, real or imagined.

Environmental Factors

The three major environmental factors of stress are physical, social and psychosocial stressors. These three major stressors will be discussed individually.

Physical stressors are "those aspects of the individual's immediate personal surroundings that cause him to be physically stressed or become anxious about possible consequences" (Albrecht, 1979, p. 147). These external factors can include infections, drugs, shock therapy, exercise (Morse & Furst, 1979), hurricanes (Gherman, 1981), extreme heat and cold (Albrecht, 1979), noise, illumination, and humidity (Cox, 1978). Physical stressors are natural events that occur in excessive amounts and are the noxious stimuli about which Selye (1956) writes. Common physical stressors in the work environment are excessive amounts of humidity, dryness, heat, cold, noise, illumination and vibration (Albrecht, 1979; Cox, 1978). Of the three basic stressors, physical stressors are usually the least damaging to the individual unless these stressors are severe and repetitive (Morse & Furst, 1979).

Social stressors form the second major division of environmental factors of stress. Social stressors result from the interaction of an individual with other people. Antonovsky (1979) believes that all social environments are stressful because individuals are competing for limited resources and power. Furthermore, Antonovsky states that there is a gap between a society's goals and the person's method of achieving the goals. No society has

developed a structured method for a person to attain that society's goals. Antonovsky suggests that our social environment is inevitably and continually stressful. Groen and Bastiaans (1975) state "that the most common stress for man is the threatening actions or words of one or more of his fellow men" (p. 30). Frequent social stressors in the work environment involve interactions with one's boss, coworkers and clients (Albrecht, 1979). Social stressors can be unavoidable and traumatic. Some social stressors, such as the death of a spouse, can result in the death of the widowed partner (Morse & Furst, 1979)..

The third major environmental factor of stress is the psychosocial stressors. Psychosocial stressors "are a function of the complex interaction between social behavior and the way our senses and our minds interpret these behaviors" (Girdano & Everly, 1979, pp. 52-53). Psychosocial stressors are less definite than physical or social stressors because the response is based more upon the person's attitudes, traits, past experience and needs. Psychosocial stressors are more dependent on the person's perceptions of these stressors as being stressful than do physical or social stressors. In the workplace, psychosocial stressors lead to frustration, anger, anxiety, apprehension or other emotions derived from stress (Albrecht, 1979). Some psychosocial stressors at work are deadlines, extreme accountability for high-risk tasks, ego risk such as fear of loss of status, expectation of disapproval from one's peers or one's superiors, and expectations of failure (Albrecht, 1979). Psychosocial stressors are usually the most damaging stressors as these can be induced and perpetuated by the person (Morse & Furst, 1979).

In the above discussion, the three major environmental stressors have been differentiated. Physical stressors are usually the least damaging to a

person provided these stressors are not severe and repetitive. Social stressors appear to be perpetual, inevitable and result in a most extreme response if traumatic. The psychosocial stressors seem to be most dependent on a person's interpretation of a particular situation. These stressors are less definite than the social or physical stressors. The psychosocial stressors are usually the most damaging as these stressors are the most dependent on the way a person perceives a situation.

Personal Factors

In the interactional model of stress, the personal factors are the person's responses to a stressor. The three responses to a stressor are physiological, cognitive and behavioral in nature (Cox, 1978). Cognitive and behavioral responses to a stressor are identified as coping responses and can be symptoms of stress. Physiological responses to a stressor are also identified as the symptoms of stress. The stress a person experiences can be transitory or chronic depending on the length of time the stressor exists and on how threatening the person perceives the stressor to be. The coping responses to a stressor and the symptoms of stress will now be discussed.

Coping. Coping is the person's strategies of adaptation to a stressor (Cooper, 1981; Pines, Aronson & Kafry, 1981; Southern & Smith, 1980) or the person's action to eliminate a stressor (Antonovsky, 1979; Dewe, Guest & Williams, 1979; Lazarus, 1966). In so doing, the person tries to return to the former state of physiological, cognitive and behavioral equilibrium (Cox, 1978; Southern & Smith, 1980). Lazarus (1974) finds that coping is largely anticipatory in nature. Lazarus states that coping "is based on cognitive activity involving appraisal of the conditions of threat and the consequences of the coping behavior" (1966, p. 28). For example, a person anticipates that a situation will be threatening so the individual will

develop a strategy to adapt to the perceived threatening situation or to eliminate it. The coping process involves many acts and both the demands and the person's coping strategies change as the interaction between the person and the demand develops (Coyne & Lazarus, 1980). There are a wide variety of coping strategies that are dependent on the environmental demands, how the demands are appraised, and on the individual's personality (Lazarus, 1974). For the remainder of this paper, coping will be defined as the strategies a person uses to adapt to or overcome a stressor and so return to a state of cognitive, behavioral and physiological equilibrium.

There appear to be two main coping strategies to stressors. One strategy is labelled direct action and the other is palliation (Cox, 1978; Dewe et al., 1979; Lazarus, 1974; Pines et al., 1981). Direct action is the person's behavior that is used to eliminate or control the environmental stressor (Lazarus, 1966). The behavior can be of several modes: "preparation against harm, aggression, and avoidance (and inaction)" (Cox, 1978, p. 79).

Avoidance is the same as escape. These three types of behaviors are similar to Cannon's (1953) "fight-or-flight" response and to the attack and retreat of Selye's (1976) General Adaptation Syndrome. Palliation, the second main coping strategy, "is a matter of moderating the distress caused by the experience of stress, and reducing its psychophysiological effects" (Cox, 1978, p. 83). Palliation, or indirect action (Pines et al., 1981), is divided into symptom-directed modes and intrapsychic modes (Cox, 1978). In symptom-directed palliation, alcohol or drugs and body-oriented techniques such as transcendental meditation are used (Cox, 1978). Intrapsychic palliation consists of psychological defense actions such as detachment and denial (Lazarus, 1974). Four factors influence the person's choice of coping strategy to deal with a stressor. The four factors are: (a) the amount of

uncertainty; (b) the amount of threat; (c) the amount of helplessness; (d) the presence of conflict (Lazarus & Launier, 1978).

Once the person cognitively appraises the environment, selects and uses the coping strategy or strategies to eliminate or reduce the stressful experience, the results are either effective or ineffective. If the coping strategy eliminates or reduces the stressful experience so it is no longer threatening, then the coping strategy is effective. For example, Mr. Smith, a teacher, may find that by 3:30 p.m. on most school days he has a tension headache, is disorganized, is exhausted and worries about the next day of school. After analyzing the situation one weekend, Mr. Smith decides to organize his daily lessons in more detail and to meditate at lunch time for 15 minutes. During the first week Mr. Smith notices that he is more energetic after lunch and after school, has fewer headaches, and worries less about the next day of school. The improvement continues and after several months the strategies become habitual. Mr. Smith now has a positive attitude towards his job and students. This individual has selected effective coping strategies to overcome a stressful experience. Effective coping is dependent upon the stressor being real rather than imagined (Hiebert, 1983) and then on the person's choice of an appropriate coping strategy (Shaffer, 1982). If the stressor is real, the person can analyze the stressor and then choose an appropriate coping strategy. Effective coping should reduce the intensity of the General Adaptation Syndrome or may possibly stop the stress response (Shaffer, 1982).

At this point, a brief explanation of Selye's General Adaptation Syndrome, or G.A.S., is important for a better understanding of the discussion on effective and ineffective coping strategies. The G.A.S. is the physiological response to stress that a person incurs over a period of

time (Selye, 1956). The G.A.S. has three stages (Selye, 1976). The first stage is the Alarm Reaction where the person encounters the stressor. In the Alarm Reaction stage, the person's physiological response to stress goes below the normal physiological resistance level. If the stressor continues, the person progresses into the Stage of Resistance which is usually the longest stage. Here, the person's physiological resistance to stress increases and is above the person's normal physiological resistance level. Most stressful experiences are terminated in this second stage (Selye, 1976). Finally, if the stressor is extreme and has not been eliminated or its effects reduced, the individual enters the third stage labelled the Stage of Exhaustion. As in the Alarm Reaction stage, the person's physiological resistance is below normal. Unless the person develops more effective coping strategies, the person dies. A person does not enter this third stage very often in a lifetime (Selye, 1976).

By using effective coping strategies a person can avoid progressing to the Stage of Resistance. If a person does progress to the Stage of Resistance, effective coping will likely shorten the length of time the person is in that stage and reduce the intensity of physiological resistance to the stressor. Effective coping strategies should prevent a person from entering the Stage of Exhaustion unless the stressor is extreme. If the coping strategies do not reduce or eliminate the stressful experience caused by a stressor, then the strategies are ineffective. Ineffective coping is largely a result of two factors; the realness of the stressor and the appropriateness of the strategy selected. First of all the stressor may be imagined (Hiebert, 1983). An example would be a person who hears a noise in the middle of the night and imagines that there is an intruder in the house. In fact, only the family cat made the noise. Second, ineffective coping occurs when a person selects inappropriate coping strategies and so the stressor is neither

reduced nor eliminated (Shaffer, 1982). The person copes ineffectively with the stressor and the stressful experience continues. Suppose that Mr. Smith, the stressed teacher in the earlier example, copes with exhaustion, headaches and feelings of disorganization by "relaxing" longer in the staff-room. While "relaxing" Mr. Smith smokes more cigarettes and increases his consumption of coffee. By coping in this manner, Mr. Smith's stressor, which he perceives to be teaching students, will likely not be reduced. In fact, drinking coffee and smoking will probably create a physiological response that would tend to increase his headache. Mr. Smith's feelings of disorganization will likely become worse if he does not spend more time organizing. These coping strategies will probably not help Mr. Smith cope effectively. These strategies are counterproductive as they are in contrast to the ones Mr. Smith should use. These strategies may actually result in additional symptoms of stress (Shaffer, 1982). Ineffective coping is usually counterproductive because these coping strategies do not slow down the G.A.S. as does effective coping. The person is more likely to proceed into the Stage of Resistance and eventually into the Stage of Exhaustion depending on the intensity of the stressor and the length of time the person considers the stressor to be threatening (Shaffer, 1982). Some of the common ineffective and counterproductive coping strategies are overeating, overwork, or hyperactivity, and the use of alcohol and drugs (Shaffer, 1982).

In summary, coping, the first personal factor of stress, has been defined as the strategies a person uses to overcome or adapt to a stressor and so return to a state of cognitive, behavioral and physiological homeostasis. Direct action and palliation are the two main coping strategies. Direct action is the person's behavior that eliminates or controls the stressor. Preparation against harm, aggression, and avoidance are the three

kinds of direct action. The second basic coping strategy is palliation.

In palliation, or indirect action, the person moderates the stress caused by the stressor and reduces the stressor's cognitive, behavioral and physiological effects. There is symptom-directed palliation and intrapsychic palliation. The four factors influencing a person's choice of the coping strategies are the presence of conflict, and the amount of uncertainty, threat and helplessness. Finally, coping strategies are either effective or ineffective. If the coping strategy eliminates or reduces the stressful experience so the stressor is no longer threatening, then the coping strategy is effective. However, if the coping strategy does not reduce the stressful experience, then the strategy is ineffective. Ineffective coping strategies are a result of imagined stressors or a poor choice of coping strategies. These strategies are usually counterproductive and tend to intensify the stressful experience.

Transitory and chronic stress. The second personal factor of stress deals with the duration and the intensity of the personal response factors. The two kinds of stress are called transitory stress and chronic stress.

Transitory stress is rarely mentioned or alluded to in stress literature. In the survey of literature for this thesis, transitory stress, or terms alluding to it, were mentioned by nine out of 42 authors. Terms used instead of transitory stress are short-term stress (Brodsky, 1977), ordinary stress (Southern and Smith, 1980), acute stress (Pelletier, 1977; Shaffer, 1982), episodic stress (Adams, 1980; Albrecht, 1979) and transitory stress or anxiety (Hiebert, 1982, 1983; Levitt, 1966).

Although different terms are used for transitory stress the descriptions of this stress are consistent. Usually the stressor is clearly identifiable and immediate (Pelletier, 1977). Consequently, the person copes immediately, automatically and effectively with the stressor until the body returns to a

state of low activation or homeostasis (Albrecht, 1979; Pelletier, 1977; Shaffer, 1982). The stressors are everyday occurrences such as "screaming children" or "changes in policy at work" (Adams, 1980; Hiebert, 1983). Transitory stress lasts a short period of time and so this stress is temporary (Albrecht, 1979; Brodsky, 1977; Hiebert, 1982; Pelletier, 1977; Shaffer, 1982). Because transitory stress lasts for a short time, the person usually only experiences the Alarm Reaction of Selye's G.A.S. (Shaffer, 1982). Finally transitory stress can be helpful when this stress promotes change, inspires or motivates (Southern & Smith, 1980). Transitory stress usually has few negative side effects (Hiebert, 1983).

There are 11 important characteristics of chronic stress. First of all, chronic stress occurs over a long period of time such as weeks, months or years (Brodsky, 1977; McQuade & Aikman, 1974; Pelletier, 1979; Tuckwiller, 1980). Chronic stress may even be of low intensity, such as a spouse frequently checking the time. However, after several months the person's cognitive, behavioral and physiological responses to the spouse's habit may develop into chronic stress. Because chronic stress is long-term, a person suffering from this stress will experience the Alarm Reaction and the Stage of Resistance of Selye's G.A.S. This person may eventually progress into the Stage of Exhaustion depending on the stressor's intensity and on the length of time the person finds the stressor threatening (Shaffer, 1982). Second, chronic stress may be the result of a high frequency of stressors such as an overwhelming workload (Cherniss, 1980; French & Caplan, 1980) or where there is an absence of stressors, such as in an isolation ward (Schafer, 1978; Selye, 1974). Third, chronic stress may develop from repetition (Everly & Rosenfeld, 1981; McLean, 1979). An example of repetition would be a simple but repetitive job at a factory. Fourth, chronic stress may occur

because of a severe stressor (Henry, 1979; Southern and Smith, 1980). For instance, when a spouse dies, the surviving partner may develop a state of helplessness. Over a long period of time, the ineffective coping strategies become a habit and the person will experience chronic stress. Fifth, chronic stress is cumulative and so the stress becomes intense (Albrecht, 1979; Janis, 1971). That is, the physiological effects of a continued stress experience tend to increase over time and so the total effect becomes more severe. A person may initially start to have tension headaches from a stressor at work. After several months of experiencing stress, the person may develop more severe headaches, chronic diarrhea and eventually ulcers from the same stressor. Sixth, chronic stress tends to become a habit so the person's body "forgets" how to relax and recover (Albrecht, 1979; McQuade & Aikman, 1974). Instead, after reacting to a stressor for a long time, the body will react stressfully even when there is no stressor. Eventually a person may get used to a higher activation level and gradually accept this higher level as the normal activation level (Selye, 1974). As such, the person's conception of a normal activation level is raised. Here, a person could be chronically hypertensive. Seventh, chronic stress may arise from an initially positive stressor such as working towards a promotion. After a while, the methods used to achieve a promotion become habitual and a behavior pattern develops (Friedman & Rosenman, 1974; Moulton, 1969). The person will then suffer from chronic stress. Friedman and Rosenman label such a person as Type A. Eighth, once a person suffers from chronic stress, the person may overreact to minor stressors so that these stressors are seen as a major threat (Janis, 1971). For example, a chronically stressed teacher who sees a pupil talking quietly to a neighbour during a silent reading period may become mad at the student in a manner

befitting a more serious offense. Ninth, chronic stress usually results in negative physiological, cognitive and behavioral effects. In particular, chronic stress is linked to physiological problems such as arteriosclerosis, chronic high blood pressure, a permanent state of hypertension, ulcers and migraine headaches (Benson, 1976a; Henry, 1979; McQuade & Aikman, 1974; Selye, 1976). Chronic stress is also linked to cognitive dysfunctions like depression, convergent thinking, development of fears, tantrums and behavioral dysfunctions such as increased use of drugs (Birren, 1979; Holmen, 1979; Tuckwiller, 1980; Wood, 1979). Physiological, cognitive and behavioral disorders occur because a chronically stressed person takes longer to return to the normal level of activation, or homeostasis, than a person who is not chronically stressed (Pelletier, 1977). The disorders may also occur because the person accepts a higher activation level as normal and so rarely, if ever, returns to homeostasis. Tenth, chronic stress is likely to result when the stressor is frequently undefined or ambiguous (Pelletier, 1977). If a person feels stressed but cannot determine the cause, the person cannot choose an effective coping strategy. Therefore, the person will endure the stress until the stressor is no longer threatening or until the person can identify the stressor. Finally, the common denominator of all the first 10 factors is that chronic stress is basically a result of ineffective coping mechanisms (McQuade & Aikman, 1974). If a person copes with a problem by overeating, the problem will not be solved. The stress experience will likely increase as the person will eventually have to deal with excess weight and perhaps coronary problems besides the inability to cope effectively with stressors.

There is much more literature available on chronic stress than on transitory stress. In the survey of literature for this thesis, there were 24

authors out of 42 who discussed chronic stress. } The reason for chronic stress being investigated more than transitory stress may be due to the fact that chronic stress is basically harmful to people whereas transitory stress is not harmful and may be beneficial. Everly and Rosenfeld (1981) only discuss "the excessive stress-response itself" (p. 8). Although other authors are not so explicit, most books deal mainly with chronic stress. As with most stress literature, this thesis will be investigating chronic stress rather than transitory stress.

To summarize, the significant differences between transitory stress and chronic stress are time, intensity, and coping effectiveness. Transitory stress is short-term whereas chronic stress is long-term. In transitory stress, the person returns to the normal level of activation fairly quickly, the arousal level may not be very intense and so the experience is not harmful. The experience may actually be beneficial. In chronic stress, the person takes longer to return to the normal activation level or may never return to this level. Furthermore, the arousal level is usually more intense in chronic stress than in transitory stress. With a more intense arousal level which lasts longer than the arousal in transitory stress, chronic stress is harmful. Finally, a person experiencing transitory stress copes effectively with the stressor. A person experiencing chronic stress does not cope effectively with the stressor and so the stress is long-term.

Symptoms of stress. The symptoms of transitory and chronic stress are divided into physiological, cognitive and behavioral symptoms. The physiological symptoms occur quickly and are easily identified. The cognitive and behavioral symptoms may develop more slowly and may be less noticeable than the physiological symptoms. The symptoms of transitory stress will be presented first.

Transitory stress arouses the autonomic portion of the sympathetic nervous system (Cox, 1978; Mills, 1980). Since transitory stress is only associated with the Alarm Reaction, the first stage of Selye's G.A.S., the symptoms of transitory stress are similar to those of the Alarm Reaction stage (Shaffer, 1982). The physiological symptoms of transitory stress include: an increased heart rate; elevated blood pressure; increased amounts of epinephrine, norepinephrine, glucose, and free fatty acids in the blood; decreased appetite; sweaty palms and coldness of the skin; erection of the hairs on the skin; dilation of the pupils; increased breathing and perspiration; muscular tension; and an excess of nervous energy (Albrecht, 1979; Birren, 1979; Cox, 1978; Gherman, 1981; Mills, 1980; Pelletier, 1979; Selye, 1976; Shapiro, Mainardi, & Surwit, 1977). The cognitive symptoms of transitory stress include: feelings of unhappiness and/or depression; irritability; impatience; convergent thinking (Birren, 1979; Gherman, 1981; McQuade & Aikman, 1974). A behavioral symptom of transitory stress is immobilization so the person is temporarily paralyzed (Albrecht, 1979). The physiological responses to transitory stress are similar to those of Cannon's "fight" or "flight" response to a threatening situation (Shapiro et al., 1977). In the "fight" or "flight" response all the physiological, cognitive and behavioral changes occur to help "the organism in the strenuous muscular efforts involved in flight or conflict or struggle to be free" (Cannon, 1953, p. 203). When the stressor is identifiable, immediate and resolvable, and the person chooses effective coping strategies, the stressor is reduced or eliminated and is no longer a threat. Symptoms of transitory stress subside as the stressful situation is resolved, after which there is a period of parasympathetic rebound or relaxation (Pelletier, 1979). When the parasympathetic nervous

system dominates, the

heart rate slows, respiration becomes shallow and noisy, the lacrymal and salivary glands become more active (tears and saliva), the sweat glands become less active, pupillary constriction occurs, blood glucose levels fall, blood is directed to the gut and skin (flushing), and gut activity increases. (Cox, 1978, p. 57)

Now the person recuperates and probably relaxes until the normal level of activation is established.

The initial symptoms of chronic stress are the same as those of transitory stress because a stressed person must progress through the Alarm Reaction stage (Shaffer, 1982). However, because the person copes ineffectively, the stress response continues and instead of recuperating, the person enters the Stage of Resistance (Shaffer, 1982). In this stage, the person adapts to the stressor since the person's level of resistance is above the normal level (Selye, 1974). If the person copes ineffectively with the stressor in the Stage of Resistance, the person may eventually progress to the Stage of Exhaustion and may die. During these last two stages, complex symptoms of stress seem to develop.

As with the symptoms of transitory stress, there are physiological, cognitive and behavioral symptoms of chronic stress. However, the symptoms of chronic stress are more severe than those of transitory stress because the person's sympathetic nervous system continues to be active whereas the parasympathetic nervous system remains underused. As a result, the person does not recuperate and remains in a state of stress (Pelletier, 1977). Chronic stress may aggravate an existing disease, such as diabetes (Albrecht, 1979). Chronic

stress may produce a disorder, such as stomach ulcers (Albrecht, 1979).

Physiological disorders may develop because "our bodily defense reactions can also fall into a groove, for instance, by always responding with the same exaggerated hormonal response, whether it is appropriate to the situation or not" (Selye, 1976, p. 402). Furthermore, McQuade and Aikman (1974) write that once a disease becomes established, the person gets used to the disease and eventually cannot live without the disease because the disease exempts the person from obligations and challenges. Instead, the person gets attention and care from others.

Apparent symptoms of chronic stress are listed in Table 1. There are 85 symptoms listed which have been derived from a literature survey of 18 authors. These symptoms are grouped into physiological, cognitive and behavioral symptoms. The physiological symptoms are divided into skeletal muscular framework symptoms, the respiratory system symptoms, the cardiovascular system symptoms, the digestive system symptoms, the immunity system symptoms, and miscellaneous symptoms. There are 51 physiological symptoms which form 60% of the total number of symptoms listed. There are 17 cognitive symptoms and 17 behavioral symptoms listed, each of which account for 20% of the total number of symptoms listed. Table 2 provides a more detailed breakdown of the number of symptoms of chronic stress.

Table 1

Symptoms of Chronic Stress

Physiological symptoms	References
Skeletal - muscular symptoms	
Headaches ^a	Cox, 1978; McQuade & Aikman, 1974; Shaffer, 1982; Tuckwiller, 1980; Wood, 1979;

Table 1 cont.

Neckaches	Selye, 1976; Tuckwiller, 1980;
Backaches	Cox, 1978; Everly & Rosenfeld, 1981; McQuade & Aikman, 1974; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;
Flushing	Shaffer, 1982;
Excess sweating	Cox, 1978; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;
Dry mouth	Cox, 1978; Selye, 1976; Shaffer, 1982;
Nervous chills	Shaffer, 1982;
Hot and cold spells	Cox, 1978;
Bruxism (grinding teeth)	McQuade & Aikman, 1974; Selye, 1976;
Migraine headaches ^b	Albrecht, 1979; Cox, 1978; Everly & Rosenfeld, 1981; McQuade & Aikman, 1974; Pelletier, 1977; Selye, 1976;
Paresthesias (imagined prickly- skin sensations)	Shaffer, 1982; Tuckwiller, 1980;
Skin rash or itch	Cox, 1978; Tuckwiller, 1980;
Numb spots on skin	Cox, 1978; Tuckwiller, 1980;
Emphysema	Pelletier, 1977;
Arthritis (aggravated by stress)	Gherman, 1981; McQuade & Aikman, 1974; Pelletier, 1977;
Rheumatoid arthritis (aggravated by stress)	McQuade & Aikman, 1974;
Respiratory system symptoms	
Shallow breathing ^a	Shaffer, 1982; Tuckwiller, 1980;
Breathlessness	Shaffer, 1982; Tuckwiller, 1980;
Chest oppression and pain ^b	Cox, 1978; Shaffer, 1982; Tuckwiller, 1980;

Table 1 cont.

Asthma	Cox, 1978; Everly & Rosenfeld, 1981; Gherman, 1981; McQuade & Aikman, 1974; Pelletier, 1977;
Cardiovascular system symptoms	
Pounding pulse ^a	Cox, 1978; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;
High blood pressure ^b	Albrecht, 1979; Benson, 1976b; Cox, 1978; Everly & Rosenfeld, 1981; Gherman, 1981; Shaffer, 1982;
Hypertension	Albrecht, 1979; Benson, 1976b; Eliot, 1979; Everly & Rosenfeld, 1981; Lamott, 1975; McQuade & Aikman, 1974; Pelletier, 1977;
Heart palpitation	Shaffer, 1982;
Arrhythmia	Eliot, 1979; Everly & Rosenfeld, 1981; McQuade & Aikman, 1974;
Angina ^c	McQuade & Aikman, 1974;
Coronary heart disease	Cox, 1978; Eliot, 1979; Friedman & Rosenman, 1974; Henry, 1979; Lamott, 1975;
Coronary heart attack	Albrecht, 1979; Benson, 1976b; Gherman, 1981; McQuade & Aikman, 1974; Schafer, 1978;
Stroke	Benson, 1976b; Gherman, 1981; Lamott, 1975; McQuade & Aikman, 1974;
Digestive system symptoms	
Belching ^a	Shaffer, 1982; Tuckwiller, 1980;
Flatus	Shaffer, 1982; Tuckwiller, 1980;

Table 1 cont.

Diarrhea	Albrecht, 1979; Cox, 1978; McQuade & Aikman, 1974; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;
Constipation	Albrecht, 1979; McQuade & Aikman, 1974; Shaffer, 1982; Tuckwiller, 1980;
Frequent need to urinate	Cox, 1978; Selye, 1976;
Loss of appetite	Selye, 1976; Shaffer, 1982;
Abdominal cramping	Albrecht, 1979; Shaffer, 1982; Tuckwiller, 1980;
Indigestion	Selye, 1976; Tuckwiller, 1980;
"Irritable"/colon	Shaffer, 1982; Tuckwiller, 1980;
Vomiting	Selye, 1976; Shaffer, 1982;
Stomach ulcers ^b	Albrecht, 1979; Cox, 1978; Everly & Rosenfeld, 1981; Gherman, 1981; Lamott, 1975; McQuade & Aikman, 1974; Wood, 1979;
Ulcerative colitis	Everly & Rosenfeld, 1981; Gherman, 1981; McQuade & Aikman, 1974;
Diabetes (aggravated by stress) ^c	Albrecht, 1979; Cox, 1978; McQuade & Aikman, 1974;
Immunity system symptoms	
Allergies (aggravated by stress) ^a	Everly & Rosenfeld, 1981; McQuade & Aikman, 1974;
Cancer ^c	Lamott, 1975; McQuade & Aikman, 1974;
Miscellaneous physiological symptoms	
Feeling of weakness ^a	Cox, 1978; Selye, 1976; Shaffer, 1982;
Dizziness or faintness	Cox, 1978; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;

Table 1 cont.

Premenstrual tension or missed menstrual cycle	Lamott, 1975; Selye, 1976;
Insomnia	Albrecht, 1979; Cox, 1978; Everly & Rosenfeld, 1981; Gherman, 1981; Selye, 1976; Shaffer, 1982;
Chronic fatigue ^b	Albrecht, 1979; Cox, 1978; McQuade & Aikman, 1974; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980;
Reduced sex drive	Albrecht, 1979; Cox, 1978; Lamott, 1975;
Blurring of vision	Tuckwiller, 1980;
Cognitive symptoms	
Worry ^a	Shaffer, 1982;
Impatience	Albrecht, 1979; Shaffer, 1982;
Nightmares	Cox, 1978; Selye, 1976; Shaffer, 1982;
Inability to concentrate	Selye, 1976; Shaffer, 1982;
Forgetfulness	Cox, 1978; Holmen, 1979; Shaffer, 1982;
Distinct loss of sense of humor	Albrecht, 1979;
Inability to make decisions	Cox, 1978;
Convergent thinking	Birren, 1979;
Irritability	Albrecht, 1979; Cox, 1979; Holmen, 1979; Selye, 1976; Shaffer, 1982;
Anxiety	Caplan & Jones, 1975; Cox, 1978; Selye, 1976;
Panicky feeling	Shaffer, 1982;
Moodiness ^b	Cox, 1978; Holmen, 1979; Shaffer, 1982;
Lack of realistic plans and objectives	Holmen, 1979; Selye, 1976;
Low self-esteem	Cox, 1978; Holmen, 1979;

Table 1 cont.

Dread	Shaffer, 1982; Tuckwiller, 1980;
Depression	Everly & Rosenfeld, 1981; Gherman, 1981; McQuade & Aikman, 1974; Selye, 1976; Shaffer, 1982; Tuckwiller, 1980; Wood, 1979;
Psychoses ^c	Cox, 1978; Gherman, 1981; Selye, 1976;

Behavioral symptoms

Muscular tightness ^a	Shaffer, 1982;
Nervousness	Albrecht, 1979; Cox, 1978;
Increased startle response	Selye, 1976; Shaffer, 1982;
Sighing	Shaffer, 1982; Tuckwiller, 1980;
Incoordination	Shaffer, 1982;
Tics (spasms) ^b	Selye, 1976; Shaffer, 1982;
Tremors	Selye, 1976; Shaffer, 1982;
Overreaction to small problems	Albrecht, 1979;
Freezing, feeling immobilized	Shaffer, 1982;
Stuttering and other speech difficulties	Cox, 1978; Selye, 1976;
Accident-proneness	Cox, 1978; Holmen, 1979; McQuade & Aikman, 1974; Selye, 1976;
Hyperactivity	Albrecht, 1979; Cox, 1978; Selye, 1976; Shaffer, 1982;
Excessive smoking	Cox, 1978; Holmen, 1979; Selye, 1976;
Obesity	Cox, 1978; McQuade & Aikman, 1974;
Increased absenteeism	Cox, 1978; Gherman, 1981; Holmen, 1979; Selye, 1976;

Table 1 cont.

Increased use of drugs ^c	Cox, 1978; Gherman, 1981; Holmen, 1979; Selye, 1976;
Alcoholism	Gherman, 1981; McQuade & Aikman, 1974; Selye, 1976;

Note. The symptoms are ranked from minor to serious according to the author's interpretation.

a Minor symptoms of stress.

b Moderate symptoms of stress.

c Serious symptoms of stress.

Table 2

Frequency Distribution of the Symptoms of Chronic Stress

Categories in Table 1

Symptom category	Number of symptoms	Percentage of total
Physiological		
Skeletal-muscular framework	16	18.9%
Digestive system	13	15.3%
Cardiovascular system	9	10.6%
Miscellaneous	7	8.2%
Respiratory system	4	4.7%
Immunity system	2	2.4%
Total physiological	51	60.0%
Cognitive	17	20.0%
Behavioral	17	20.0%
Total	85	N/A ^a

^a N/A = Not applicable.

In summary, the symptoms of stress are the physiological, cognitive and behavioral responses to a stressor. When the stress is transitory, the symptoms are mostly physiological and cognitive. The physiological symptoms of transitory stress are consistent among people and these symptoms are similar to Cannon's "fight" or "flight" response. The symptoms of chronic stress are much more severe than those of transitory stress because the person takes much longer to recuperate and return to a normal activation level. Most of the symptoms of chronic stress are physiological. The physiological symptoms of chronic stress can involve the respiratory, cardiovascular, digestive and immunity systems of the body as well as the body's skeletal-muscular framework. Chronic stress can aggravate existing diseases, such as rheumatoid arthritis. Chronic stress may initiate conditions such as hypertension or ulcers.

Concept of Stress Summary

The author has investigated the concept of stress by discussing the definitions of stress, stressor and pressure, and by discussing the environmental and personal factors of stress. Three basic kinds of definitions were discussed. In the response-based definitions, stress is the person's response or pattern of response to an environmental disturbance. In contrast to these definitions of stress are the stimulus-based definitions where the environmental disturbance is viewed as stress. In the interactional definitions, stress is defined as a complex physiological, cognitive and behavioral response that occurs in a person when the person perceives that the demands of a disturbance are greater than the person's perceived ability to cope with the disturbance. The person experiences stress as an unpleasant emotion. The interactional definition of stress was selected as the definition of stress in this thesis. The environmental demands of a distur-

bance are labelled stressors or pressures. Pressures are the demands which do not create a stress response in a person. Stressors are the demands which do create a stress response in a person.

There are three major environmental stressors. The physical stressors are external factors in the person's environment that cause the person to be stressed, such as infections or noise. These stressors are usually the least damaging provided they are not too severe or repetitive. Social stressors are the second kind of major stressor. These stressors result from the interaction of a person with other people. Social stressors seem to be perpetual, inevitable, and, if traumatic, may result in death. The third group of environmental stressors are the psychosocial stressors. These stressors are the most damaging as they are a result of the person's interpretations of the person's social interactions with other people.

The personal factors of stress are the person's physiological, cognitive and behavioral responses to a stressor. The extent of the person's responses depends on the length and intensity of the stressor and the person's repertoire of coping strategies. Coping strategies are the person's cognitive and behavioral responses to a stressor. The person's physiological, cognitive and behavioral responses to a stressor are classified as the symptoms of stress. Coping strategies are the methods a person uses to adapt to, or to overcome, a stressor and return to a state of physiological, cognitive and behavioral homeostasis. The two main coping strategies are direct action and palliation. In direct action, the person controls or eliminates the stressor. In palliation, the person moderates the stress thus reducing the physiological, cognitive and behavioral effects. Coping is either effective or ineffective. Ineffective coping strategies develop from imagined stressors or from a poor choice of coping strategies. These strategies are frequently counterproductive

which make the stressful experience worse. If a person uses an effective coping strategy and the stressful experience is mild and lasts a short time, then the stress is called transitory stress. However, if a person uses ineffective coping mechanisms and the stressful experience is intense and lasts a long time, chronic stress occurs. Transitory stress results from everyday stressors and can be beneficial. The symptoms of transitory stress are basically the physiological symptoms of Cannon's "fight" or "flight" response. Once the person perceives the stressor to be no longer threatening, the person is able to relax and the body returns to a state of homeostasis. However, when a person is suffering from chronic stress, relaxation is difficult and the body is unable to return to a state of homeostasis. There are numerous symptoms of chronic stress. Most of these symptoms are physiological but there are cognitive and behavioral symptoms of chronic stress as well.

So far the discussion has been concerned with the general factors influencing stress. The discussion will now become more focussed on how these factors are demonstrated in the teaching profession.

Teacher Stress

In this portion of the literature survey, the research on teacher stress will be discussed. The environmental factors of teacher stress will be investigated first, following by the personal factors of teacher stress.

Environmental Factors of Teacher Stress

Since the environmental factors of teacher stress are numerous, the major stressors in teaching will be investigated. These major stressors will then be divided into physical, social or psychosocial environmental factors of stress. This first section on teacher stress will be prefaced by a description

of how the major stressors in teaching are determined.

To determine the major stressors of teaching listed in research articles, three criteria were used. When a study included data that indicated which stressors the sample perceived to be the most stressful, the five stressors with the highest means or percentages were taken to be the major stressors in that study. If a researcher, such as Pratt (1978), only provided stressor categories, these categories are considered to be major stressors. Finally, where a researcher, such as Bloch (1977), listed the main stressors but included no data, these stressors are considered to be major stressors.

Table 3 contains a list of 65 major perceived stressors in teaching from 13 articles that include the important research data. In some of the studies cited, some authors do not report all the important data used in their research while other authors report no data used in their research. Yet, these authors draw conclusions which they claim are data-based. One author, Der (1982) has not yet published his results. Table 4 contains a list of 77 major perceived stressors from 13 articles that include minimal or no published research data but are still considered to be data-based. The results of the stressors listed in Table 3 and Table 4 provide a total of 142 perceived major stressors in teaching from a total of 26 articles.

Because some of the 142 perceived major stressors in teaching are identical, and because there are similarities among the remainder of these major stressors, 11 categories of major stressors were tabulated.

To facilitate a discussion on these categories, they have been divided into three groups. Group I contains categories with stressors that are mentioned most frequently and are in over 46% of the 26 articles. Group II has categories with stressors that are mentioned moderately frequently and are

Table 3

Major Teacher Stressors from Articles
that Include Important Research Data

Researcher	Reported teacher stressors
Catterton (1979, p. 6)	AD1 ^{cd} - involuntary transfer
N = 1063 ^a	AD2 - notification of unsatisfactory performance
Portland, Oregon ^b	SD3 - threatened with personal injury
	SD4 - managing disruptive children
	SAL5 - preparing for a strike (5/36)
Cichon & Koff (1980, p. 96)	AD1 - involuntary transfer
N = 4934	SD2 - managing "disruptive" children
Chicago	AD3 - notification of unsatisfactory performance
	SD4 - threatened with personal injury
	OC5 - overcrowded classrooms (5/36) ^e
Dunham (1980)	Comprehensive schoolteachers in England
N = 69	TM1 - think that the amount of work done may interfere with how well it is done
England	TM2 - too heavy a workload that cannot be completed in an ordinary work-day
	RC3 - feeling of having to do things at school that is against one's better judgement

Table 3 cont.

Dunham (1980)

(cont.)

RC4.5 - conflicting demands from
colleagues, parents, students,
etc.

AD4.5 - feel unable to influence Head-
teacher's/Head of Department's
decisions and actions that
affect you (5/10).

Comprehensive schoolteachers in Germany

N = 59

RC1 - feeling of having to do things
at school that is against one's
better judgement

Germany

TM2 - too heavy a workload that cannot
be completed in an ordinary work-
day

RC3 - conflicting demands from col-
leagues, parents, students, etc.

AD4 - too little authority to carry out
responsibilities (4/10)

Fetler & Tokar (1981, p. 13)

N = 3789

Ohio and Pennsylvania

Specific stressors

SD1 - individual pupils who continually
misbehave

TM2 - too much work

RC3 - trying to uphold/maintain values
and standards

WC4 - noisy pupils

SD5 - difficult classes (5/8)

Table 3 cont.

Feshbach & Campbell (1978, p. 13) N = 27 California	S 1 TM2 AD3 P 4 WC5	- interaction with children - problem with time - interactions with administration - interactions with parents - inadequate resources and materials (5/11)
Gehrke (1979) N = 10 Beginning Secondary Teachers Arizona	RC	- personal-professional role conflicts developing from concurrent demands for time and allegiance
Kyriacou & Sutcliffe (1978b, p. 162) N = 257 England	SD1 SD2 SD3 WC4 TM5	- pupils' poor attitudes towards work - trying to uphold/maintain values and standards - poorly motivated students - covering lessons for absent teachers - too much work to do (5/51)
Kyriacou & Sutcliffe (1979) N = 218 England	SD1 SD2 SD3	- trying to maintain values and standards - students' poor attitudes towards work - individual students who always misbehave

Table 3 cont.

Kyriacou & Sutcliffe (1979) (cont.)	TM4 - too much work to do TM5 - lack of time to spend with individual students (5/14)
Mazer & Griffin (1980, p. 6) N = 747 Tacoma, Washington	AD1 - involuntarily transferred AD2 - notification of unsatisfactory performance SD3 - colleague assaulted at school SD4 - managing "disruptive" children AD5 - disagreement with a supervisor (5/44)
Needle, Griffin, & Svendsen (1981, p. 177) N = 937 Minnesota	SAL1 - contract negotiations COM2 - feeling that community does not recognize teachers as professionals S 3 - developing individual plans for students with special needs OC4 - overcrowded classrooms SD5 - managing behavior problems of children (5/19)
NYSUT Teacher Stress Survey (1979, p. 7) N = 3579 New York	SD1 - managing "disruptive" children AD2 - incompetent administrators and lack of administrative support SE3 - maintaining self-control when angry OC4 - overcrowded classrooms WC5 - first week of school (5/47)

Table 3 cont.

Pratt (1978, p. 7)	Clusters from 43 questions
N = 124 Primary Teachers	CW - staff relations
	SD - non-co-operative children
	SE - inadequate teaching
	SD - aggressive children
	TM - extra jobs
	S - concern for children's learning
Rudd & Wiseman (1962, p. 287)	SAL1 - teachers' salaries
N = 590	CW2 - poor human relations among staff
	WC3 - inadequacies of school buildings and equipment
England	OC4 - teaching load (4/9)

^a N = number of teachers in the sample.

^b Province, state or country in which the research took place.

^c The stressor category to which the author has designated the major stressor.

The names for the initials of the stressor categories are: SD = student discipline; AD = administration; TM = time management; WC = working conditions; OC = overcrowded classrooms; RC = role conflict; CW = coworkers; SE = self-esteem; S = students; COM = community; and SAL = salary.

^d The number after the initials indicates the rank order of the stressor in the research.

^e The numerator represents the number of stressors listed in Table 4 and the denominator represents the total number of stressors reported in the article. For example, 5/30 means that only five out of 30 stressors reported in the research article have been listed in this table.

Table 4

Major Teacher Stressors from Articles that Include
Minimal or No Published Research Data

Researcher	Reported teacher stressors
B.C.T.F. Ad Hoc Committee (1980, p. 4)	Elementary teachers
N = 1760 ^a	SD ^c - disruptive students
British Columbia ^b	TM - lack of preparation time
N = 907	TM - lack of time to spend with students
	SD - supervision demands
	TM - too much paperwork (5/30) ^d
	Secondary teachers
	SD - disruptive students
	SD - inadequate disciplinary policy of school
	TM - lack of time to spend with individual students
	WC - noise level of classrooms
	TM - too much paperwork (5/30)
Bloch (1977)	SD - anxiety about campus violence
N = 253	SD - lack of preparedness (to deal with school violence)
California	AD - difficulty in reporting incidents
	OC - overcrowded classrooms
	AD - poor leadership and eventual breakdown of morale
	AD - difficulties getting transfers out of stressful areas

Table 4 cont.

Brodsky (1977)	With students:
N = 31	SD - disorder associated with unruly students
California	SD - a single unruly student that must be kept
	SD - threat of violence by a student (3/5)
	With coworkers:
	CW - competition for choice slots and assignments
	CW - personality clashes (2/4)
	With superiors:
	AD - favoritism
	AD - claims of harassment to have teachers do things they can't do
	AD - pressure to force teachers to resign or transfer (3/8)
Coates & Thoresen (1976, p. 165)	TM - time demands
	SD - difficulties with pupils
Literature survey	OC - large class enrollments
	WC - financial constraints
	WC - lack of educational resources
Cruickshank, Kennedy, & Myers	S 1 ^e - wanting to vitalize my students'
(1974, p. 156-158)	interests in learning and improve their achievement

Table 4 cont.

Cruickshank, Kennedy, & Myers	SD2 - wanting to get students to behave
(1974) (cont.)	TM3 - time to get professional and
N = 310 (Secondary)	personal things accomplished
20 States in U.S.	S 4 - wanting to help students who have problems
	SE5 - wanting to feel good about myself as a teacher (5/11 main headings)
Der (1982)	Specific stressors
N = 564	Urban (p. 17)
British Columbia	AD1 - involuntary transfer
	AD2 - notification of unsatisfactory performance
	SD3 - colleague assaulted in school
	SD4 - threatened with personal injury
	SD5 - managing disruptive children (5/47)
N = 587	Rural (p. 19)
	AD1 - involuntary transfer
	AD2 - notification of unsatisfactory performance
	SD3 - colleague assaulted in school
	SD4 - managing disruptive students
	OC5 - overcrowding (5/47)
	Three most stressful recurring events
	Urban (p. 23)
	SD1 - student discipline
	TM2 - routine paperwork

Der (1982)	CW3 - teacher incompatibility
(cont.)	AD4 - teaching assignment
	SE5 - personal concerns (5/17)
	Rural
	SD1 - student discipline
	TM2 - preparation and planning
	CW3 - teacher incompatibility
	AD4 - teaching assignment
	TM5 - routine paperwork (5/17)
Dunham (1976)	AD - re-organization of schools
N = 810	RC - role conflict
	RC - role ambiguity
England	WC - poor working conditions
Keith (1978)	RC - role ambiguity, conflict and role
N = 32 Temporary Teachers	overload are more likely to be
over 3 Years	perceived as job difficulties by
N = 40 Permanent Teachers	temporary teachers than by
over 3 Years	permanent teachers
United States	
Olander & Farrell (1970)	TM1 - finding time for individual and
N = 967 Elementary Teachers	remedial work
	TM2 - no daily preparation period
Pittsburgh, Pennsylvania	AD3 - obtaining funds to buy extra
	classroom aids

Table 4 cont.

Olander & Farrell (1970) (cont.)	TM4.5 - finding time for creative teaching and/or experimenting TM4.5 - doing schoolwork at home (5/12)
Parkay (1979) N = 21 Chicago	SD - student-teacher conflict
Rathbone & Benedict (1980) N = 3 Junior High School Teachers New England States, U.S.A.	Stressor headings CW - causes related to staff AD - causes related to administrators COM - causes related to community WC - causes related to the nature of the job
Sparks (1979) N = 44 Wayne County, Michigan	SE - feelings of powerlessness AD - poor teacher/administrator relations RC - role conflicts
Teachers' View of Teaching (1971, p. 103) N = Not given (Opinion Poll) United States	OC1 - large class size TM2 - insufficient time for rest or preparation COM3 - lack of public support for schools SAL4 - inadequate salary TM5 - insufficient help (5/19)

Table 4 cont.

^a N = number of teachers in the sample.

^b Province, state or country in which the research took place.

^c The stressor category to which the author has designated the major stressor.

The names for the initials of the stressor categories are: SD = student discipline; AD = administration; TM = time management; WC = working conditions; OC = overcrowded classrooms; RC = role conflict; CW = coworkers; SE = self-esteem; S = students; COM = community; and SAL = salary.

^d The numerator represents the number of stressors listed in Table 4 and the denominator represents the total number of stressors reported in the article.

For example, 5/30 means that only five out of 30 stressors reported in the research article have been listed in this table.

^e The number after the initials indicates the rank order of the stressor in the research.

in 23-35% of the articles. Group III consists of categories with stressors that are mentioned occasionally and are in 15-20% of the articles. There are no categories of stressors that are mentioned in 1-14%, 21-22% or 36-45% of the 26 articles.

In Group I, the three stressor categories are concerned with student discipline, teacher relations with administration, and problems with time management. Concerns with student discipline is the most prevalent stressor category. Student discipline involves items in articles such as "managing disruptive children" (Cichon & Koff, 1980, p. 96; Der, 1982; Mazer & Griffin, 1980); "individual students who continually misbehave" (Feitler & Tokar, 1981, p. 12); and "threatened with personal injury" (Catterton, 1979, p. 6; Cichon & Koff, 1980). Problems related to administration is the second most common stressor category. Some examples of items included under this stressor are "interactions with administration" (Feshbach & Campbell, 1978, p. 13) and "involuntary transfer" (Catterton, 1979, p. 6; Cichon & Koff, 1980; Der, 1982; Mazer & Griffin, 1980). The third stressor category deals with time management problems. Examples of items under this category heading are "time demands" (Coates & Thoresen, 1976, p. 165); "time to get professional and personal things accomplished" (Cruickshank, Kennedy, & Myers, 1974, p. 155); and "no preparation time" (B.C.T.F. Ad Hoc Committee, 1980; Olander & Farrell, 1970).

Group II has three stressor categories which are in 23-25% of the articles and are mentioned in these articles moderately frequently. The three categories are working conditions, overcrowded classrooms and role conflict. Working conditions is the stressor category of Group II which is mentioned most often in the research articles. Some examples of items included in this category are "noise level of classrooms" (B.C.T.F. Ad Hoc Committee, 1980,

p. 4; Feitler & Tokar, 1981) and "lack of educational resources" (Coates & Thoresen, 1976, p. 165). The next stressor category is "overcrowded classrooms" (Bloch, 1977; Cichon & Koff, 1980; Der, 1982; NYSUT, 1979; Teachers' view of teaching, 1971; Needle, Griffin, & Svendsen, 1981). Role conflict is the last stressor category in Group II. Role conflict may arise when a teacher has difficulty changing from the role in private life to the professional role. Examples of role conflict stressors are personal-professional role conflicts developing from concurrent demands for time and allegiance (Gehrke, 1979) and the feeling of having to do things at school that are against one's better judgement (Dunham, 1980).

Group III has five stressor categories. These stressors are mentioned occasionally and are in 15-20% of the articles. The five categories are interactions with coworkers; self-esteem; interactions with students and with the community; and problems relating to salary. The first stressor category is interactions with coworkers. Two examples of this category are "teacher incompatibility" (Der, 1982, p. 23) and "poor human relations among staff" (Rudd & Wiseman, 1962, p. 287). Teacher self-esteem, the second stressor category, deals with how teachers see themselves as teachers. An example is "wanting to feel good about myself as a teacher" (Cruickshank et al., 1974, p. 157). Teacher interactions with students is the third category. This category is different from that of student discipline since the stressors reflect concerns by teachers about students' difficulties, such as "wanting to help students who have problems" (Cruickshank et al., 1974, p. 156) and "interaction with children" (Feshbach & Campbell, 1978, p. 13). The fourth stressor category in Group III involves teacher interactions with the community. Two examples of this stressor are "interactions with parents" (Feshbach & Campbell, 1978, p. 13) and "feeling that [the] community does not recognize

teachers as professionals" (Needle et al., 1981, p. 177). Problems relating to salary form the last stressor category in Group III. Two examples of this category are "contract negotiations" (Needle et al., 1981, p. 177) and "inadequate salary" (Teachers' view of teaching, 1971, p. 103).

Table 5 provides a more detailed breakdown of the major perceived teacher stressor categories as tabulated from Table 3 and Table 4. In Table 5, the first column gives the number of articles that list one or more stressors in the stressor category. For instance, Bloch (1977) lists two student discipline stressors but for the first column of Table 5, Bloch's article is one of 16 articles that list one or more student discipline stressors. However, the third column in Table 5 includes all the student discipline stressors listed in all the articles. Now, the two student discipline stressors Bloch (1977) listed are included in this column and form two out of a total 37 student discipline stressors that are listed in 16 articles.

Table 3 contains a list of the major perceived stressors in teaching from 13 articles that include important research data. Table 4 contains a list of the major perceived stressors in teaching from 13 articles that include minimal or no published research data but are still considered to be data-based. All the teachers in the samples are practicing teachers. The stressors in Table 3 and Table 4 are arranged in rank order wherever possible. Each major stressor is prefaced by the initial of the stressor category which was designated as the major stressor.

Table 5

Summary of the Three Groups of Major Teacher Stressor Categories
in 26 Articles

Stressor category	Number of articles that list a stressor in the category	Percentage of the 26 articles	Number of stressors listed in the category
Group I			
Student discipline	16	61.5%	37
Administration	13	50.0%	27
Time management	12	46.2%	25
Group II			
Working conditions	9	34.6%	10
Overcrowded classrooms	8	30.8%	8
Role conflict	6	23.1%	10
Group III			
Co-workers	5	19.2%	7
Self-esteem	5	19.2%	5
Students	4	15.4%	5
Community	4	15.4%	4
Salary	4	15.4%	4
Total			142

Note: The stressor categories are ordered according to the number of articles that list the stressor.

So far, the environmental factors of teaching have been presented by listing the major stressors as reported in 26 research articles, and then by dividing these major stressors into categories. Using the data from the 11 stressor categories in Table 5, the discussion will focus on which stressor categories in teaching are physical, social or psychosocial stressors.

As mentioned earlier in this chapter, frequent social stressors in the work environment involved interactions with one's boss, coworkers and clients (Albrecht, 1979). Using these criteria of frequent social stressors, the stressor categories of problems with student discipline, administration, coworkers, students and community have been designated as the social stressors of teaching. Problems relating to salary have also been included because most of these items deal with salary negotiations and teachers are usually kept informed about negotiations through teacher bulletins. Indirectly, the teachers are dealing with other people. The major stressors in these stressor categories account for 59.2% of the 142 listed major stressors in Tables 3 and 4. This percentage of social stressors in teaching corresponds to Antonovsky's (1979) suggestion that the social environment is inevitably and continually stressful as well as Groen's and Bastiaans' (1975) statement "that the most common stress for man is the threatening actions or words of one or more of his fellow men" (p. 30).

Most of the remaining five stressor categories appear to be psychosocial stressors. Examples of psychosocial stressors in work environments are deadlines, extreme accountability for high-risk tasks, ego risk such as fear of loss of status, expectations of disapproval from one's peers or one's superiors and expectations of failure (Albrecht, 1979). Morse and Furst (1979) write that psychosocial stressors are usually the most damaging stressors since a person can induce and perpetuate these stressors. Teacher time management problems would involve deadlines created by the teacher,

administration, students, coworkers and community. Problems with self-esteem which a teacher may encounter, are similar to ego risk such as fear of loss of status if a teacher is not seen as a good teacher by administration, coworkers, students or the community. Problems with role conflict between a teacher's home life and professional life may precipitate fear of loss of status or expectations of failure. The three psychosocial stressor categories of teaching, then, are problems with time management, role conflict and self-esteem. The psychosocial stressors of teaching account for 28.2% of the 142 major teaching stressors in Tables 3 and 4.

The smallest number of teacher stressors appear to be physical stressors. Examples of physical stressors in the work environment are excessive amounts of heat, cold, noise, illumination and vibration (Albrecht, 1979; Cox, 1978). Physical stressors are usually the least damaging to a person unless these stressors are severe and repetitive (Morse & Furst, 1979). The two teacher stressor categories that have been classified as physical stressors are working conditions and overcrowded classrooms. Major teacher stressors listed under the working conditions category deal with noisy pupils or lack of physical supplies. Overcrowded classrooms are physical stressors because teachers and students are likely to be physically restricted compared to students and teachers in classrooms that are not overcrowded. The physical stressors amount to 12.8% of the 142 major stressors.

There may be minimal overlap between social and psychosocial stressors in teaching. However, the differences in percentages between the three major stressors are so large as to substantiate that most stressors in teaching are social stressors and that only a few stressors are physical. The psychosocial stressors form a considerably smaller proportion of the stressors than do social stressors. Since psychosocial stressors seem to be the most damaging stressors, their effect on teachers may be as detrimental as the

larger number of social stressors. Table 6 provides a more detailed analysis of the social, psychosocial and physical stressors in teaching.

Table 6
Identification and Proportion of Social, Psychosocial,
and Physical Stressors in Teaching

Environmental factors	Number of times the stressor is listed in references	Total	Percentage of the 142 major stressors
Social stressors			
Student discipline	37		26.1%
Administration	27		19.0%
Co-workers	7		4.9%
Students	5		3.5%
Community	4		2.8%
Salary	4		2.8%
Subtotal		84	59.2%
Psychosocial stressors			
Time management	25		17.6%
Role conflict	10		7.0%
Self-esteem	5		3.5%
Subtotal		40	28.2%
Physical stressors			
Working conditions	10		7.0%
Overcrowded classrooms	8		5.6%
Subtotal		18	12.8%
Total		142	

Summary. In the first portion of the literature survey on teacher stress, the environmental factors of teacher stress were investigated. The author investigated 26 research based articles on teacher stress and classified 11 categories of major environmental teaching stressors. Almost 60% of these stressor categories were considered to be social stressors while about 28% of the categories were considered to be psychosocial stressors. Only 13% of the stressor categories appeared to be physical stressors. The three most prevalent categories of major stressors in teaching are problems with student discipline, administration and time management.

Personal Factors of Teacher Stress

In the second portion of this survey of teacher stress the personal factors of teacher stress will be investigated. The personal factors are divided into the coping strategies that teachers use in response to their perceived stress and the symptoms of stress that teachers experience. Literature on teachers' coping strategies will be reviewed first.

Coping strategies. To review, direct action and palliation are the two main coping strategies (Cox, 1978; Dewe et al., 1979; Lazarus, 1974; Pines et al., 1981). Direct action is the person's behavior that controls or eliminates the stressor (Lazarus, 1966). The three kinds of direct action are aggression, avoidance or escape, and preparation against harm (Cox, 1978). Palliation, or indirect action, is the person's behavior that moderates the stress caused by the stressor. The two types of palliation are symptom-directed palliation and intrapsychic palliation (Cox, 1978). All coping is either effective to some degree or ineffective (Shaffer, 1982). Effective coping eliminates or reduces the stressful experience until it is no longer threatening. Ineffective coping does not reduce the stressful experience (Shaffer, 1982).

The research on direct action as a coping strategy employed by teachers indicates that the most widely used method is preparation against harm. The most frequently cited method in research articles on teacher stress is verbalization. When verbalization involves finding solutions to stressful events, the teacher is preparing against harm. Verbalization includes informal communication with one's family members, friends, staff, superiors, or students to get advice and support about problems at work (Der, 1982; Feitler & Tokar, 1981; Maslach, 1976; NYSUT, 1979). Verbalization also includes formal get-togethers with other staff to discuss the problems, seek advice and support as well as to develop strategies to reduce stress (Maslach, 1976; Schwartz, 1976). Feitler and Tokar (1981) found that 72.8% of their sample (N = 3789) talked with a friend while 20% sought a superior's advice for their problems. Talking with a friend rated as the highest form of direct coping in this study. In Der's study (1982), verbalization ranked second out of 10 methods for teachers in urban and in rural schools. Sparks and Ingram (1979) use a workshop approach for teachers where the sources of job-related stress and satisfaction are discussed and then identified so that a plan can be developed that will help alleviate stress.

There are other forms of direct coping through preparation against harm. Der (1982) found that "trying to cope" through planning, thinking positively, compromising, continuing work, trying again, or doing one's best, ranked first out of the 10 intervention methods for teachers in urban and rural schools (p. 25). "Thinking about alternatives" ranked second in the study by Feitler and Tokar (1981, p. 16). In a four year longitudinal study of 10 beginning secondary teachers Gehrke (1979) found that teachers coped with role conflict between their job and home life by adopting one of four methods. Two of the four methods are accepting one role as primary and flexibly balancing time and allegiance to both roles. These two methods can be con-

sidered forms of direct coping through preparation against harm. The other two methods advanced by Gehrke (1979) will be discussed under avoidance and intrapsychic coping strategies.

Avoidance or escape strategies appear to be the second most commonly used form of direct coping by teachers. Der (1982) reports that avoiding or escaping from a stressor ranks third in his list of 10 intervention methods. Examples that Der cites are ignoring the stressor, procrastinating, putting less effort into dealing with the stressor, withdrawal, and forgetting about the stressor. Feitler, and Tokar (1981) list two forms of coping through avoidance or escape. Ranting and raving at one's family is ranked second as a destructive coping mechanism and is used by 27.7% of the sample. Taking a sick day in order to relax is used by 16% of the sample and is ranked fourth as a method of direct coping. The New York Union of Teachers' teacher stress survey (1979) cites complaining, crying and doing nothing as methods of coping that teachers use. Finally, Gehrke (1979) found that another method teachers use to cope with role conflict is to abandon their professional role or their family role.

Aggression seems to be the least cited form of direct coping employed by teachers. One strategy that Der (1982) mentions, under the heading "trying to cope", is "taking action" (p. 25). Since Der does not list "taking action" as an avoidance mechanism, it can be considered as an aggressive mechanism. In a longitudinal study of six teachers from 1971 to 1975, Schwartz (1976) reports that sometimes teachers cope with stressful events by "arbitrarily making decisions that directly or indirectly affect others in the setting" (p. 3541). The strategies of coping cited by Der and Schwartz appear to be the strategies closest to aggression cited in the research articles.

Palliation is the second of the two main coping strategies. The symptom-

directed strategies of palliation that teachers use include exercising, developing personal interests such as hobbies or doing something with the family (Der, 1982; Feitler & Tokar, 1981; NYSUT, 1979), smoking, eating excessively (Der, 1982; Feitler & Tokar, 1981), using alcohol (Der, 1982; Sadava, Thistle, & Forsyth, 1978), developing friends outside of teaching, prayer, meditation (Feitler & Tokar, 1981) and developing time management skills (Der, 1982). Perhaps the most distinctive research dealing with the symptom-directed strategies of palliation is by Sadava et al. (1978). In a study that involved 238 teachers, 65 factory workers and 65 nurses, these authors found that high stress tends to be accompanied by increased use of alcohol and drugs.

Research on the intrapsychic strategies of palliation is limited to four authors. Schwartz (1976) observes that denial is used by teachers in his research. Maslach (1976) mentions that distancing oneself in a variety of ways from children is frequently used by staff in child-care centres. Gehrke (1979) mentions that new teachers may cope with role conflict by accepting the new teacher myth of temporary stress. Finally, Feitler and Tokar (1981) discuss a variety of psychological coping mechanisms. The three most commonly used psychological strategies in their research are "think about how you could have responded differently [to a stressful experience] (63.8%); look ahead to when it [the stressful experience] will be over (48.2%); think about how things could be worse (45.7%)" (p. 17).

Data based research on the coping strategies employed by teachers is minimal. In the literature survey for this thesis, six data-based research articles were found that deal with the coping strategies that teachers actually use. More research is available on experimental strategies of coping where teachers are instructed how to use a new strategy. The researchers then

study the effects of the experimental strategies to see if these strategies reduce teacher anxiety or stress. For this thesis, eight such articles have been reviewed. These experimental strategies will now be examined as effective or ineffective coping strategies.

There are three groups of effective coping strategies. The first group to be discussed contains the most effective coping strategies. These appear to be strategies where the teacher learns and uses some form of relaxation skills. In an extensive literature review, Coates and Thoresen (1976) found that one of the most promising strategies is a combination of systematic desensitization and relaxation strategies. In a study of two teachers, Guziki, Coates, and Goodwin (1980) observed that cue-controlled relaxation appeared to reduce teacher anxiety while the teacher is teaching. Hannum, Thoresen, Alper, Barrick, and Jacks (1976) did a longitudinal study of two teachers and noted that systematic desensitization resulted in more teachers perceiving changes in regards to their anxiety. In a study of 30 preservice teachers, Hiebert (1982) observed that students who participated in relaxation by taking a workshop, reading about the relaxation skills and practicing the skills "came to view themselves as less anxious people who, during a time of high pressure, were able to cope and not become more anxious by the increased demand" (p. 8). Similarly, Landwehr (1980) in a study of 39 teachers, reported that a combination of a group of teachers who read about stress reduction methods, and a group of teachers who were given training and tapes on self-applied relaxation, resulted in a significant difference in the reduction of trait-anxiety compared to the control or nontreatment group.

Classroom and interpersonal skills training form the second group of effective coping strategies. Coates and Thoresen (1976) observed in their

survey of literature that "experiences designed to provide student teachers with specific instruction in classroom techniques" (p. 175) may reduce teacher anxiety. Willson's (1978) research on 8 perservice teachers provides the most objective data regarding coping strategies. Willson discovered that classroom interpersonal skills training significantly reduced the cardiac response rate of the students. Robinson and Wilson (1980) studied a human relations training program with 103 Grade 2 and Grade 5 teachers. The results suggest that this program, made up of films and hours of instruction, increased the skill level of teachers' interpersonal functioning and their level of self-esteem. The authors felt that the results indicated that this program could be an effective tool to combat teacher burnout, or extreme stress, because the teachers felt better about themselves when successfully using the human relations strategies.

The third group of effective coping strategies consists of miscellaneous strategies. Maslach (1976) found that formal or informal get-togethers of the child-care centre staff to discuss problems and to get advice and support was productive. Schwartz (1976) supports Maslach's research. Schwartz suggests that collective decision-making by teachers that leads to stress-reducing organizational changes is beneficial. Hannum, Thoresen, and Hubbard (1974) did a behavior study of self-esteem with three volunteer teachers. The authors found that the process of positive intervention effectively increased the teacher's positive thoughts. In this process, a recognizable stimulus cue, such as a sticker on a clock, was developed to remind the teacher to think positively. Positive intervention appears to be an effective coping strategy since positive intervention reduces the teacher's negative thoughts which are frequently stress producing. Finally, Needle et al. (1981) found that a

coping strategy called positive comparisons "significantly reduced the impact of stress on general well being and somatic complaints" of the 937 teachers in the sample (p. 180). However, positive comparisons did not affect teachers with chronic conditions. Needle et al. (1981) describe positive comparisons as a "perceptual device intended to control the meaning of the problem" (p. 178).

There is less research on ineffective coping strategies of teaching than on effective coping strategies. Der (1982) classifies eating, smoking, sleeping, and the use of alcohol as negative coping strategies. Feitler and Tokar (1981) list eating excessively, ranting and raving at one's family, and smoking as destructive coping. Maslach (1976) states that distancing oneself from children is an unproductive strategy. Schwartz (1976) lists three damaging coping strategies: psychological strategies such as denial; arbitrary decisions that directly or indirectly affect others in the setting; and relying on a few friends for support.

There is little data based research available that uses statistical analysis to show ineffective coping strategies. One study indirectly implies that some coping strategies are not effective. Needle et al. (1981) found that three coping strategies did not reduce the effect of stress on a teacher's health. "Optomistic action" is the first ineffective strategy and to use it the person looks for positive aspects of teaching. The second ineffective coping strategy is "substitution of rewards." In this strategy the person makes the most of the positive aspects of teaching and minimizes the negative aspects. Third, "selectively ignoring problems" is a self-explanatory ineffective coping strategy.

In this first section of the personal factors of teacher stress, coping strategies used by teachers were discussed. Preparation against harm is the

most commonly used method of direct action as a coping strategy. Teachers seem to use verbalization most frequently as preparation against harm. Avoidance or escape strategies seem to be the second most commonly used method of direct action while use of aggression is the least cited method. Teachers use a variety of symptom-directed strategies of palliation such as exercises, developing personal interests, smoking and eating excessively. Intrapsychic coping strategies include denial, distancing, accepting the new teacher myth of temporary stress and a variety of psychological coping mechanisms. There are three groups of effective coping strategies. The most effective strategies involve the teacher using some form of relaxation skills. The second group is made up of classroom and interpersonal skills training. The third group consists of miscellaneous effective coping strategies. Ineffective coping strategies include eating, smoking, distancing, and denial. Generally, the research on coping strategies of teachers is minimal in regard to the effectiveness of coping strategies. Needle et al. state that "the question of how effective these coping strategies are in reducing stress has only begun to be addressed by researchers" (p. 178).

Symptoms of teacher stress. In this section on the personal factors of teacher stress, the problems encountered with the available research will be discussed. Then the physiological, cognitive, and behavioral symptoms of stress experienced by teachers will be investigated. An investigation of the prevalent, specific symptoms of stress experienced by teachers will conclude this section on the personal factors of teacher stress.

The research on the symptoms of stress experienced by teachers is relatively recent. Of the 20 articles that contain any research material on the symptoms of teacher stress, only an article by Bentz, Hollister, and Edgerton (1971) was published prior to 1976. Simpson (1976) discusses research he did in 1962.

Besides being relatively recent, the research on the symptoms of stress experienced by teachers provides limited data. Of the 20 research articles, only six researchers include descriptive data from their research (Bentz et al., 1971; Bloch, 1978; Dunham, 1980; Feitler & Tokar, 1981; Kyriacou & Sutcliffe, 1978b; Needle et al., 1981). The remaining 14 researchers list or mention the symptoms of stress which they found in their studies. In some of the articles such as Catterton's (1979) and Mazer and Griffin's (1980), research of the symptoms of stress experienced by teachers is secondary to the study of teacher stressors.

The research indicates that most of the symptoms of stress experienced by teachers are physiological. Physiological symptoms account for 59.1% of the specific symptoms listed in Table 10. This percentage is very close to the percentage of physiological symptoms listed in Table 1. Table 1 is representative of a general population rather than a specific group of people. In Table 1, physiological symptoms of chronic stress accounted for 60% of the total number of symptoms listed. Cognitive symptoms of stress experienced by teachers comprise almost 35% of the total symptoms listed whereas behavioral symptoms amount to only 6% of the total symptoms. In the general population, the cognitive and behavioral symptoms of stress each account for 20% of the total number of symptoms listed. Teachers appear to have 15% more cognitive symptoms of stress than the general population and 15% less behavioral symptoms of stress than the general population. The large differences in the percentages could partly be attributed to the small amount of research available on the symptoms of stress experienced by teachers. However, of the three groups of symptoms, the cognitive symptoms of stress that teachers experience are reported in 75% of the research articles which lends some credibility to the higher percentage of cognitive symptoms of stress experienced by teachers than the general population. Furthermore, the differences in the

percentages seem large enough to indicate that teachers experience more cognitive symptoms of stress and less behavioral symptoms of stress than people do generally. A more detailed breakdown of the percentages of the symptoms of stress teachers experience is provided in Table 7. Table 8 compares the symptoms of stress experienced by teachers with the symptoms of stress experienced by the general population of Table 1.

Table 7

Frequency Distribution of Stress Symptoms Teachers Experience
and the Number of References Reporting the Symptoms

Symptom category	Number of symptoms	Percentage of total	Total number of separate references	Percentage of total
Physiological				
Digestive system	10	15.2%	6	30%
Skeletal-muscular framework	9	13.6%	7	35%
Cardiovascular system	8	12.1%	5	25%
Miscellaneous	6	9.0%	9	45%
Respiratory system	4	6.0%	3	15%
Immunity system	2	3.0%	4	20%
Total	39	59.1%	N/A	N/A
Cognitive	23	34.8%	15	75%
Behavioral	4	6.0%	7	35%
Total	66	N/A ^a	N/A	N/A

Maximum number of separate studies as references = 20.

^a N/A = Not applicable

Table 8
Symptoms of Stress Experienced by
Teachers Compared to the General Population

Symptom category	Teachers	General population	Difference ^a
Physiological			
Digestive system	15.2%	15.3%	- 0.1%
Skeletal-muscular framework	13.6%	18.9%	- 5.3%
Cardiovascular system	12.1%	10.6%	+ 1.5%
Miscellaneous	9.0%	8.2%	+ 0.8%
Respiratory system	6.0%	4.7%	+ 1.3%
Immunity system	3.0%	2.4%	+ 0.6%
Total physiological	59.1%	60.0%	- 0.9%
Cognitive	34.8%	20.0%	+14.8%
Benavioral	6.0%	20.0%	-14.0%
Total number of symptoms	66	85	-19

^a The "Difference" is found by subtracting the results of the symptoms of stress experienced by the general population from those experienced by teachers.

There appears to be eight prevalent specific symptoms of stress experienced by teachers. The four prevalent physiological symptoms of stress experienced by teachers are exhaustion, insomnia, headaches and indigestion. Exhaustion and insomnia are classified as "miscellaneous symptoms" in Table 8. Headaches belong to the "skeletal-muscular framework symptoms" category while

indigestion belongs to the "digestive system symptoms" category. The three prevalent cognitive symptoms of stress experienced by teachers are irritability, depression, and anxiety. Absenteeism is the only prevalent behavior symptom of stress. Table 9 provides a more detailed analysis of the prevalent symptoms of stress experienced by teachers.

Table 9

Frequency, Rank Order Ratings and Average Rank Order of the
Prevalent Symptoms of Stress Experienced by Teachers

Symptom	Number of references	Rank order ratings (when provided)	Rank order rating average
Physiological			
Miscellaneous			
Exhaustion	7	1, 4	3
Insomnia	4	7, 7	7
Skeletal-muscular framework			
Headaches	6	3, 5, 6, 9	6
Digestive system			
Indigestion	4	5, 15	10
Cognitive			
Irritability	4	1, 1, 1	1
Depression	6	2, 3, 4, 7	4
Anxiety	6	2, 6	4
Behavioral			
Absenteeism	6	N/P ^a	N/P

^a N/P = Information not provided.

There appears to be more prevalent physiological symptoms of stress experienced by teachers than cognitive or behavioral symptoms. However, research suggests that the prevalent cognitive symptoms of stress may play as important a role as do the prevalent physiological symptoms since depression and anxiety are reported in six articles and have a fairly high average rank order. Although irritability is listed in only four articles, the very high average rank order indicates that this symptom is significant. The eight prevalent symptoms of stress that teachers experience do not appear to be serious chronic symptoms. However, of the eight symptoms, depression is likely the most serious symptom, thus attaching added importance to the cognitive symptoms of stress experienced by teachers.

Numerous other symptoms of teacher stress are reported in the 20 research articles. Since these symptoms are mentioned by three researchers or less, these symptoms are considered to be less researched and perhaps less prevalent than the eight symptoms of teacher stress that have just been discussed. However, all the symptoms of stress recorded by the 20 researchers have been listed in Table 9. The total number of symptoms of stress experienced by teachers is less than those experienced by the general population. There are 66 symptoms of stress experienced by teachers listed in Table 10 compared to 85 symptoms experienced by the general population listed in Table 1.

Table 10

Summary of Symptoms of Stress Experienced by Teachers

Physiological symptoms	References
Skeletal-muscular symptoms	
Headaches ^a	Bloch, 1978 (N ^d = 253); Brodsky, 1977 (N = 31 teachers, 21 prison guards); Dunham, 1980 (N = 69 English

Table 10 cont.

	teachers, R = 3 ^e , 37% ^f ; N = 59 German teachers, R = 6, 28%); Feitler & Tokar, 1981 (N = 3789, R = 5, 41%); Kyriacou & Sutcliffe, 1978b (N = 257, R = 9); NYSUT, 1979 (N = 3579);
Neckaches	Brodsky, 1977;
Shoulder aches	Brodsky, 1977;
Arm aches	Brodsky, 1977;
Backaches	Bloch, 1978; Brodsky, 1977;
Excess sweating	Feitler & Tokar, 1981 (R = 10, 12%);
Migraine headaches ^b	Bloch, 1978;
Skin problems	Bloch, 1978; Brodsky, 1977; Feitler & Tokar, 1981 (R = 12, 7%);
Arthritis ^c	Needle et al., 1981 (N = 937, R = 3, 7%);
Respiratory system symptoms	
Lung or breathing problems ^a	Needle et al., 1981 (N = 937, R = 4, 6%);
Chest oppression and pain	Feitler & Tokar, 1981 (N = 3789, R = 9, 12%);
Frequent bronchial infections ^b	Bloch, 1978 (N = 253);
Asthma	Bloch, 1978; Needle et al., 1981 (R = 9, 3.4%);
Cardiovascular system symptoms	
Changes in blood pressure ^a	Brodsky, 1977 (N = 31 teachers, 21 prison guards);

Table 10 cont.

High blood pressure ^b	Kyriacou & Sutcliffe, 1978b, (N = 257, R = 13); Needle et al., 1981 (N = 937, R = 1, 12%); NYSUT, 1979 (N = 3579);
Hypertension	Bloch, 1978 (N = 253);
Heart Palpitations	Bloch, 1978;
Anemia	Needle et al., 1981 (R = 8, 3.6%);
Arrhythmia	Brodsky, 1977; Kyriacou & Sutcliffe, 1978b (R = 10);
Atherosclerosis ^c	Bloch, 1978;
Coronary heart disease	Bloch, 1978; Needle et al., 1981 (R = 11, 2.3%);
Digestive system symptoms	
Burning ^a	Bloch, 1978 (N = 253)
Diarrhea	Bloch, 1978;
Change in eating habits	Brodsky, 1977 (N = 31 teachers, 21 prison guards); Feitler & Tokar, 1981 (N = 3789, R = 8, 16%);
Nausea	Bloch, 1978;
Abdominal cramping	Bloch, 1978; Feitler & Tokar, 1981 (R = 6, 29%);
Indigestion	Brodsky, 1977; Kyriacou & Sutcliffe, 1978b (N = 257, R = 15); Needle et al., 1981 (N = 937, R = 5, 4%); NYSUT, 1979 (N = 3579);
Urinary problems ^b	Brodsky, 1977; Needle et al., 1981 (R = 2, 11%);
Bowel difficulties	Brodsky, 1977;
Stomach ulcers	Bloch, 1978; Needle et al., 1981 (R = 6, 4%);

Table 10 cont.

Ulcerative colitis	Bloch, 1978; Needle et al., 1981 (R = 10, 3.2%)
Immunity system symptoms	
Allergies ^a	Bloch, 1978 (N = 253);
Physical illness	Der, 1982 (N = 1151); Catterton, 1979 (N = 1063); Rathbone & Benedict, 1980;
Miscellaneous symptoms	
Loss of voice ^a	Kyriacou & Sutcliffe, 1978b (N = 257, R = 12);
Exhaustion ^b	Dunham, 1977; Feitler & Tokar, 1981 (N = 3789, R = 4, 45%); Kyriacou & Sutcliffe, 1978b (R = 1); Mazer & Griffin, 1980 (N = 744); NYSUT, 1979 (N = 3579); Rathbone & Benedict, 1980 (N = 3); Schwab & Iwaniki, 1982 (N = 469);
Insomnia	Brodsky, 1977 (N = 31 teachers, 21 prison guards); Feitler & Tokar, 1981 (R = 7, 20%); Needle et al., 1981 (N = 937, R = 7, 3.8%); NYSUT, 1979;
Sexual problems	Brodsky, 1977;
Blurring of vision	Brodsky, 1977;
Cognitive symptoms	
Under stress ^a	Kyriacou & Sutcliffe, 1978b (N = 257, R = 3);
Frustration	Kyriacou & Sutcliffe, 1978b (R = 2);
Loss of sense of humor	Dunham, 1980 (N = 69 English teachers, R = 4, 36%; N = 59 German teachers,

Table 10 cont.

	R = 6, 28%);
Inability to concentrate	Brotsky, 1977 (N = 31 teachers, 21 prison guards); Dunham, 1980 (English R = 6, 30%; German R = 2, 42%);
Forgetfulness	Dunham, 1980 (English R = 6, 30%; German R = 6, 28%);
Rumination	Brotsky, 1977;
Irritability	Brotsky, 1977; Dunham, 1977; Dunham, 1980 (English R = 1, 50%; German R = 1, 54%); Feitler & Tokar, 1981 (N = 3789, R = 1, 59%);
Hypersensitivity to criticism	Dunham, 1980 (English R = 5, 32%; German R = 5, 30%);
Cynical, complaining	Rathbone & Benedict, 1980;
Anger	Kyriacou & Sutcliffe, 1978b (R = 4); Rathbone & Benedict, 1980 (N = 3);
Tension	Kyriacou & Sutcliffe, 1978b (R = 5); NYSUT, 1979 (N = 3579);
Anxiety	Brotsky, 1977; Coates & Thoresen, 1976; Feitler & Tokar, 1981 (R = 2, 58%); Kyriacou & Sutcliffe, 1978b (R = 6); Mazer & Griffin, 1980 (N = 744); NYSUT, 1979 (N = 3579);
Panicky feeling	Kyriacou & Sutcliffe, 1978b (R = 14);
Apathy	Dunham, 1980 (German R = 5, 30%);
Moodiness ^b	Dunham, 1980 (English R = 5, 32%; German R = 3, 34%);

Table 10 cont.

Low self-esteem	Doherty, 1980 (N = 174 student teachers); Dunham, 1977;
Lack of realistic plans and objectives	Kyriacou & Sutcliffe, 1978b (R = 11);
Emotional problems	Doherty, 1980;
Emotional (mental) illness	Der, 1982 (N = 1151); Catterton, 1979 (N = 1063);
Depersonalization	Schwab & Iwaniki, 1982 (N = 469);
Depression	Brodsky, 1977; Dunham, 1977; Dunham, 1980 (English R = 2, 50%; German R = 4, 32%); Feitler & Tokar, 1981 (R = 3, 52%); Kyriacou & Sutcliffe, 1978b (R = 7); NYSUT, 1979; Rathbone & Benedict, 1980;
Hypochondriasis	Bloch, 1978 (N = 253);
Psychoses ^c	Bentz et al., 1971 (N = 379, 2.9% had psychiatric impairment);
<hr/>	
Behavioral symptoms	
Excess sleeping ^a	Feitler & Tokar, 1981 (N = 3789, R = 11, 12%);
Increased absenteeism	Der, 1982 (N = 1151); Doherty, 1980 (N = 174 student teachers); Douglas, 1977 (N = 154); Kyriacou & Sutcliffe, 1979 (N = 218); Mazer & Griffin, 1980 (N = 744); Simpson, 1976 (N = 1386);
Increased use of alcohol ^c	Brodsky, 1977 (N = 31 teachers, 21 prison guards); Sadava et al., 1978 (N = 238 teachers, 67 factory workers, 65 nurses);
Increased use of drugs	Brodsky, 1977; Sadava et al., 1978

Table 10 cont.

- a. Minor symptoms of stress.
- b. Moderate symptoms of stress.
- c. Serious symptoms of stress.
- d. Sample size (provided once per author under each section).
- e. Rank order position in survey.
- f. Percentage of the sample that show these symptoms.

Summary. Research on the symptoms of stress teachers experience is fairly recent and provides limited data. Numerically, there are less symptoms of stress experienced by teachers than are experienced by the general population. However, the research indicates that physiological symptoms form 59% of the symptoms of stress teachers experience which is about the same percentage as the general population. Teachers appear to experience more cognitive symptoms of stress and less behavioral symptoms of stress than the general population. There appear to be eight prevalent symptoms of stress experienced by teachers. While the physiological group of symptoms contains the largest amount of prevalent symptoms, the amount of research on the prevalent cognitive symptoms of stress teachers experience and the high average rank order of the cognitive symptoms suggest that these symptoms are as significant as the physiological symptoms. Depression is considered to be the most serious of the eight prevalent symptoms of stress teachers experience.

Teacher Stress Summary

The environmental factors of teacher stress were examined first. Research indicates that problems with student discipline, administration and time

management are the three most prevalent categories of stressors in teaching. There are 13 categories of prevalent stressors. Almost 60% of the categories are social stressors while about 28% are psychosocial stressors and only 13% are physical stressors.

The personal factors of teacher stress were investigated next.

Preparation against harm is the most commonly used strategy of direct action coping. Teachers appear to use verbalization most frequently as preparation against harm. Teachers use avoidance or escape coping mechanisms but rarely use aggression. A variety of palliation coping strategies are used by teachers. The two most effective coping strategies teachers employ appear to be some form of relaxation skills and some form of classroom and interpersonal skills training. Teachers tend to experience more physiological symptoms of stress than cognitive or behavioral symptoms. Teachers experience considerably more cognitive symptoms of stress than the general population. Correspondingly, teachers experience less behavioral symptoms of stress than the general population. The eight prevalent symptoms of stress experienced by teachers are irritability, depression, anxiety, absenteeism, exhaustion, insomnia, headaches and indigestion. The author considers depression to be the most serious prevalent symptom of stress experienced by teachers. Overall, teachers appear to experience a smaller variety of symptoms of stress than does the general population.

So far in this chapter, the literature pertaining to the environmental and personal factors of the concept of stress and teacher stress has been discussed. In the last section of this chapter, the reasons for the proposed hypotheses will be presented.

Hypotheses

In this section of Chapter II, the literature on teacher stress that is related to the interactional model of stress will be investigated. The importance of research on teacher stress based on the interactional model of stress will be illustrated. Finally, the four hypotheses to be examined in this thesis will be presented.

Most of the authors who provide data based research on teacher stress concentrate on the relationships between the stressors in teaching and demographic variables. There is limited data based research available on the symptoms of stress that teachers experience and even less research is available on the coping strategies that teachers use. Very little research on teacher stress combines the study of stressors with coping strategies, the symptoms of stress and/or demographic variables. Yet, according to the interactional model of stress, these four groups of variables together play an important role in the study of stress. A synopsis of the research that does investigate the relationships between a combination of stressors, coping strategies, symptoms of stress of teachers, and/or demographic variables will now be provided.

The study of teacher stressors and the symptoms of stress that teachers experience is the most common combination of the four groups of variables. Brodsky (1977) and Kyriacou and Sutcliffe (1978b) make the most complete study of stressors and stress symptoms of teaching since these researchers also include an analysis of specific demographic variables. Catterton (1979) and Mazer and Griffin (1980) concentrate on relationships between teaching stressors and demographic variables. The symptoms of stress that these researchers include are very generalized such as "physical illness" (Mazer & Griffin, 1980, p. 10). Bloch (1977, 1978) and Dunham (1980) provide data on the

stressors and stress symptoms of teaching but do not provide any relationships with demographic variables.

There are only two researchers who study a combination of the coping strategies and stressors of teachers. Gehrke (1979) studies the specific stressors of the role conflict between personal and professional lives of 10 teachers in her longitudinal study as well as the four coping strategies that these 10 teachers used. This author makes some relationships between the coping strategies, stressors and the demographic variables. Rathbone and Benedict (1980) discuss the stressors and coping strategies of three teachers. No relationships are made with demographic variables.

There are five articles in which a combination of stressors, stress symptoms and coping strategies of teachers are studied. Research by Feitler and Tokar (1981) and Needle et al. (1981) closely adhere to the interactional model of stress described by Cox (1978) and Kyriacou and Sutcliffe (1978a). Feitler and Tokar (1981) and Needle et al. (1981) identify specific stressors, stress symptoms and coping strategies of teachers and make relationships with demographic variables. The remaining three studies have more generalized findings. The NYSUT Teacher Stress Survey (1979) contains specific stressors, generalized coping strategies and generalized symptoms of stress as well as relationships between these three groups of variables and the demographic variables. Der (1982) investigates specific stressors, generalized symptoms of stress such as physical illness, and 10 generalized coping strategies. Der's study contains relationships between stressors, stress symptoms, coping strategies and demographic variables. Finally, Coates and Thoresen (1976) investigate the major stressors, the most effective coping strategies and the single most common stress symptom of teachers in their survey of literature.

Out of a total of 51 articles on teacher stress referred to in this chapter, only research by Feitler and Tokar (1981) and Needle et al. (1981) thoroughly investigated teacher stress according to the interactional model of stress. Research based on the interactional model of stress is perhaps the most precise and accurate method of research. The reasons for the importance of research on teacher stress to be based on an interactional model of stress can best be understood by using an example.

Ms. Reid, a researcher, investigates teacher stress. She distributes a questionnaire to 100 teachers in Vancouver. When the results of her questionnaire are tabulated, Ms. Reid notices that 30 out of the 50 possible teaching stressors have a mean rating of "Very Stressful". Problems relating to student discipline are the most prevalent major stressors in this study. If the questionnaire only consists of the 50 possible stressors, then Ms. Reid might conclude that teaching is a stressful occupation. However, if Ms. Reid has included questions dealing with the symptoms of stress that teachers experienced three weeks prior to completing the questionnaire, the results may indicate that the teachers have very few symptoms of stress and that most of these symptoms are rated as being experienced rarely. Now Ms. Reid will still observe that the teachers perceive 30 events to be significant stressors. However, since teachers generally show few symptoms of stress, Ms. Reid can conclude that the 30 stressors are probably not too severe and that teaching is really not a stressful occupation. Ms. Reid finds that the symptoms of stress which teachers experience most often are headaches and depression. If Ms. Reid has information on the coping strategies of the 100 teachers, she may discover that teachers who regularly use some form of relaxation program have fewer symptoms of stress than teachers who use other coping strategies. Also, Ms. Reid may observe that teachers who regularly use some form of relaxation have a significantly lower mean rating of the 50 stressors than

the rest of the sample. As a result, Ms. Reid may conclude that the coping strategies which a teacher uses may play an important role in reducing the symptoms of stress and in the teacher's perceptions of stressors. Finally, if Ms. Reid makes statistical relationships between perceived stressors of teachers, the symptoms of stress experienced by the sample of teachers, the coping strategies used and the demographic variables, she may discover that married teachers have more intense symptoms of stress than the remaining teachers. Furthermore, she may observe that married teachers have a higher mean rating of the 50 stressors than the rest of the sample. Ms. Reid may conclude that a married teacher's stress may be largely a result of role conflict between family life and professional life since the remaining teachers do not perceive teaching to be as stressful nor have as many symptoms of stress.

This example of the possible information Ms. Reid could obtain by including questions on teacher stressors, symptoms of stress, coping strategies and demographic variables, illustrates the importance of research based on the interactional model of stress. Research using this method allows a researcher to gather more precise and accurate information than a researcher who omits questions on one or more of these four groups of variables. Since there is limited research about teacher stress based on the interactional model of stress, and because such research provides reasonably accurate and precise results, this research of teacher stress will be based on the interactional model of stress. Using this model of stress, the following null hypotheses are proposed.

Null Hypotheses

1. There will be no significant relationships between the major perceived stressors of teaching and the main symptoms of stress experienced by teachers.
2. There will be no significant differences between various teacher characteristics; such as age or coping strategies, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers.
3. There will be no significant differences between various teaching conditions, such as grade level or subjects taught, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers.
4. There will be no significant differences between teacher ratings of some individual perceived stressors, such as "Teaching (as a career)", the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers.

In the preceding section, an overview of the research on teacher stress that most closely resembled the interactional model of stress was presented. Such research is very limited. Only two sets of researchers closely adhered to the interactional model of stress. An example was provided to illustrate how research of teacher stress based on the interactional model of stress provided more precise and accurate information than research not based on this model. This section of the chapter concluded with four hypotheses based on the interactional model of stress.

Chapter Summary

In this chapter, the concept of stress was explored by discussing the terms stress, stressor, pressure, and the environmental and personal factors

of stress. For this thesis, stress is defined as a complex physiological, cognitive and behavioral response that occurs in a person when the person perceives that the demands of the situation are greater than the person's perceived ability to cope with the situation. Stress is experienced as an unpleasant emotion. Pressures are environmental demands that do not create a stress response in a person while stressors are demands that do create a stress response. Physical, social and psychosocial stressors are the three kinds of environmental stressors. Coping strategies, the length and intensity of the stressful experience, and the symptoms of stress make up the personal factors of stress. The two main types of coping strategies are direct action and palliation. Coping is either effective or ineffective. There are two kinds of stress. Transitory stress lasts for a short period of time, results from everyday stressors, and can be beneficial. Chronic stress is long-term, usually is a result of ineffective coping strategies, and has numerous damaging physiological, cognitive and behavioral symptoms.

In the second half of this chapter, the environmental factors of teacher stress were first examined. Problems with student discipline, administration and time management seem to be the most prevalent categories of stressors in teaching. Almost 60% of the categories of prevalent stressors are social stressors while almost 30% of the categories are considered to be psychosocial stressors. The personal factors of teacher stress were then examined. Teachers tend to use the direct-action coping strategy of verbalization the most. Verbalization is a form of preparation against harm. Various palliation coping strategies are used. The most effective coping strategies appear to involve some form of relaxation skills and some form of classroom and interpersonal skills training. About 60% of the symptoms teachers experience are physiological while about 35% of the symptoms are cognitive. There are eight prevalent symptoms of stress that teachers experience.

Finally, four hypotheses based on the interactional model of stress were advanced. These hypotheses were deemed important because the results will provide more precise and accurate information regarding the relationships of teaching stressors, the symptoms of stress, coping strategies and the demographic variables than is currently available.

CHAPTER III

METHODOLOGY

In this chapter the author describes the sample used to identify the perceived sources of teacher stress and to measure the different ways teachers respond to stressful situations. The two instruments used in the project are then described and discussed. Approval for the research and support for the project are presented. Finally, the procedure for the distribution of the surveys and data collection is given.

Sample

The sample for the Sources of Teacher Stress Survey (SOTSS; Clyne, 1981) and for the Symptoms of Stress Inventory: A Self Assessment (SOSI; Leckie & Thompson, 1979) consisted of teachers from the six secondary schools and from the 22 elementary schools in Chilliwack. Part-time teachers were included in the random selection of the sample. However, principals, vice-principals and head teachers were excluded even though some of these school administrators taught part-time. These teaching administrators were excluded because their role as a school administrator might influence their responses as a teacher in the SOTSS. By using a Table of Random Numbers (Borg & Gall, 1979), the author randomly selected half of the teachers from each school in the district. Wherever a teacher taught in more than one school, this teacher was only considered to teach in the school where he/she taught the largest percentage of time. All of the 389 teachers employed in the district had an equal chance of being selected.

Of the 201 teachers who were chosen and sent surveys, 165, or 82%, returned the surveys. However, some of the surveys were incomplete for reasons described under "Data Collection" at the end of this chapter. The

remaining surveys of 114 respondents were used in this study because their responses provided complete data to make the necessary statistical analyses. Table 11 provides a frequency distribution of the elementary and secondary respondents with complete or usable data.

Instruments

Two instruments were employed in the survey of Chilliwack teachers. The first instrument was the Sources of Teacher Stress Survey which was developed by the author. The purpose of this instrument was to allow the sources of stress to be identified. The SOTSS was divided into three sections: the first consisted of potentially stressful teaching situations; the second was composed of stress management procedures; and the third contained questions on demographic data. The second instrument was the Symptoms of Stress Inventory: A Self Assessment which was developed at the University of Washington and used with permission. The purpose of the SOSI was to measure the different ways the participants responded to stressful situations. This instrument contained a list of stress related symptoms spanning physiological, behavioral, and cognitive domains, and a section requesting demographic data from all participants. Both instruments are discussed in more detail below.

Sources of Teacher Stress Survey

Development of the questionnaire. Questions were constructed that reflected perceived sources of teacher stress in the profession generally and in the Chilliwack School District. These were derived in part from research questionnaires from Great Britain (Kyriacou & Sutcliffe, 1978b; Rudd & Wiseman, 1962) and the United States (Cichon & Koff, 1978). The total of 153 questions was divided into six groups: (a) Time management had 11 questions. (b) Teacher-parent relations had 16 questions. (c)

Table 11

Frequency Distribution of Elementary and Secondary Respondents with Complete or Usable Data

Respondents	Male	Female	Full-time	Part-time	Regular	Special	Total
Elementary teachers	13	42	44	11	50	5	55
Secondary teachers	39	19	54	4	43	15	58
Respondent #522 ^a	1	0	1	0	0	1	1
Total	53	61	99	15	93	21	114

^a Respondent #522 did not complete all the Personal Data in the SOTSS that would allow the author to determine whether the respondent was an elementary or secondary teacher. The remainder of the data was complete.

Working conditions had 29 questions. (d) Student behavior had 40 questions. (e) Teacher-teacher relations had 19 questions. (f) Finally, teacher-administrator relations had 38 questions.

A 5-point Likert scale was chosen to measure the responses. The same numeration system of zero to four was employed as in the SOSI questionnaire to allow for consistency with both instruments used in the study. The ratings on the Teacher Stress Pilot Survey (TSPS) were:

- 0 - Not Stressful
- 1 - Slightly Stressful
- 2 - Moderately Stressful
- 3 - Very Stressful
- 4 - Extremely Stressful

Respondents were instructed to circle the rating that most accurately expressed how stressful they perceived the event to be. The scoring system was also chosen because the responses could be key punched directly. When the responses were tabulated, the total score on each subscale was equal to the sum of the circled responses.

Pilot. The questions for the TSPS were cut into individual strips and put into a container. Their placement on the pilot survey was established according to the random order in which they were drawn from the container. At the bottom of each page were three lines on which the pilot participants could write any comments about the questions that might improve clarity of the questions or mention any sources of stress the participants thought were omitted.

The sample of the pilot survey consisted of 25 teachers from seven schools. As the TSPS was long, and involved a critical evaluation, only teachers known by the author were approached. Of the 25 participants, 18

were from elementary schools and 7 were from secondary schools. There were 11 males and 14 females whose ages ranged from 23 to 56. However, one respondent did not give his or her age. The mean age was 37.7 years.

The District Superintendent gave permission to conduct the pilot survey as did the principals of the seven schools from which the teachers were chosen.

The TSPS was enclosed in self-addressed, stamped envelopes that were distributed mostly through the school mail system. However, participants in the same school as the author received the envelopes in their individual school mail boxes. The results were returned through the public and school mail systems or were delivered personally. (See Appendix A for Teacher Stress Pilot Survey.)

Results. Most of the participants answered the TSPS completely. Some had difficulty answering certain questions and so no response was given. However, if no response was given, a comment was usually added that was taken into consideration when the author compiled the final survey.

Selection of final questions. Four criteria were employed to select questions from the TSPS. First of all, only items with a mean of two or more were selected for inclusion. That is, items that were perceived as non-stressful were eliminated. There were two exceptions: (a) Item #94, "Time spent on extra-curricular activities", was kept to be measured against Item #16, "Approximately how much time did you spend on student-related extra-curricular activities... last YEAR?", of the Personal Data section on the SOTSS. (b) Item #129, "Teaching" was retained as Kyriacou and Sutcliffe (1978) used it as a "measure of self-reported teacher stress" (p. 160). The wording of Item #129 was changed to "Teaching (as a career)" to make the item more precise. These items were placed in a miscellaneous

category and did not load on any subscales. Second, Pearson Correlations were calculated on the remainder of the items. Items with an item-total correlation of .5900 or more were retained. Specifically, items with low item-total correlations were selectively moved to other subscales and then were progressively eliminated from the item pool until all remaining items had an item-total correlation of .5900 or greater. There were a few items that did not have high item-total correlations but their face validity argued for inclusion. An example is Item #82 of the TSPS, "Supervision (e.g. playground, lunch hour, etc.)". These items were placed in a miscellaneous category and did not load on any subscales. The third step in the selection process involved retaining items that had item-item correlations of .6000 or less. Some items with item-item correlations of more than .6000 were kept as their removal negatively affected the item-total correlations of the remaining items (see Table 12). The final criterion was based on comments by participants of the TSPS. Items that participants found easy to understand were kept while items that were ambiguous to three or more participants were eliminated or reworded.

As a result of selectively moving and eliminating items with low item-total correlations, the working conditions subscale was eliminated. The item-total correlations of this subscale were low and seemed redundant with other questions. Three item-total correlations were raised above the .5900 level when the items were moved to other subscales (Items #43, 111 and 120) and one was entered under the miscellaneous category. Table 12 gives the item-total correlations of the selected questions in the five subscales of the TSPS.

Based on respondents' comments, two additional questions were added

Table 12

Item - Total Correlations* of the Selected Questions
from the Teacher Stress Pilot Survey

SUBGROUP	I 18	I 41	I 77	I 99	I 111	I 131	I 144
Time Management	0.8880	0.8399	0.7743	0.7147	0.6521	0.8009	0.8234
Teacher-Parent Relations	I 21 0.7559	I 68 0.8252	I 80 0.6164	I 101 0.8132			
Student Behavior	I 6 0.6151	I 10 0.7190	I 34 0.6366	I 42 0.7012	I 59 0.7821	I 63 0.6167	I 91 0.7037
Teacher-Teacher Relations	I 104 0.6560	I 112 0.7895	I 120 0.6683	I 132 0.6213	I 134 0.7475	I 138 0.7030	I 140 0.6224
Teacher-Administrator Relations	I 44 0.7809	I 98 0.9290	I 141 0.8671				
Teacher-Administrator Relations	I 36 0.7046	I 50 0.8551	I 52 0.7181	I 57 0.6860	I 87 0.7227		

* $p < .001$ for all item-total correlations.

to the SOTSS and one was changed. One item added was Item #31, "Preparing report cards". The second additional item was Item #43, "When there is a high but productive noise in my class(es)". Item #91 of the TSPS was changed from "When there is a high noise level in my class(es)" to "When there is a high, unproductive noise level in my class(es)".

Final form. The items selected for inclusion in the final form of Sources of Teacher Stress Survey were cut into individual strips and put into a container. The items were then randomly drawn from the container. The order in which the items were drawn established the order on the SOTSS. (See Appendix B for SOTSS.)

There were 45 items on the SOTSS. The 5-point Likert scale was employed to measure the responses. The numeration system of zero to four was retained from the Teacher Stress Pilot Survey to allow for consistency with the Symptoms of Stress Inventory. The ratings were:

- 0 - Not Stressful
- 1 - Slightly Stressful
- 2 - Moderately Stressful
- 3 - Very Stressful
- 4 - Extremely Stressful

The 45 items in the SOTSS were divided into five subscales: (a) Time management contained seven items; (b) Teacher-parent relations had four items; (c) Teacher-student relations consisted of 15 items; (d) Teacher-teacher relations contained three items; (e) Finally, teacher-administrator relations had five items. There were 11 items that did not load on the five subscales above so these items were put under a Generalized subscale. For the SOTSS, the author changed the name of the "student behavior" subscale used in the TSPS to "teacher-student relations".

~~The author felt the new name more accurately described the subscale.~~

Demographic data. The demographic data, entitled "Personal Data" on the TSPS, provided independent variables against which the sources and intensity of teacher stress would be compared. The information sought was largely based on relationships that were deemed impartial when compared to the sources and symptoms of teacher stress and the coping strategies of teachers.

The format of the "Personal Data" section of the TSPS involved one of three methods: filling in the blank, such as age; circling the correct response, such as the position held in the school; and circling the correct combination of numbers, as in the years of teaching experience. The format was intended to be simple for the respondents to understand and to answer. The format was also developed so the results could be interpreted easily.

The "Personal Data" section of the TSPS also featured three lines at the bottom of each page for comments by the respondents. The comments could relate to: lack of clarity of questions and/or instructions; difficulty encountered in answering questions; suggestions for improvement; or possibly suggestions for additional data.

Three basic mistakes in the format and questions became obvious. First, the results had to be coded by hand and put into appropriate column numbers to the right of the page in order to be key punched. Second, the methods of answering led to some confusion and possible inaccuracies in the responses. This was particularly true where the respondent was required to circle the correct combination of numbers to represent his/her answer. For example, several respondents wrote in answers rather than circling the correct combination of numbers. Finally, one sequence of

questions was impossible for secondary teachers to answer. The sequence included the number of parents living at home. The large number of students taught by secondary teachers made it impossible for them to know the home background of their students. An explanation of how the three basic mistakes were corrected is provided below under "Final Demographic Data Inventory".

A descriptive analysis of the results from the "Personal Data" section yielded an absolute frequency and relative, adjusted, and cumulative percentage frequencies of the data.

Final demographic data inventory. The format of the "Personal Data" section of the SOTSS was changed to make the responses more amenable for computer coding. Rather than filling in the blanks or circling the correct combination of numbers, the respondents were given a choice of answers. The respondents put the appropriate number(s) of their response(s) in the squares situated at the right of each question. The answers could be key punched directly which would eliminate transcribing the raw data and consequently would improve accuracy. The format change would also improve the accuracy in the responses as the respondents could only select their response from the choice of answers supplied. For example, in the TSPS, question four of the "Personal Data" section was worded: "4. Number of children living at home: ____". The format of the same question in the final SOTSS was:

4. Number of children living at home:

- | | |
|------------|--------------------------|
| (1) 0 | (4) 4 to 6 |
| (2) 1 | (5) 7 or more |
| (3) 2 to 3 | <input type="checkbox"/> |

The latter questions prevented a respondent from giving an exaggerated, and thus unacceptable answer as was done by a respondent in the TSPS for this question.

Another format change involved grouping information such as age and teaching experience. The author consulted similar research styles for suggested age and experience groupings and adapted some of the groupings (Kyriacou & Sutcliffe, 1979). For example, question two of the SOTSS was designed as follows:

2. Age: (1) 29 years and under
 (2) 30 to 44 years
 (3) 45 years and over

Other questions, such as school size, had grouped information. The author felt that grouping the possible responses on the SOTSS "Personal Data" section would help ensure anonymity since the information required was not specific. On the TSPS, the question about age elicited several responses, such as "40 +". One respondent did not fill out any of the demographic data. Possibly, the person felt that the information on this section increased the chances for his/her identification. By increasing the likelihood of anonymity, the author felt that the respondents would reply more accurately and willingly.

The content of the "Personal Data" section in the SOTSS was slightly altered from that of the TSPS by eliminating and adding questions. There were four reasons for eliminating questions. First of all, question seven of the TSPS, which required identifying the university where the respondent received his/her highest degree, was no longer deemed important. Second, a respondent may have felt that question eight, "Circle the head administrator in your school:" might reveal his/her identity. Third, data on the socio-economic and family backgrounds were impossible for secondary teachers to answer and so were deleted. Finally, it became apparent that two questions were redundant. "Circle the number of years of education you have completed:" was similar to "Circle the highest degree you hold:"

so the second question was retained as the responses were more accurate.

In two other questions, the author found that the percentage of time the individual taught classes achieved the same purpose as the number of hours spent teaching in the classroom. The latter question was retained as it obtained more precise answers.

There were three reasons for adding new questions to the "Personal Data" inventory of the SOTSS. The amount of time spent per year on extra-curricular activities needed to be separated from the number of hours per week spent on school-related work outside of the prescribed teaching time. Second, further reading by the author led to the inclusion of the item on teacher absenteeism (Kyriacou & Sutcliffe, 1979). Third, the author developed the questions on deviant student behavior as these questions would provide specific background information that could be measured against a participant's perceived sources and intensity of stress ratings.

In the final version, the questions in the "Personal Data" section could be grouped into two general categories. One type of question can be identified as describing the characteristics of the respondent. Examples of "teacher characteristics" questions would be "Age" and "Number of children living at home". There are seven "teacher characteristics" questions. The other type of question provides information that describes the teaching conditions of the respondent. An example of the "teaching conditions" questions would be "What grade level do you teach most of the time this school year?" Question #10A, regarding the student contact hours per week for elementary teachers, contains three "teaching conditions" questions. There are 19 "teaching conditions" questions in the "Personal Data" section of the SOTSS.

Stress management. The SOTSS contained a section on Stress Management Procedures. This section asked respondents to indicate the extent to which they used various common stress management procedures. The purpose of the Stress Management section was to see if the respondents' level of stress was related to their doing anything about it. The Stress Management section could provide additional "teacher characteristics" questions, depending on the number of respondents who use these procedures regularly.

Symptoms of Stress Inventory: A Self Assessment

The Symptoms of Stress Inventory was adapted from the Cornell Medical Index, 1949 (Leckie & Thompson, 1979b) in 1977 and was revised in 1978 and 1979 to eliminate problems and redundancies. The purpose was a need "for a clinical instrument to quantify the perception of the physiological, behavioral and cognitive components of stress responses" (Leckie & Thompson, 1979a, p. 1).

There were 10 subscales in the SOSI: (a) First, the peripheral subscale had seven items, such as, "Have you been bothered by: Skin rashes" (Leckie & Thompson, 1979b, p. 1). (b) The cardiopulmonary subscale contained 15 items which were further subdivided into acute and respiratory illness. An example of acute cardiopulmonary symptoms would be, "Have you experienced: Irregular heart beats", while an example of respiratory symptoms would be, "Have you experienced: Colds" (Leckie & Thompson, 1979b, pp. 1-2). (c) The neural subscale consisted of five items, such as, "Have you experienced: Feeling faint" (Leckie & Thompson, 1979b, p. 2). (d) There were 9 items in the gastrointestinal subscale. An example would be, "Have you been bothered by: Indigestion" (Leckie & Thompson, 1979b, p. 2). (e) The muscle tension subscale had 9 items, such as, "Have you noticed: Excessive tension, stiffness, soreness or cramping of the muscles in your neck" (Leckie & Thompson, 1979b, p. 3). (f) The habit patterns

subscale contained 15 items. An example would be, "Have you noticed: Symptoms of anxiety or restlessness, such as pacing" (Leckie & Thompson, 1979b, p. 3). (g) There were 8 items in the depression subscale. One item was, "During the designated period have you felt: Like crying easily" (Leckie & Thompson, 1979b, p. 5). (h) The anxiety subscale had 11 items, such as, "Have you noticed: Being keyed up and jittery" (Leckie & Thompson, 1979b, p. 4). (i) The anger subscale consisted of 8 items, one of which was, "Does it seem: You become mad or angry easily" (Leckie & Thompson, 1979b, p. 5). (j) Finally, the cognitive disorganization subscale contained 7 items, such as, "In your day-to-day living do you find: You get directions and orders wrong" (Leckie & Thompson, 1979b, p. 6).

A 5-point Likert frequency scale of "0" to "4" was used for items 1 to 107. The ratings were:

- 0 - Never
- 1 - Infrequently
- 2 - Sometimes
- 3 - Often
- 4 - Very Frequently

Questions were to be answered according to the frequency the respondent experienced the stress related symptoms during the previous two weeks. The scoring of the SOSI was "accomplished by summing the frequency designations (0 - 4) for each of the ten (10) scales independently (scale totals) and then adding these scales (sic) totals together for a total score" (Leckie & Thompson, 1979a, p. 10).

The SOSI also included three sections of additional information. The first section was for women only. The data from this section was not used

in this thesis. The second section of the additional information contained questions that dealt with smoking and drinking habits. This section provided five additional "teacher characteristics" questions. The last section contained questions about personal data. The data from this last section was not used in this thesis as the format was different from that selected by the author of this thesis. Although the data from the "Women Only" and "Personal Data" sections was not used in this thesis, the sections were included for the respondents to complete as Ms. Thompson granted permission to use the SOSI based on the understanding that the anonymous data would be shared with the University of Washington Management of Stress Program. (See Appendix C for the copy of the letter of permission from Ms. Thompson.)

Reliability and validity. There were 561 people from whom data was collected (Leckie & Thompson, 1979a, p. 2). However, a large number of these were students at the University of Washington. Nearly 80% of the non-student population was female and "professional occupations were over sampled as compared to the undersampled semi and unskilled workers" (Leckie & Thompson, 1979a, p. 2). Although this was not representative of the general population, it was quite similar to the population of teachers from which the Chilliwack sample was taken, especially in regards to a higher education and a professional occupation. Consequently, the construct validity was interpreted as being reasonably high for the Chilliwack sample.

"Reliability of the total SOSI questionnaire was .96 (Chronback's alpha), whereas coefficients for the subscales varied from .71 to .87" (Leckie & Thompson, 1979a, p. 2). The 1977 SOSI was used to collect the data and so was not identical to the revision of 1978. However, the 1979

SOSI was developed as a result of the problems and redundancies in the data provided in the "Interpretation of the Symptoms of Stress Checklist." Consequently, the reliability was interpreted as being as high or higher on the 1979 SOSI.

Permission to use the SOSI was obtained on October 20, 1980, from Elaine Thompson. (See Appendix C for SOSI and letter of permission.)

Ethical Consideration

Approval for the research and support for the project were sought prior to the survey's dispersal. Approval for using Chilliwack teachers in the research was obtained from the Superintendent of School District No. 33 (Chilliwack). The Simon Fraser University Research Ethics Committee approved the research proposal. (See Appendix D for a copy of the letter.) In order to assure cooperation with the collection of data, support was obtained from the school administrators and the Chilliwack District Teachers' Association.

Procedure

Distribution of Surveys.

The surveys were distributed in sealed envelopes through the school mail system. The envelopes contained a Sources of Teacher Stress Survey, a Symptoms of Stress Inventory, a covering letter and an envelope with the name and return address of the author. (See Appendix D for a copy of the covering letter to the participants.) Labels with the name and school of the selected teachers were stuck on the sealed envelopes. All the envelopes for each school were sent to the resident administrator of the respective school on October 19, 1981. Twenty-five principals, one vice-principal and two head teachers received the packaged envelopes. One envelope went directly to the selected teacher as there was not a clearly

designated resident administrator on the Chilliwack Secondary school staff list. A letter was addressed to each administrator requesting him/her to personally distribute the envelopes to the selected teachers and to encourage the teachers to participate in the survey. The administrators were also thanked for their support of the survey and for distributing the envelopes. (See Appendix D for a copy of the letter to the resident administrators.) On October 26, 1981, a letter was sent directly to all of the selected teachers. In the letter the author thanked the teachers who had already responded, and reminded the teachers who had not responded that the success of the project depended on a high response rate. (See Appendix D for a copy of the thank you letter.)

Data Collection

The completed surveys were returned anonymously via the school mail system to the author's school. The last completed survey was received three weeks after the distribution date. The author checked the returned surveys to see if the questionnaire section of each survey was totally completed. If the SOTSS and SOSI were completed, the same number from 001 to 105 was then assigned to each survey in the order they were received. Upon visual inspection abnormalities in some of the surveys were noticed. For example, a few respondents returned only one of the two booklets. Other respondents did not answer all the questions. These incomplete surveys were assigned a number of 500 or more for easy identification in subsequent data analysis.

Upon inspection of the data on a computer printout, the author found a further 14 incomplete surveys which left 91 complete surveys. These 14 incomplete surveys were transferred to a "surplus data file" for possible future analysis. A subsequent closer inspection of the questionnaire

responses revealed that 23 of the surveys numbered 500 or more contained usable data. That is, the irregularities did not affect the subscale scores. The remaining 37 surveys numbered 500 or more were left in the "surplus data file" for possible future analysis. Of the 165 respondents, 114, or 69%, contained usable data. The responses of these 114 teachers form the basis for the data analysis described in Chapter IV.

CHAPTER IV

RESEARCH FINDINGS AND CONCLUSIONS

In this chapter, the analyses of the data from the Sources of Teacher Stress Survey (SOTSS) and the Symptoms of Stress Inventory (SOSI) are presented. For clarity of discussion, each hypothesis is listed and the results relevant to that hypothesis are presented. Where there are significant findings in both the SOTSS and the SOSI, the results of the SOTSS are discussed first, followed by the results of the SOSI. Following the discussion the results for each hypothesis, the conclusion for that hypothesis is given.

The frequency distribution for the SOTSS and the SOSI are included in Appendix E.

Hypothesis #1 - Correlations Between the SOTSS and SOSI

There will be no significant relationships between the major perceived stressors of teaching and the main symptoms of stress experienced by teachers. This hypothesis was tested by using the Pearson correlation coefficient.

Results

The results of a Pearson correlation coefficient analysis indicated that there were only very low correlations between the major perceived stressors of teaching and the main symptoms of stress experienced by teachers. (See Table 13). The anger subscale of the SOSI had the highest correlations. These correlations occurred with teacher-student relations, $r = +.45$, $p = <.01$; teacher-teacher relations, $r = +.39$, $p = <.01$; teacher-administrator relations, $r = +.41$, $p = <.01$; and the total score of the SOTSS, $r = +.46$, $p = <.01$. Out of a total of 66 correlations, 50 had probabilities less than .05. This large number was likely due to the large sample size. Although most of the probabilities were less than .05, the correlations themselves were below .50 and therefore were not con-

Table 13
 Correlation and Probability Matrix
 for the Subscales and Total Scores
 of the Sources of Teacher Stress Survey
 and the Symptoms of Stress Inventory

Symptoms of Stress Inventory	Sources of Teacher Stress Survey					
Subscales ^a	TM	TPR	TSR	TTR	TAR	Total SOTSS ^b
PHL	.23 ($\leq .01$)	-.05 (.31)	.16 (.04)	.06 (.28)	.06 (.27)	.16 (.05)
CR	.30 ($\leq .01$)	-.06 (.25)	.25 ($\leq .01$)	.17 (.04)	.04 (.32)	.23 ($\leq .01$)
NRL	.29 ($\leq .01$)	.02 (.41)	.17 (.03)	.09 (.16)	.05 (.29)	.19 (.02)
GI	.24 ($\leq .01$)	-.01 (.45)	.22 ($\leq .01$)	.21 (.01)	.17 (.03)	.24 ($\leq .01$)
MT	.38 ($\leq .01$)	.10 (.14)	.36 ($\leq .01$)	.18 (.03)	.20 (.01)	.37 ($\leq .01$)
HP	.35 ($\leq .01$)	-.08 (.20)	.28 ($\leq .01$)	.23 ($\leq .01$)	.23 ($\leq .01$)	.30 ($\leq .01$)
DEP	.37 ($\leq .01$)	.09 (.17)	.28 ($\leq .01$)	.19 (.02)	.19 (.02)	.33 ($\leq .01$)
ANX	.30 ($\leq .01$)	.03 (.38)	.32 ($\leq .01$)	.32 ($\leq .01$)	.21 (.01)	.34 ($\leq .01$)
ANG	.26 ($\leq .01$)	.14 (.06)	.45 ($\leq .01$)	.39 ($\leq .01$)	.41 ($\leq .01$)	.46 ($\leq .01$)
CD	.25 ($\leq .01$)	.10 (.16)	.34 ($\leq .01$)	.32 ($\leq .01$)	.25 ($\leq .01$)	.35 ($\leq .01$)
Total SOSI ^c	.38 ($\leq .01$)	.03 (.39)	.36 ($\leq .01$)	.28 ($\leq .01$)	.24 ($\leq .01$)	.38 ($\leq .01$)

Table 13 cont.

Note. The probabilities are enclosed in parentheses.

The number of respondents is 114.

^a The names of the subscales for the SOTSS and SOSI subscales are abbreviated on this table and on all succeeding tables. The names of the SOTSS subscale abbreviations are: TM = time management; TPR = teacher-parent relations; TSR = teacher-student relations; TTR = teacher-teacher relations; TAR = teacher-administrator relations. The names of the SOSI subscale abbreviations are: PHL = peripheral; CR = cardiopulmonary; NRL = neural; GI = gastrointestinal; MT = muscle tension; HP = habit patterns; DEP = depression; ANX = anxiety; ANG = anger; CD = cognitive disorganization.

^b The total SOTSS score in all results in this thesis is the total of the SOTSS subscale scores.

^c The total SOSI score in all results in this thesis is the total of the SOSI subscale scores.

sidered to be clinically significant.

Conclusions

The results of the Pearson correlation coefficient analysis supported hypothesis #1. Since all the correlations were less than .50, the correlations were too low for any of the relationships between the major perceived stressors of teaching and the main symptoms of stress experienced by teachers to be considered clinically significant.

Hypothesis #2 - Teacher Characteristics

Hypothesis #2 states that there will be no significant relationships between various teacher characteristics, such as age or coping strategies, the major perceived stressors of teaching, and the main symptoms of stress experienced by teachers. This hypothesis was tested by using independent t-tests or one-way analyses of variance procedures (ANOVA) with Neuman-Keuls post hoc comparisons.

Results

The results of the tests indicated that there were significant differences between nine out of 15 teacher characteristics, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers.

Sex. There were significant differences between male and female teachers on three subscales of the SOSI. The results of the independent t-tests indicated that female teachers had significantly more symptoms of depression, $t(106) = 3.66, p = <.01$; anxiety, $t(112) = 2.74, p = <.01$; and cognitive disorganization, $t(112) = 2.22, p = .03$, than their male counterparts. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between sex of teachers and the SOTSS subscales. (See Table 14).

Table 14

Means and Standard Deviations of the Symptoms of
Stress Inventory for Male and Female Teachers

Subscale	Males		Females		t	p
	Mean	Standard deviation	Mean	Standard deviation		
n	53		61			
PHL	4.43	4.09	5.23	3.69	1.09	.28
CR	9.32	7.72	10.70	8.20	.92	.36
NRL	1.64	2.19	1.92	2.04	.70	.49
GI	5.94	5.12	7.11	5.04	1.23	.22
MT	7.36	6.15	9.46	6.15	1.82	.07
HP	12.38	8.21	13.93	8.47	.99	.32
DEP	4.49	3.74	7.70	5.56	3.66	<.01
ANX	5.58	5.05	8.57	6.39	2.74	<.01
ANG	7.92	5.12	8.46	6.64	.48	.64
CD	4.87	3.85	6.61	4.44	2.22	.03
Total SOSI	63.94	40.27	79.70	46.64	1.92	.06

With respect to sex, the sex of teachers did not suggest a significantly different intensity of stress with the total symptoms of stress. However, female teachers did report significantly higher symptoms of depression, anxiety, and cognitive disorganization. Female teachers had somewhat lower scores on the other dimensions which counterbalanced the high depression, anxiety and cognitive disorganization scores and resulted in total scores not significantly different from males.

Marital status. The second set of significant differences for teacher characteristics occurred between the marital status of the respondents and two SOSI subscales and the SOSI total score. The results of the ANOVA indicated a significant main effect for marital status for cardiopulmonary symptoms, $F(2, 111) = 4.98, p < .01$; for gastrointestinal symptoms, $F(2, 111) = 3.31, p = .04$; and for total symptoms of stress, $F(2, 111) = 2.99, p = .05$. The Neuman-Keuls post hoc comparison indicated that separated or divorced teachers had significantly more cardiopulmonary and gastrointestinal symptoms than married teachers. However, the Neuman-Keuls post hoc comparison failed to identify any group as significantly different from each other on the total SOSI score. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between teacher marital status and the SOTSS subscales. (See Table 15).

With respect to teacher marital status, separated or divorced teachers had more total symptoms of stress than other teachers. The principal contributing factors were significantly higher cardiopulmonary symptoms and to lesser extent, gastrointestinal symptoms.

Highest degree held. The third set of differences for teacher characteristics occurred between the highest degree a respondent held and

Table 15

Means and Standard Deviations of the Symptoms
of Stress Inventory for Marital Status

Subscale	<u>Married</u> Mean (Standard deviation)	<u>Single</u> Mean (Standard deviation)	<u>Separated/Divorced</u> Mean (Standard deviation)	F	p
n	84	16	14		
PHL	4.64 (4.06)	5.31 (3.57)	5.64 (3.13)	.52	.60
CR	8.77 (7.10)	12.31 (8.26)	15.21 (10.34)	4.98	<.01
NRL	1.67 (2.18)	1.81 (1.60)	2.50 (2.10)	.94	.39
GI	5.98 (4.63)	7.00 (5.69)	9.64 (6.16)	3.31	.04
MT	7.95 (6.45)	10.44 (4.19)	9.43 (6.50)	1.27	.29
HP	12.46 (8.23)	13.31 (7.52)	17.57 (9.16)	2.30	.11
DEP	5.57 (5.12)	7.38 (4.06)	8.71 (4.87)	2.92	.06
ANX	6.56 (5.88)	7.69 (5.21)	10.36 (6.67)	2.56	.08
ANG	8.01 (5.99)	8.19 (5.47)	9.43 (6.58)	.34	.72
CD	5.31 (4.32)	6.81 (3.92)	7.57 (3.69)	2.28	.11
Total SOSI	66.93 (43.38)	80.25 (40.59)	96.07 (47.78)	2.99	.05

Note. Standard deviations for this table and all succeeding tables that report the results of an ANOVA are given in parentheses.

When lines are used in a subscale, groups not connected by lines are significantly different from each other.

one SOTSS subscale. The results of the ANOVA indicated a significant main effect for the highest degree held for teacher-parent relations, $F(2, 110) = 3.64, p = .03$. The Neuman-Keuls post hoc comparison failed to identify respondents with no degree, respondents with a bachelor's degree, or respondents with a master's degree, as significantly different from each other. There were no further significant differences found between highest degree held and the other SOTSS subscales. There were no significant differences found between the highest degree held and the SOSI subscales. (See Table 16).

Table 16 contains 113 responses rather than the total of 114 responses. The number of responses for the remaining tables of this chapter will vary from one table to another because some of the responses to the Personal Data section of the SOTSS were left blank by some of the teachers.

Absenteeism. The fourth set of teacher characteristics, teacher absenteeism, produced significant differences on two SOTSS subscales, the SOTSS total score, nine SOSI subscales, and the SOSI total score. (See Tables 17 and 18). There were seven teachers who were absent 11 or more days and 16 teachers who were absent 6 to 10 days. Since the number of teachers who were absent 11 or more days was considered to be too small to provide an accurate analysis, these two cells were collapsed and the results were regrouped under the category of teachers who were absent 6 or more days.

The results of the ANOVA indicated a significant main effect for teacher absenteeism due to sickness for the SOTSS subscales time management, $F(3, 102) = 4.19, p = <.01$; teacher-administrator relations, $F(3, 102) = 2.77, p = .05$; and the total SOTSS stressors, $F(3, 102) = 3.03, p = .03$. The Neuman-Keuls post hoc comparison indicated that teachers who

Table 16
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for Highest Degree Held

Subscale	No degree	Bachelor's degree	Master's degree	F	p
	Mean	Mean	Mean		
n	28	75	10		
TM	15.39 (5.71)	13.95 (5.60)	14.50 (5.87)	.67	.51
TPR	9.18 (3.66)	7.44 (3.20)	9.30 (2.91)	3.64	.03
TSR	32.75 (11.35)	33.21 (9.31)	36.70 (7.83)	.65	.52
TTR	6.25 (3.01)	5.27 (2.84)	7.10 (2.18)	2.62	.08
TAR	12.57 (5.33)	12.97 (5.03)	16.10 (2.42)	2.02	.14
Total SOTSS	76.14 (23.22)	72.84 (19.37)	83.70 (14.26)	1.40	.25

were not absent the previous year perceived time management stressors as significantly less stressful than teachers who were absent 1 or more days. The Neuman-Keuls post hoc comparison indicated that teachers who were not absent the previous year perceived teacher-administrator relations and the total of SOTSS stressors to be less stressful than teachers who were absent 1 to 2 days. There were no further significant differences found on the other SOTSS subscales. (See Table 17).

With respect to absenteeism due to sickness, the main distinguishing factors that teachers who were absent perceived to be more stressful than teachers who were not absent were time management problems and to a much lesser extent, relations with the administrator.

The results of the ANOVA indicated that there were significant main effects between teacher absenteeism due to sickness and the SOSI total score and all SOSI subscales, except anger. See Table 18 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who were not absent due to sickness had significantly fewer peripheral symptoms of stress, symptoms of depression and cognitive disorganization, and total symptoms of stress than teachers who were absent due to sickness 1 or more days. The Neuman-Keuls post hoc comparison indicated that teachers who were not absent due to sickness had significantly fewer cardiopulmonary and gastrointestinal symptoms and symptoms of muscle tension and habit patterns, than teachers who were absent 3 or more days. The Neuman-Keuls post hoc comparison indicated that teachers who were not absent due to sickness had significantly fewer symptoms of anxiety than teachers who were absent 1 or more days. Furthermore, teachers who were absent 1 to 5 days had significantly fewer symptoms of anxiety than teachers who were absent 6 or more days. However, the

Table 17

Means and Standard Deviations
of the Sources of Teacher Stress Survey for
Absenteeism Due to Sickness the Previous Year

Subscale	<u>0 Days</u> Mean	<u>1-2 Days</u> Mean	<u>3-5 Days</u> Mean	<u>≥6 Days</u> Mean	<u>F</u>	<u>P</u>
n	15	34	34	23		
TM	9.73 (5.35)	14.41 (5.54)	15.62 (5.89)	14.87 (4.86)	4.19	<.01
TPR	7.27 (3.53)	8.62 (3.37)	7.97 (3.02)	7.48 (3.45)	.83	.48
TSR	28.33 (12.03)	36.24 (8.28)	32.15 (10.63)	33.65 (9.96)	2.37	.08
TTR	5.07 (3.31)	5.97 (2.54)	4.94 (2.40)	6.87 (3.20)	2.59	.06
TAR	10.87 (5.77)	14.97 (3.83)	12.82 (4.91)	13.13 (5.26)	2.77	.05
	a	b	a			
Total SOTSS	61.27 (26.40)	80.21 (15.80)	73.50 (20.67)	76.00 (22.08)	3.03	.03
	a	b	a			

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

Neuman-Keuls post hoc comparison failed to identify any group as significantly different from each other for neural symptoms of stress.

(See Table 18).

With respect to absenteeism, teachers who were absent due to sickness had significantly more total symptoms of stress than teachers who were not absent due to sickness. The principal contributing factors were significantly higher peripheral, cardiopulmonary and gastrointestinal symptoms and symptoms of depression, anxiety and cognitive disorganization. To a lesser extent, neural symptoms and symptoms of muscle tension and habit patterns were contributing factors.

Stress management procedures. The stress management procedures that teachers used was the fifth set of teacher characteristics producing significant differences between three SOSI subscales. The results from respondents who engaged in progressive relaxation, self-hypnosis, autogenic relaxation, transcendental meditation and/or yoga were considered because the total results of these procedures provided sufficient data to run analyses. The results of Benson's relaxation response procedure were not included because 110 respondents had never used the procedure. The three respondents who did use the Benson's relaxation response only used it rarely. The face validity of the results for prayer argued for a separate set of tests. The cells of the results of the rating of the four stress management procedures with ratings of "0" and "1" (never or seldom) were collapsed because these two ratings were deemed very similar to each other. The cells of the results of the ratings "2" and "3" (sometimes) were also collapsed because these two ratings were deemed very similar to each other. The last rating of "4" (regular daily use) was deemed to be distinct from the other ratings and was kept separate although there were only seven

Table 18

Means and Standard Deviations of the Symptoms of Stress Inventory
for Absenteeism Due to Sickness the Previous Year

Subscale	0 Days Mean	1-2 Days Mean	3-5 Days Mean	6 Days Mean	F	P
n	15	34	34	23		
PHL	2.07 (2.58)	4.74 (3.86)	4.94 (3.26)	6.09 (4.42)	3.74	.01
CR	4.80 (5.53)	9.06 (6.57)	10.88 (9.09)	13.00 (7.50)	3.91	.01
NRL	.73 (1.33)	1.35 (2.01)	2.26 (2.22)	2.30 (2.18)	2.95	.04
GI	3.33 (3.37)	6.00 (4.93)	7.09 (4.99)	8.48 (4.93)	3.82	.01
MT	4.93 (4.45)	7.26 (6.38)	9.59 (6.06)	10.17 (5.93)	3.24	.03
HP	8.13 (7.89)	12.47 (7.80)	14.44 (8.56)	15.87 (8.48)	3.06	.03
DEP	2.07 (2.89)	5.91 (4.41)	6.71 (4.27)	8.17 (6.80)	5.10	< .01
ANX	2.73 (3.95)	6.41 (5.48)	7.35 (5.22)	10.43 (7.18)	5.87	< .01
ANG	5.13 (5.22)	8.85 (6.07)	8.38 (5.81)	9.61 (6.42)	1.88	.14
CD	2.73 (3.20)	5.91 (3.99)	6.12 (3.63)	6.87 (5.30)	3.37	.02
Total SOSI	36.67 (32.62)	67.97 (40.27)	77.76 (41.76)	91.00 (47.86)	5.33	< .01

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 3 and 102.

respondents who used one or more of the four stress management procedures daily.

The results of the ANOVA indicated that there were significant main effects for the use of relaxation and meditation stress management procedures for the SOSI subscales cardiopulmonary symptoms of stress, $F(2, 111) = 3.06, p = .05$; neural symptoms of stress, $F(2, 111) = 4.57, p = .01$; and symptoms of habit patterns, $F(2, 111) = 4.10, p = .02$.

The Neuman-Keuls post hoc comparison indicated that teachers who used one or more stress management procedures daily had significantly more neural symptoms of stress and symptoms of habit patterns than teachers who never or rarely used stress management procedures. However, the Neuman-Keuls post hoc comparison failed to identify any group as significantly different from each other for cardiopulmonary symptoms of stress. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between the use of relaxation and meditation stress management procedures and the SOTSS subscales.

(See Table 19).

With respect to stress management procedures, the use of relaxation and/or meditation procedures did not suggest a significantly different intensity of stress on the total symptoms of stress. However, teachers who used relaxation and/or meditation procedures daily did report significantly higher neural and habit patterns symptoms of stress. Teachers who used relaxation and/or meditation procedures daily had somewhat lower scores on the other dimensions which counterbalanced the high cardiopulmonary, neural and habit pattern scores resulting in total scores that were not different from the other groups.

Table 19

Means and Standard Deviations of the Symptoms of Stress Inventory
for Use of Relaxation and/or Meditation Stress Management Procedures

Subscale	Never or rarely used (ratings 0, 1)	Use ≥ 1 procedure some-times or frequently (ratings 2, 3)	Use ≥ 1 procedure daily (rating 4)	F	p
n	78	29	7		
PHL	4.42 (3.59)	5.66 (4.26)	6.43 (5.03)	1.69	.19
CR	9.00 (7.70)	11.55 (7.71)	15.71 (9.83)	3.06	.05
NRL	1.47 (1.83)	2.17 (1.91)	3.71 (4.11)	4.57	.01
GI	5.92 (4.88)	7.52 (4.93)	9.86 (6.82)	2.67	.07
MT	7.95 (6.06)	9.07 (6.02)	12.00 (8.17)	1.55	.22
HP	11.90 (8.26)	15.17 (7.71)	19.71 (8.40)	4.10	.02
DEP	5.94 (5.25)	6.72 (4.78)	7.14 (3.93)	.38	.68
ANX	6.73 (6.21)	7.86 (5.54)	9.43 (4.86)	.90	.41
ANG	8.17 (5.92)	8.31 (6.32)	8.29 (5.65)	.01	.99
CD	5.36 (4.40)	6.62 (4.02)	7.29 (2.75)	1.40	.25
Total SOSI	66.86 (43.38)	80.66 (43.40)	99.57 (49.56)	2.49	.09

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

Aerobic exercise. The use of aerobic exercise was a sixth teacher characteristic producing significant differences on one SOTSS subscale. The results from respondents who engaged in running or jogging, walking, racket sports, and/or swimming were considered. The cells of the results of the four types of aerobic exercise with ratings of "0" and "1" (never or seldom) were collapsed because these two ratings were deemed very similar to each other. The cells of the results of the ratings "2" and "3" (sometimes) were also collapsed because these two ratings were deemed very similar to each other. The last rating of "4" (regular daily use) was deemed to be distinct from the other ratings and so it was kept separate from the other ratings.

The results of the ANOVA indicated that there was a significant main effect for the use of aerobic exercise for the SOTSS subscale teacher-teacher relations, $F(2, 111) = 3.73, p = .03$. The Neuman-Keuls post hoc comparison indicated that teachers who engaged in one or more of the four forms of aerobic exercise daily perceived teacher-teacher relations to be significantly more stressful than teachers who engaged in one or more forms of exercise sometimes or frequently. There were no further significant differences found on the other SOTSS subscales. There were no significant differences found between the use of aerobic exercise and the SOSI subscales. (See Table 20).

Smoking. The seventh set of significant differences occurred between nonsmokers and smokers on two SOTSS subscales. There were two respondents who indicated on the SOSI that they smoked less than 6 cigarettes daily, six respondents who indicated that they smoked between 7 and 19 cigarettes daily, and four respondents who indicated that they smoked 20 or more

Table 20
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Use of Aerobic Exercise

Subscales	Never or rarely use (ratings 0, 1)	Use ≥ 1 form of exercise some-times or frequently (ratings 2, 3)	Use ≥ 1 form of exercise daily (rating 4)	F	p
n	33	55	26		
TM	14.33 (5.90)	13.69 (5.63)	15.27 (5.88)	.67	.51
TPR	7.52 (3.02)	7.85 (3.49)	8.88 (3.58)	1.28	.28
TSR	33.52 (10.52)	31.78 (9.90)	35.62 (9.54)	1.33	.27
TTR	6.00 (3.17)	4.91 (2.76)	6.65 (2.58)	3.73	.03
TAR	13.27 (5.16)	12.09 (5.32)	14.73 (4.29)	2.46	.09
Total SOTSS	74.64 (21.25)	70.33 (20.49)	81.15 (20.33)	2.44	.09

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

cigarettes daily. Since the number of respondents for these three categories was considered to be individually too small to provide an accurate analysis, these three cells were collapsed and the results regrouped under the category heading of "Smokers".

The results of the independent t-tests indicated that teachers who smoked one or more cigarettes daily perceived the SOTSS subscales teacher-parent relations, $t(112) = 2.99, p = <.01$, and teacher-administrator relations, $t(112) = 3.32, p = <.01$, to be significantly more stressful than teachers who did not smoke cigarettes. There were no further significant differences found on the other SOTSS subscales. There were no significant differences found between nonsmokers and smokers and the SOSI subscales. (See Table 21).

Alcohol consumption. The amount of alcohol consumed was an eighth teacher characteristic producing significant differences on one SOSI subscale. There were 16 respondents who indicated on the SOSI that they usually drank 3 to 4 drinks per occasion and five respondents who indicated that they usually drank 5 or more drinks per occasion. Since the number of respondents for the category of 5 or more drinks per occasion was considered too small to provide an accurate analysis, these two cells were collapsed and the results regrouped under the category of 3 or more drinks per occasion.

The results of the ANOVA indicated a significant main effect for the amount of alcohol consumed for the SOSI subscale cardiopulmonary symptoms of stress, $F(2, 110) = 3.38, p = .04$. The Neuman-Keuls post hoc comparison indicated that teachers who consumed 3 or more alcoholic drinks per occasion had significantly less cardiopulmonary symptoms of stress

Table 21
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for Nonsmokers and Smokers

Subscale	<u>Nonsmokers</u>		<u>Smokers^a</u>		<u>t</u>	<u>p</u>
	Mean	Standard deviations	Mean	Standard deviations		
n		102		12		
TM	14.37	5.86	13.08	4.81	.73	.47
TPR	7.68	3.26	10.67	3.47	2.99	< .01
TSR	32.99	10.62	34.58	9.10	.52	.61
TTR	5.58	2.93	6.00	2.86	.47	.64
TAR	12.70	5.23	15.92	2.84	3.32	< .01
Total SOTSS	73.31	21.31	80.25	16.91	1.09	.28

^a A person who smoked one or more cigarettes daily was classified as a smoker.

than teachers who consumed 1 to 2 drinks per occasion. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between the amount of alcohol consumed and the SOTSS subscales. (See Table 22).

Type of alcohol. The type of alcohol consumed was a ninth teacher characteristic producing significant differences on two SOSI subscales. There were four respondents who indicated that they usually drank beer and wine and two respondents who indicated that they usually drank beer and liquor. Since the results for these two categories were considered to be individually too small to provide an accurate analysis, and since the results of the seven categories in the SOSI Frequency Distribution (see Appendix E) were mutually exclusive, the results for the category headings of "Beer and Wine" and "Beer and Liquor" were not included in this analysis.

The results of the ANOVA indicated a significant main effect for the type of alcohol consumed for the SOSI subscales peripheral symptoms of stress, $F(5, 101) = 3.31, p < .01$, and gastrointestinal symptoms of stress, $F(5, 101) = 3.77, p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who usually drank only beer had less peripheral symptoms of stress than teachers who usually drank wine and liquor. The Neuman-Keuls post hoc comparison also indicated that teachers who usually drank only beer had less gastrointestinal symptoms of stress than teachers who drank only liquor and teachers who usually drank wine and liquor. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between the type of alcohol consumed and the SOTSS subscales. (See Table 23).

Table 22

Means and Standard Deviations
of the Symptoms of Stress Inventory
for Amount of Alcohol Consumed

Subscale	<u>No drinks</u> Mean	<u>1-2 drinks</u> <u>per occasion</u> Mean	<u>>3 drinks</u> <u>per occasion</u> Mean	<u>F</u>	<u>p</u>
n	16	76	21		
PHL	3.81 (4.04)	5.43 (3.82)	3.43 (3.67)	2.92	.06
CR	9.94 (9.22)	10.99 (8.13)	6.05 (3.89)	3.38	.04
NRL	2.06 (2.24)	1.95 (2.21)	.90 (1.26)	2.26	.11
GI	6.31 (4.57)	7.25 (5.26)	4.29 (4.42)	2.88	.06
MT	8.75 (6.15)	8.58 (6.25)	7.76 (6.47)	.16	.85
HP	11.44 (7.81)	14.17 (8.54)	10.81 (7.83)	1.74	.18
DEP	5.31 (5.49)	6.30 (4.50)	6.67 (6.65)	.34	.71
ANX	7.56 (7.55)	7.53 (5.68)	5.76 (5.90)	.74	.49
ANG	7.69 (5.74)	8.47 (5.72)	8.00 (7.09)	.14	.87
CD	5.88 (5.76)	6.08 (4.03)	4.67 (3.80)	.90	.41
Total SOSI	68.75 (49.70)	76.74 (43.91)	58.33 (41.22)	1.48	.23

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

Table 23

Means and Standard Deviation
of the Symptoms of Stress Inventory
for Type of Alcohol Usually Consumed

Subscale	None Mean	Beer Mean	Wine Mean	Liquor Mean	Wine and liquor Mean	Beer, wine and liquor Mean	F	p
n	14	11	39	9	17	17		
PHL	3.14 (2.51)	1.64 (2.06)	5.15 (4.50)	5.33 (3.08)	6.47 (2.81)	5.12 (3.10)	3.31	<.01
	b a		b			a		
CR	9.79 (8.90)	5.18 (3.76)	10.92 (9.39)	11.89 (8.30)	10.65 (6.72)	9.35 (6.20)	1.06	.39
NRL	2.14 (2.32)	.73 (1.10)	2.13 (2.40)	1.89 (1.69)	1.35 (1.80)	1.65 (1.58)	1.08	.37
GI	6.07 (4.25)	2.64 (2.50)	6.05 (4.86)	9.22 (6.51)	9.29 (5.05)	5.18 (3.63)	3.77	<.01
	b a		b			a		
MT	8.43 (6.24)	4.00 (2.76)	8.51 (6.88)	9.11 (5.62)	8.29 (5.37)	9.53 (6.46)	1.27	.28
HP	11.14 (7.64)	9.73 (6.93)	12.77 (8.63)	15.22 (9.88)	13.53 (7.30)	14.35 (8.09)	.73	.60
DEP	5.00 (5.66)	3.45 (2.66)	6.13 (4.58)	6.33 (5.12)	7.82 (4.97)	6.00 (4.66)	1.29	.27
ANX	7.07 (7.62)	3.27 (2.76)	7.26 (5.62)	6.78 (6.26)	9.18 (6.53)	6.14 (4.57)	1.45	.21
ANG	7.43 (5.96)	4.91 (3.73)	7.77 (6.36)	6.44 (6.19)	11.18 (5.64)	8.41 (5.06)	1.85	.11
CD	5.71 (6.06)	3.27 (2.76)	5.77 (4.05)	5.89 (5.11)	7.06 (3.53)	5.47 (4.14)	1.06	.39
Total SOSI	65.93 (48.04)	38.82 (24.49)	72.46 (46.94)	78.11 (46.99)	84.82 (39.70)	71.47 (35.45)	1.71	.14

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

Conclusions

Of the findings discussed above, only six out of 15 potential teacher characteristics supported hypothesis #2. The results of the independent t-tests and the ANOVA indicated that there were no significant differences between the six teacher characteristics of age; number of children living at home; teaching experience; use of prayer as a stress management procedure; the amount of tea or coffee consumed each day; the frequency of alcohol consumption; and the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers. However, there were significant differences with the following teacher characteristics: sex; marital status; highest degree held; days sick the previous year; use of relaxation and/or meditation stress management procedures; use of aerobic exercise; nonsmokers and smokers; amount of alcohol consumed; and type of alcohol usually consumed. Since there were significant differences between nine teacher characteristics and the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers, hypothesis #2 was not supported.

Hypothesis #3 - Teaching Conditions

Hypothesis #3 states that there will be no significant differences between various teaching conditions, such as grade level or subjects taught, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers. This hypothesis was tested by using independent t-tests or ANOVA procedures with Neuman-Keuls post hoc comparisons.

Results

The results of the tests indicated that there were significant differences between 13 out of 19 teaching conditions, the major perceived stressors of teaching, and/or the main symptoms of stress experienced

by teachers.

Elementary versus secondary teachers. The first set of significant differences for teaching conditions occurred between elementary teachers versus secondary teachers and one SOSI subscale. The results of the independent t-tests indicated that elementary teachers had significantly more symptoms of cognitive disorganization, $t(111) = 2.00$, $p = .05$, than secondary teachers. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between elementary teachers versus secondary teachers and the SOTSS subscales. (See Table 24).

Split versus single grade classes. The second set of significant differences for teaching conditions occurred between elementary single grade classes versus split grade classes and one SOTSS subscale. The results of the independent t-tests indicated that teachers who taught split grade elementary classes perceived teacher-parent relations to be less stressful, $t(47) = 1.99$, $p = .05$, than teachers who taught single grade elementary classes. There were no further significant differences found between split grade versus single grade elementary classes and the other SOTSS subscales. There were no significant differences found between split grade versus single grade elementary classes and the SOSI subscales. (See Table 25).

Secondary class size. The third set of teaching conditions, secondary class size, produced significant differences on one SOTSS subscale. There were two respondents who indicated that they had an average class size of 15 or less students and 10 respondents who indicated that they had an average class size of 16 to 20 students. Since the number of respondents with classes that averaged 15 or less students was considered too small

Table 24

Means and Standard Deviations
for the Symptoms of Stress Inventory
and Elementary Versus Secondary Teachers

Subscale	Elementary teachers		Secondary teachers		<u>t</u>	<u>p</u>
	Mean	Standard deviation	Mean	Standard deviation		
n	55		58			
PHL	4.89	3.94	4.84	3.90	.06	.95
CR	9.65	7.53	10.52	8.47	.57	.57
NRL	1.87	2.10	1.74	2.12	.33	.74
GI	6.85	4.95	6.41	5.22	.46	.65
MT	8.98	6.39	8.10	6.08	.75	.46
HP	13.27	8.01	13.24	8.78	.02	.98
DEP	7.15	5.55	5.36	4.43	1.89	.06
ANX	8.05	6.18	6.40	5.75	1.48	.14
ANG	8.55	6.38	7.98	5.58	.50	.62
CD	6.62	4.39	5.03	4.04	2.00	.05
Total SOSI	75.89	44.85	69.64	44.13	.75	.46

Table 25

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for Split Grade Versus Single Grade Elementary Classes

Subscale	Split grade class		Single grade class		<u>t</u>	<u>p</u>
	Mean	Standard deviation	Mean	Standard deviation		
n	17		35			
TM	15.75	6.78	15.42	5.46	.18	.86
TPR	7.25	3.57	9.33	3.37	1.99	.05
TSR	32.56	11.51	32.97	9.74	.13	.90
TTR	6.06	3.34	5.76	2.76	.34	.74
TAR	11.88	6.15	13.15	5.21	.76	.45
Total SOTSS	73.50	26.18	76.64	19.95	.47	.64

to provide an accurate analysis, these two cells were collapsed and the results regrouped under the category of classes which averaged 20 or less students. Furthermore, there were 21 respondents who indicated that their classes averaged 26 to 30 students and one respondent who indicated that his/her classes averaged 31 to 35 students. Since the number of respondents in this latter category was considered too small to provide an accurate analysis, the two cells were collapsed and the results regrouped under the category of classes which averaged 26 or more students.

The results of the ANOVA indicated a significant main effect for secondary school class size for the SOTSS subscale teacher-student relations, $F(2, 54) = 3.36, p = .04$. The Neuman-Keuls post hoc comparison indicated that secondary teachers with an average class size of 20 students or less perceived teacher-student relations as significantly less stressful than teachers with an average class size of 21 to 25 students. There were no further significant differences found on the other SOTSS subscales. There were no significant differences found between secondary class size and the SOSI subscales. (See Table 26).

Employment status. The fourth set of significant differences for teaching conditions occurred between teacher employment status and three SOTSS subscales and the SOTSS total score. The results of the independent t-tests indicated that full-time teachers perceived teacher-student relations, $t(112) = 3.01, p = <.01$; teacher-administrator relations, $t(112) = 2.52, p = .01$, and the total of the SOTSS stressors, $t(112) = 2.61, p = .01$, to be significantly more stressful than part-time teachers. There were no further significant differences found on the other SOTSS subscales. There were no significant differences found between teacher employment status and the SOSI subscales. (See Table 27).

Table 26

Means and Standard Deviations
for the Sources of Teacher Stress Survey
for Secondary School Class Size

Subscale	Classes which averaged <u>≤20 students</u> Mean	Classes which averaged <u>21-25 students</u> Mean	Classes which averaged <u>≥26 students</u> Mean	F	p
n	12	23	22		
TM	11.17 (6.03)	14.30 (4.11)	14.05 (5.38)	1.70	.19
TPR	7.83 (4.41)	7.57 (3.04)	7.00 (2.94)	.29	.75
TSR	27.25 <u>a</u> (13.82)	35.87 <u>b</u> (8.26)	34.00 <u>a</u> (7.67)	3.36	.04
TTR	4.83 (3.95)	5.78 (3.23)	5.09 (1.72)	.52	.60
TAR	12.83 (6.29)	13.22 (5.42)	13.36 (3.62)	.04	.96
Total SOTSS	63.92 (28.39)	76.74 (16.80)	73.50 (15.87)	1.74	.18

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

Table 27

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for Employment Status

Subscale	<u>Full-time teachers</u>		<u>Part-time teachers</u>		t	p
	Mean	Standard deviation	Mean	Standard deviation		
n	99		15			
TM	14.39	5.53	13.20	7.15	.75	.46
TPR	8.17	3.42	6.80	3.05	1.47	.15
TSR	34.22	9.58	26.13	10.45	3.01	<.01
TTR	5.71	2.85	5.07	3.33	.79	.43
TAR	13.49	4.75	10.00	6.50	2.52	.01
Total SOTSS	75.99	20.26	61.20	21.48	2.61	.01

With respect to teacher employment status, the main distinguishing factors why full-time teachers perceived their status to be more stressful than part-time teachers were the relationships with students and administrators.

Teaching position. The fifth set of significant differences for teaching conditions occurred between teaching position held and one SOSI subscale. There were four counsellors, three learning assistance teachers, and five special education teachers. Since the number of respondents in each of these three positions were considered too small to provide an accurate analysis, and since these positions were considered to be similar because of the very small number of students these individual teachers dealt with for each lesson compared to regular classroom teachers, these three cells were collapsed and the results regrouped under one heading. There were two enrichment class teachers, four librarians, two department heads and one unclassified teacher. Since the number of respondents in each of these positions were considered too small to provide an accurate analysis, and because these positions had no similarities to each other, the results from these respondents were eliminated from the independent t-tests.

The results of the independent t-tests indicated that regular classroom teachers had significantly more gastrointestinal symptoms of stress, $t(103) = 2.61$, $p = .02$, than counsellors, learning assistance teachers and special education teachers. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between teaching positions and the SOTSS. (See Table 28).

Preparation hours. The sixth set of significant differences for teaching conditions occurred between the weekly number of preparation hours spent and one SOTSS subscale. There were four respondents who had

Table 28

Means and Standard Deviations
of the Symptoms of Stress Inventory
for Teaching Position Held

Subscale	<u>Regular teacher</u>		Counsellor, learning assistance teacher, special education teacher		<u>t</u>	<u>p</u>
	Mean	Standard deviation	Mean	Standard deviation		
n	93		12			
PHL	4.67	3.92	4.25	2.49	.36	.72
CR	10.05	8.05	8.42	7.37	.67	.51
NRL	1.75	2.13	1.42	1.62	.53	.60
GI	6.54	5.17	3.92	2.94	2.61	.02
MT	8.31	6.31	6.42	4.25	1.01	.32
HP	13.27	8.42	9.92	6.93	1.32	.19
DEP	6.09	4.67	4.33	4.64	1.22	.22
ANX	7.33	6.00	3.92	4.25	1.91	.06
ANG	8.46	5.92	5.33	6.43	1.71	.09
CD	5.82	4.35	4.67	3.96	.87	.39
Total SOSI	72.29	44.62	52.58	33.15	1.48	.14

less than 1 hour per week of preparation time or "spares" during school hours. The number of respondents in this category was considered too small to provide an accurate analysis. This cell was collapsed along with the cell containing results from 10 respondents who had 1 to 2 hours of preparation time per week during school hours. The results of these two cells were regrouped under the category of teachers with less than 1 to 2 hours of preparation time per week. There was one respondent who had more than 6 hours of preparation time per week. This number was also considered too small to provide an accurate analysis. This cell was collapsed with the cell containing results from eight respondents who had 4.1 to 6 hours of preparation time per week. The results were regrouped under the category of teachers with 4 or more hours of preparation time per week.

The results of the ANOVA indicated a significant main effect for the weekly number of preparation hours for the SOTSS subscale teacher-parent relations, $F(3, 109) = 4.04, p = <.01$. The Neuman-Keuls post hoc comparison indicated that teachers who had two or less hours of preparation time per week perceived teacher-parent relations as significantly more stressful than teachers who had no preparation time or teachers who had 2.1 preparation hours or more per week. There were no further significant differences found on the other SOTSS subscales. There were no significant differences found between the weekly number of preparation hours and the SOSI subscales. (See Table 29).

Amount of school-related work. The seventh set of significant differences for teaching conditions occurred between the weekly hours of school-related work per week excluding classroom teaching time, and one SOTSS subscale and one SOSI subscale. There were five respondents who

Table 29
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Weekly Number of Preparation Hours
During School Time

Subscales	None	< 1 Hour to 2 hours	2.1 to 4 Hours	≥ 4.1 Hours	F	p
n	54	14	36	9		
TM _s	15.04 (6.23)	13.57 (4.40)	13.44 (5.53)	13.56 (6.02)	.67	.57
TPR	7.96 (3.09) a	10.71 (4.38)	7.39 (2.99) a	6.89 (3.18)	4.04	<.01
TSR	32.35 (10.89)	34.43 (8.80)	33.58 (9.85)	33.44 (8.32)	.21	.89
TTR	6.19 (2.95)	6.07 (3.15)	5.08 (2.63)	4.33 (2.45)	1.86	.14
TAR _s	12.46 (5.40)	15.29 (3.00)	13.50 (4.64)	12.56 (5.90)	1.31	.28
Total SOTSS	74.00 (23.00)	80.07 (17.20)	73.00 (19.64)	70.78 (20.22)	.48	.70

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

worked 26 to 30 hours per week on school-related work excluding classroom teaching time, two respondents who worked 31 to 35 hours and one respondent who worked 36 to 40 hours per week. Since the number of respondents for each of these three categories was considered too small to provide an accurate analysis, these three cells were collapsed and the results regrouped under the category of teachers who worked 26 or more hours per week on school-related work excluding classroom teaching time.

The results of the ANOVA indicated a significant main effect for weekly hours of school-related work for the SOTSS subscale time management, $F(5, 108) = 2.84, p = .02$. The Neuman-Keuls post hoc comparison failed to identify teachers who worked 1 to 5 hours, teachers who worked 6 to 10 hours, teachers who worked 11 to 15 hours, teachers who worked 16 to 20 hours, teachers who worked 21 to 25 hours, or teachers who worked 26 hours or more per week, as significantly different from each other. There were no further significant differences found on the other SOTSS subscales. (See Table 30).

The results of the ANOVA indicated a significant main effect for weekly hours of school-related work for the SOSI subscale anger, $F(5, 108) = 2.26, p = .05$. The Neuman-Keuls post hoc comparison failed to identify any of the six groups of respondents as significantly different from each other. There were no further significant differences found on the other SOSI subscales. (See Table 31).

Amount of excessive work. The eighth set of significant differences for teaching conditions occurred between the weekly amount of excessive school-related work excluding classroom teaching time, and two SOTSS subscales, the SOTSS total score and one SOSI subscale. There were six respon-

Table 30
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Weekly Hours of School-Related Work,
Excluding Classroom Teaching Time

Subscale	1-5 Hours	6-10 Hours	11-15 Hours	16-20 Hours	21-25 Hours	≥ 26 Hours	F	p
n	13	24	29	26	14	8		
TM	11.15 (4.88)	11.75 (6.37)	15.79 (4.71)	15.08 (5.44)	14.93 (5.28)	17.13 (7.14)	2.84	.02
TPR	8.54 (3.43)	7.38 (2.99)	7.52 (3.15)	8.50 (3.35)	8.71 (4.21)	7.75 (4.33)	.58	.72
TSR	36.62 (6.92)	28.58 (10.02)	33.24 (8.28)	35.12 (10.42)	35.21 (9.58)	31.00 (16.04)	1.75	.13
TTR	6.85 (3.13)	5.13 (3.03)	5.17 (3.01)	6.38 (2.68)	5.43 (1.87)	4.63 (3.70)	1.31	.26
TAR	13.23 (5.36)	12.92 (5.01)	12.55 (4.61)	14.00 (5.51)	14.07 (3.75)	9.88 (7.36)	.96	.44
Total SOTSS	76.38 (17.02)	65.75 (23.57)	74.28 (17.80)	79.08 (19.29)	78.36 (19.30)	70.38 (32.77)	1.27	.28

Table 31

Means and Standard Deviations
of the Symptoms of Stress Inventory
for the Weekly Hours of School-Related Work,
Excluding Classroom Teaching Time

Subscale	1-5 Hours	6-10 Hours	11-15 Hours	16-20 Hours	21-25 Hours	≥26 Hours	F	p
n	13	24	29	26	14	8		
PHL	4.85 (4.26)	4.00 (3.58)	4.52 (3.61)	6.04 (4.78)	5.14 (2.54)	4.38 (4.03)	.79	.56
CR	13.31 (11.29)	7.04 (5.61)	10.90 (8.74)	10.96 (6.94)	8.07 (6.53)	11.38 (9.07)	1.50	.20
NRL	2.54 (2.70)	1.21 (1.77)	1.66 (1.86)	2.31 (2.53)	1.79 (1.81)	1.13 (1.46)	1.21	.31
GI	6.77 (5.29)	4.50 (4.19)	6.66 (4.71)	8.12 (5.29)	6.57 (5.77)	7.13 (6.15)	1.32	.26
MT	10.15 (7.29)	6.88 (5.80)	9.10 (6.43)	8.58 (6.07)	7.79 (6.23)	9.25 (5.92)	.62	.69
HP	14.69 (9.37)	10.63 (7.87)	12.66 (8.39)	15.96 (8.29)	12.93 (8.22)	12.13 (7.83)	1.17	.33
DEP	6.85 (5.47)	5.21 (4.36)	6.34 (5.45)	6.50 (4.10)	6.93 (7.28)	5.50 (3.66)	.33	.89
ANX	7.08 (8.04)	4.75 (3.93)	7.24 (6.30)	9.85 (5.63)	6.86 (6.10)	6.38 (5.10)	1.95	.09
ANG	9.69 (7.03)	6.54 (4.87)	7.79 (6.16)	10.58 (5.77)	8.50 (6.12)	4.13 (3.98)	2.26	.05
CD	5.69 (4.96)	4.38 (3.62)	6.45 (4.93)	6.77 (4.01)	5.64 (3.67)	5.00 (3.66)	1.01	.42
Total SOSI	81.62 (54.05)	55.13 (35.60)	73.31 (46.38)	85.65 (42.38)	70.21 (44.67)	66.38 (43.79)	1.37	.24

dents who felt that 16 to 20 hours of their weekly amount of school-related work were excessive and one respondent who felt that 21 to 25 hours were excessive. The number of respondents in each of these two categories was considered too small to provide an accurate analysis. The results of these two cells were collapsed along with the cell containing results from 11 respondents who felt that 11 to 15 hours of their weekly amount of school-related work were excessive. The results of these three cells were regrouped under the category of teachers who felt that 11 or more hours of their weekly amount of school-related work were excessive.

The results of the ANOVA indicated significant main effects for excessive weekly hours of school-related work for the SOTSS subscales of time management, $F(3, 106) = 11.83, p < .01$; teacher-student relations, $F(3, 106) = 3.35, p = .02$; and the total of the SOTSS stressors, $F(3, 106) = 4.42, p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who felt that 1 to 5 hours of their weekly school-related work were excessive, 6 to 10 hours were excessive and 11 or more hours were excessive, perceived time management stressors as significantly more stressful than teachers who felt that none of their weekly school-related work was excessive. The Neuman-Keuls post hoc comparison also indicated that teachers who felt that 11 or more hours of school-related work were excessive, perceived the total of the SOTSS stressors as significantly more stressful than teachers who felt that none of their school-related work was excessive. The Neuman-Keuls post hoc comparison failed to identify any group as significantly different from each other for teacher-student relations. There were no further significant differences found on the other SOTSS subscales. (See Table 32).

Table 32

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Excessive Weekly Hours of School-Related Work,
Excluding Classroom Teaching Time

Subscale	None	1-5 Hours	6-10 Hours	>11 Hours	F	p
n	43	35	14	18		
TM	10.77 (5.26)	16.23 (4.74)	15.64 (6.13)	17.89 (4.48)	11.83	<.01
TPR	7.37 (3.15)	8.23 (3.35)	7.00 (3.55)	9.33 (3.69)	1.89	.14
TSR	29.56 (10.31)	34.46 (9.90)	36.21 (9.77)	36.72 (8.58)	3.35	.02
TTR	5.88 (3.28)	5.26 (2.84)	5.43 (2.50)	5.83 (2.83)	.33	.80
TAR	12.00 (5.41)	13.06 (5.26)	14.71 (4.50)	14.00 (4.97)	1.27	.29
Total SOTSS	65.58 (21.87)	77.23 (19.75)	79.00 (20.77)	83.78 (16.96)	4.42	<.01

a b

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

With respect to excessive weekly hours of school-related work, the main distinguishing factors why some teachers perceived any of their work as excessive were the time involved and to a lesser extent the relationships with the students.

The results of the ANOVA indicated a significant main effect for excessive weekly hours of school-related work for the SOSI subscale peripheral symptoms of stress, $F(3, 106) = 2.84, p = .04$. The Neuman-Keuls post hoc comparison failed to identify teachers who felt that none of their weekly school-related work to be excessive, teachers who felt that 1 to 5 hours to be excessive, teachers who felt that 6 to 10 hours to be excessive or teachers who felt that 11 or more hours per week to be excessive, as significantly different from each other. There were no further significant differences found on the other SOSI subscales. (See Table 33).

School size. The ninth set of significant differences for teaching conditions occurred between school size and one SOSI subscale. There were four respondents who taught in schools with 100 or less students. This number of respondents was considered too small to provide an accurate analysis. This cell was collapsed along with the cell containing results from 17 respondents who taught in schools with 101 to 200 students. The results of these two cells were regrouped under the category of teachers who taught in schools with 200 or less students. There were six respondents who taught in schools with 601 to 800 students. This number of respondents was also considered too small to provide an accurate analysis. This cell was collapsed along with the cell containing 21 respondents who taught in schools with more than 800 students. The results of these two cells were regrouped under the category of teachers who taught in schools with 601 or more students.

Table 33

Means and Standard Deviations
of the Symptoms of Stress Inventory
for the Excessive Weekly Hours of School-Related Work,
Excluding Classroom Teaching Time

Subscale	None	1-5 Hours	6-10 Hours	≥11 Hours	F	p
n	43	35	14	18		
PHL	4.12 (3.72)	4.34 (3.62)	6.00 (3.94)	6.89 (4.40)	2.84	.04
CR	9.51 (8.53)	9.71 (7.20)	13.86 (10.77)	10.00 (5.69)	1.11	.35
NRL	1.67 (2.22)	1.46 (1.80)	2.50 (2.53)	2.33 (2.11)	1.24	.30
GI	6.09 (4.82)	5.57 (4.39)	9.29 (6.45)	8.11 (5.47)	2.50	.06
MT	8.47 (6.80)	7.74 (6.19)	8.50 (5.36)	10.56 (5.96)	.80	.50
HP	11.65 (9.09)	13.17 (7.23)	16.14 (9.53)	14.89 (7.63)	1.31	.27
DEP	5.21 (4.52)	6.80 (5.15)	5.64 (3.82)	8.44 (6.48)	1.92	.12
ANX	5.88 (6.15)	6.94 (5.87)	8.79 (4.53)	10.17 (6.35)	2.57	.06
ANG	7.65 (6.02)	8.11 (5.91)	8.50 (5.68)	9.67 (6.74)	.48	.70
CD	5.30 (4.27)	6.26 (4.89)	5.86 (2.98)	6.22 (4.04)	.38	.77
Total SOSI	65.56 (46.02)	70.11 (42.37)	85.07 (44.93)	87.28 (44.47)	1.41	.24

The results of the ANOVA indicated a significant main effect for school size for the SOSI subscale cognitive disorganization, $F(3, 110) = 4.26, p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers in schools containing 401 to 600 students had significantly more symptoms of cognitive disorganization than teachers in schools containing 201 to 400 students and teachers in schools containing more than 600 students. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between school size and the SOTSS subscales. (See Table 34).

Physical assault. The tenth set of significant differences for teaching conditions occurred between physical assault on teachers by a student and three SOSI subscales and the SOSI total score. There were three respondents who had been physically assaulted by a student 3 to 5 times in their teaching careers and one respondent who had been physically assaulted by a student 6 or more times. The number of respondents in each of these two categories was considered too small to provide an accurate analysis. The results of these two cells were collapsed along with the cell containing results from 16 respondents who had been physically assaulted by a student 1 to 2 times in their teaching careers. The results of these three cells were regrouped under the category of teachers who had been physically assaulted by a student 1 or more times in their teaching careers.

The results of the independent t-tests with the SOSI subscales indicated that teachers who had been assaulted by a student 1 or more times in the respondents' teaching careers had significantly more gastrointestinal symptoms of stress, $t(112) = 2.19, p = .03$; symptoms of anxiety, $t(112) = 2.64, p = .01$; symptoms of anger, $t(112) = 2.89, p < .01$, and total

Table 34

Means and Standard Deviations
of the Symptoms of Stress Inventory for School Size

Subscale	<200 Students	201-400 Students	401-600 Students	>600 Students	F	p
n	21	30	36	27		
PHL	4.86 (3.61)	4.03 (3.57)	5.28 (4.14)	5.22 (4.14)	.66	.58
CR	10.86 (7.38)	7.67 (8.13)	9.69 (6.75)	12.59 (9.25)	1.95	.13
NRL	1.52 (1.69)	1.70 (2.26)	2.00 (1.96)	1.81 (2.45)	.25	.86
GI	7.33 (5.55)	5.37 (5.35)	6.50 (4.15)	7.41 (5.55)	.96	.41
MT	8.76 (6.04)	7.67 (6.86)	9.06 (5.70)	8.41 (6.50)	.28	.84
HP	13.33 (8.42)	11.27 (8.57)	14.72 (7.89)	13.26 (8.66)	.94	.43
DEP	6.10 (3.99)	6.33 (6.38)	7.11 (4.66)	4.96 (4.59)	.94	.42
ANX	7.95 (5.20)	5.93 (5.88)	7.92 (6.36)	7.00 (6.18)	.74	.53
ANG	9.67 (6.30)	7.10 (6.17)	8.64 (5.98)	7.74 (5.45)	.88	.45
CD	7.05 (4.34)	4.30 (3.04)	7.22 (4.50)	4.59 (4.27)	4.26	<.01
	b $\overbrace{\hspace{2cm}}$		b $\overbrace{\hspace{2cm}}$			
	a $\overbrace{\hspace{2cm}}$		a $\overbrace{\hspace{2cm}}$			
Total SOSI	77.43 (42.57)	61.37 (46.78)	78.14 (40.41)	73.00 (47.91)	.91	.44

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

symptoms of stress, $t(112) = 2.09$, $p = .04$, than teachers who had not been assaulted by a student in the respondents' teaching careers. There were no further significant differences found on the other SOSI subscales. There were no significant differences found between physical assault on teachers by a student and the SOTSS subscales. (See Table 35).

With respect to physical assault by a student, teachers who had been physically assaulted by a student in their teaching careers had significantly more total symptoms of stress than teachers who had not been assaulted. The principal contributing factors were significantly higher symptoms of anger and anxiety and to a lesser extent, gastrointestinal symptoms of stress.

Verbal threats. The eleventh set of significant differences for teaching conditions occurred between the incidence of teachers being verbally threatened by a student and three SOTSS subscales, the total SOTSS score, nine SOSI subscales, and the total SOSI score. There were six respondents who had been verbally threatened 6 or more times by a student in their teaching careers. This number of respondents was considered too small to provide an accurate analysis. This cell was collapsed along with the cell containing results from nine respondents who had been verbally threatened 3 to 5 times by a student in their teaching careers. The results of these two cells were regrouped under the category of teachers who had been verbally threatened by a student 3 or more times in their teaching careers.

In the SOTSS, the results of the ANOVA indicated significant main effects for the incidence of teachers who had been verbally threatened by a student for the SOTSS subscales teacher-student relations, $F(2, 111) = 3.09$, $p = .05$; teacher-teacher relations, $F(2, 111) = 3.33$, $p = .04$; teacher-administrator relations, $F(2, 111) = 3.95$, $p = .02$; and the total

Table 35
Means and Standard Deviations
of the Symptoms of Stress Inventory
for Physical Assault of Teachers by a Student.

Subscale	<u>Never assaulted in teaching career</u>		<u>Assaulted ≥ 1 times in teaching career</u>		<u>t</u>	<u>p</u>
	Mean	Standard deviation	Mean	Standard deviation		
n	94		20			
PHL	4.65	3.90	5.85	3.73	1.26	.21
CR	10.01	8.24	10.30	6.80	.15	.88
NRL	1.66	2.08	2.40	2.16	1.44	.15
GI	6.10	4.91	8.80	5.46	2.19	.03
MT	8.02	6.07	10.65	6.59	1.73	.09
HP	12.63	8.47	15.95	7.35	1.63	.11
DEP	5.87	4.75	7.85	6.11	1.61	.11
ANX	6.52	5.70	10.30	6.40	2.64	.01
ANG	7.49	5.59	11.60	6.59	2.89	<.01
CD	5.49	4.33	7.25	3.58	1.70	.09
Total SOSI	68.43	43.79	90.95	43.03	2.09	.04

of the teacher stressors, $F(2, 111) = 3.56, p = .03$. The Neuman-Keuls post hoc comparison indicated that teachers who had been verbally threatened by a student 3 or more times in their teaching careers perceived teacher-teacher relations to be significantly more stressful than teachers who had never been verbally threatened by a student. The Neuman-Keuls post hoc comparison indicated that teachers who had been verbally threatened 1 to 2 times in their teaching careers perceived teacher-administrator relations and the total of the SOTSS stressors to be significantly more stressful than teachers who had never been verbally threatened by a student. However, the Neuman-Keuls post hoc comparison failed to identify any of the three teacher groups as significantly different from each other for teacher-student relations. There were no further significant differences found on the other SOTSS subscales. (See Table 36).

With respect to verbal threats, the main distinguishing factors of teachers who had been verbally threatened by a student were these teachers' perceived stressful relationships with administrators, teaching staff and to a lesser extent, students.

The results of the ANOVA indicated that there were significant main effects between the incidence of teachers who had been verbally threatened by a student, the SOSI total score, and all SOSI subscales, except depression. See Table 37 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who had been verbally threatened by a student 3 or more times had significantly more peripheral and muscle tension symptoms of stress than teachers who had never been verbally threatened by a student. The Neuman-Keuls post hoc comparison indicated that teachers who had been verbally threatened by a student 3 or more times had significantly more cardiopulmonary, neural, and gastrointestinal symp-

Table 36

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Incidence of Teachers Who Had Been Verbally Threatened
by a Student

Subscale	Never verbally threatened in teaching career	Verbally threatened 1-2 times in teaching career	Verbally threatened ≥ 3 times in teaching career	F	p
n	63	36	15		
TM	13.52 (5.47)	15.64 (6.33)	13.87 (5.18)	1.60	.21
TPR	7.86 (3.58)	8.78 (3.19)	6.67 (2.69)	2.21	.16
TSR	31.14 (10.73)	35.17 (9.03)	36.80 (7.44)	3.09	.05
TTR	5.08 (3.14) a	5.97 (2.51) b	7.07 (2.25)	3.33	.04
TAR	11.86 (5.79) a	14.61 (3.61) b	14.20 (4.09) a	3.95	.02
Total SOTSS	69.46 (21.97) a	80.17 (19.45) b	78.60 (15.55) a	3.56	.03

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

toms of stress than teachers who had never been verbally threatened by a student and teachers who had been verbally threatened 1 to 2 times in their teaching careers. The Neuman-Keuls post hoc comparison indicated that teachers who had been verbally threatened by a student 1 or more times in their teaching careers had significantly more symptoms of habit patterns, anger, and cognitive disorganization, and total symptoms of stress than teachers who had never been verbally threatened by a student. However, the Neuman-Keuls post hoc comparison failed to identify any group of teachers as significantly different from each other for symptoms of anxiety. (See Table 37).

With respect to verbal threats by a student, teachers who had been verbally threatened in their teaching career by a student had significantly more total symptoms of stress than teachers who had never been verbally threatened by a student. The principal contributing factors were significantly higher symptoms of anger, cognitive disorganization and habit patterns. Furthermore, teachers who had been verbally threatened by a student 3 or more times had significantly higher cardiopulmonary, neural and gastrointestinal symptoms of stress than teachers who had never been threatened or threatened 1 to 2 times in their teaching career. Finally, teachers who had been threatened 3 or more times had significantly higher muscle tension and to a lesser extent, peripheral symptoms of stress than teachers who had never been threatened.

Wilful damage to personal property. The twelfth set of significant differences for teaching conditions occurred between the incidence of teachers who had personal property wilfully damaged by a student on school

Table 37

Means and Standard Deviations

of the Symptoms of Stress Inventory

for the Incidence of Teachers Who Had Been Verbally Threatened

by a Student

Subscale	Never verbally threatened in teaching career	Verbally threatened 1-2 times in teaching career	Verbally threatened ≥ 3 times in teaching career	F	p
n	63	36	15		
PHL	4.13 (3.41)	5.36 (3.91)	6.73 (5.02)	3.29	.04
CR	8.84 (7.58)	9.89 (7.34)	15.60 (9.18)	4.64	.01
NRL	1.54 (1.92)	1.64 (1.81)	3.20 (2.96)	4.13	.02
GI	5.38 (4.58)	6.89 (5.07)	10.80 (5.09)	7.81	<.01
MT	7.37 (5.93)	8.86 (5.62)	12.27 (7.46)	4.08	.02
HP	11.25 (7.99)	14.69 (9.02)	17.87 (5.50)	4.95	<.01
DEP	5.43 (5.54)	7.69 (4.36)	5.93 (3.69)	2.40	.10
ANX	5.95 (6.04)	8.39 (5.83)	9.47 (5.00)	3.30	.04
ANG	6.32 (5.83)	10.44 (5.46)	10.80 (5.06)	8.01	<.01
CD	4.63 (4.33)	7.25 (3.86)	7.20 (3.41)	5.72	<.01
Total SOSI	60.84 (44.03)	81.11 (39.37)	99.87 (42.24)	6.25	<.01

Note. When lines are used in a subscale, groups not connected by lines

Table 37 cont.

are significantly different from each other.

The degrees of freedom for each subscale are 2 and 111.

premises and one SOTSS subscale and one SOSI subscale. There were three respondents who had personal property wilfully damaged by a student on school premises 6 or more times in their teaching careers. This number of respondents was considered too small to provide an accurate analysis. This cell was collapsed along with the cell containing results from 10 respondents who had personal property wilfully damaged by a student on school premises 3 to 5 times in their teaching careers. The results of these two cells were regrouped under the category of teachers who had personal property wilfully damaged by a student on school premises 3 or more times in their teaching careers.

The results of the ANOVA indicated a significant main effect for the incidence of wilful damage to teachers' personal property for the SOTSS subscale teacher-administrator relations, $F(2, 111) = 5.36$, $p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who had personal property wilfully damaged by a student on school premises 1 to 2 times during the respondents' teaching careers perceived teacher-administrator relations to be significantly more stressful than teachers who never had any personal property wilfully damaged by a student. There were no further significant differences found on the other SOTSS subscales. (See Table 38).

The results of the ANOVA indicated that there was a significant main effect for the incidence of wilful damage to teachers' personal property for the SOSI subscale peripheral symptoms of stress, $F(2, 111) = 5.28$, $p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who had personal property wilfully damaged by a student on school premises 3 or more times during the respondents' teaching careers had

Table 38
 Means and Standard Deviations
 of the Sources of Teacher Stress Survey
 for the Incidence of Teachers Who Had Personal Property
 Wilfully Damaged by a Student on School Premises

Subscale	Never	1-2 Times in teaching career	3 Times in teaching career	F	p
n	62	39	13		
TM	14.45 (5.87)	14.31 (5.60)	13.00 (5.92)	.34	.71
TPR	8.00 (3.78)	8.23 (3.27)	7.23 (3.96)	.42	.66
TSR	32.87 (11.21)	34.95 (7.96)	29.15 (8.90)	1.70	.19
TTR	5.68 (3.19)	5.69 (2.71)	5.15 (2.19)	.19	.83
TAR	11.89 (5.73) a	15.13 (3.38) b	12.23 (4.73) a	5.36	<.01
Total SOTSS	72.89 (23.32)	78.31 (17.30)	66.77 (17.10)	1.71	.19

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

significantly more peripheral symptoms of stress than teachers who never had any personal property wilfully damaged by a student. There were no further significant differences found on the other SOSI subscales. (See Table 39).

Student defiance with foul language. The final set of significant differences for teaching conditions occurred between the incidence of teachers who had been defied by students using foul language and six SOSI subscales and the SOSI total score. The results of the ANOVA indicated a significant main effect between the incidence of student defiance with foul language and cardiopulmonary symptoms of stress, $F(3, 110) = 4.64$, $p < .01$; neural symptoms of stress, $F(3, 110) = 3.28$, $p = .02$; gastrointestinal symptoms of stress, $F(3, 110) = 3.61$, $p = .02$; symptoms of muscle tension, $F(3, 110) = 3.08$, $p = .03$; symptoms of habit patterns, $F(3, 110) = 5.32$, $p < .01$; symptoms of anger, $F(3, 110) = 2.65$, $p = .05$; and the total symptoms of stress, $F(3, 110) = 4.17$, $p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who had been defied by students using foul language 6 or more times in the respondents' teaching careers had significantly more gastrointestinal and total symptoms of stress than teachers who had never been defied. Furthermore, the Neuman-Keuls post hoc comparison indicated that teachers who had been defied by students using foul language 6 or more times in the respondents' teaching careers had significantly more cardiopulmonary symptoms of stress than teachers who had never been defied and teachers who had been defied 1 to 2 times. The Neuman-Keuls post hoc comparison also indicated that teachers who had been defied by students using foul language 6 or more times in the respondents' teaching careers had significantly more symptoms

Table 39
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Incidence of Teachers Who Had Personal Property
Wilfully Damaged by a Student on School Premises

Subscale	Never	1-2 Times in teaching career	≥3 Times in teaching career	F	p
n	62	39	13		
PHL	3.95 (3.10)	5.46 (3.93)	7.38 (5.68)	5.28	<.01
CR	9.47 (8.27)	10.26 (7.18)	12.31 (8.98)	.70	.50
NRL	1.66 (2.05)	1.77 (2.16)	2.46 (2.22)	.78	.46
GI	5.94 (5.11)	6.87 (5.09)	8.69 (4.64)	1.70	.19
MT	7.85 (5.92)	8.74 (6.21)	10.69 (7.49)	1.18	.31
HP	12.52 (8.91)	12.92 (6.44)	17.38 (10.01)	1.89	.16
DEP	6.05 (5.37)	6.23 (4.59)	6.92 (5.07)	.16	.85
ANX	7.08 (6.27)	6.82 (5.33)	8.77 (6.58)	.54	.59
ANG	7.26 (5.98)	9.56 (5.66)	8.69 (6.36)	1.87	.16
CD	5.71 (4.41)	5.87 (4.12)	6.00 (4.16)	.03	.97
Total SOTSS	67.48 (45.13)	74.51 (40.79)	89.31 (49.20)	1.38	.26

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

of habit patterns than teachers who had been defied 5 or less times in the respondents' teaching careers. However, the Neuman-Keuls post hoc comparison failed to identify any group of teachers as significantly different from each other for neural and muscle tension symptoms of stress and symptoms of anger. There were no further significant differences on the other SOSI subscales. There were no significant differences found between the incidence of teachers who had been defied by students with foul language and the SOTSS subscales. (See Table 40).

With respect to the incidence of student defiance, teachers who had been defied 6 or more times by students using foul language had significantly more total symptoms of stress than teachers who had never been defied by students using foul language. The principal contributing factors were cardiopulmonary, habit patterns and gastrointestinal symptoms of stress and to a lesser extent neural and muscle tension symptoms and symptoms of anger.

Conclusions

The findings discussed above only supported hypothesis #3 in six out of 19 teaching conditions. The results of the independent t-tests, the ANOVA procedures, and the Neuman-Keuls post hoc comparisons indicated that there were no significant differences between the six teaching conditions of elementary class size; elementary teachers' contact hours with students; subject specialization for elementary teachers; subject specialization for secondary teachers; the amount of subject specialization by elementary teachers; the time spent on student-related extra-curricular activities; and the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers. For the elementary

Table 40
Means and Standard Deviations
of the Symptoms of Stress Inventory
for the Incidence of Student Defiance with Foul Language

Subscale	Never	1-2 Times in teaching career	3-5 Times in teaching career	≥6 Times in teaching career	F	p
n	32	45	21	16		
PHL	3.59 (3.14)	4.78 (3.67)	6.05 (4.72)	6.06 (4.14)	2.39	.07
CR	7.00 (7.49)	9.69 (6.56)	11.43 (8.38)	15.44 (9.45)	4.64	<.01
	a		b			
NRL	1.31 (2.05)	1.42 (1.78)	2.57 (2.40)	2.75 (2.21)	3.28	.02
GI	4.59 (4.29)	6.49 (4.77)	7.81 (6.31)	9.13 (4.46)	3.61	.02
	a		b			
MT	7.28 (6.27)	7.31 (5.50)	10.62 (6.92)	11.38 (5.89)	3.08	.03
HP	9.88 (6.59)	14.00 (8.37)	12.00 (7.78)	19.25 (9.09)	5.32	<.01
DEP	5.00 (5.01)	6.60 (4.48)	5.52 (4.33)	8.44 (6.80)	1.92	.13
ANX	5.31 (5.99)	7.64 (6.08)	7.05 (4.93)	9.81 (6.19)	2.25	.09
ANG	5.84 (5.38)	8.71 (6.32)	9.38 (5.51)	10.00 (5.66)	2.65	.05
CD	4.50 (4.68)	6.27 (4.02)	5.95 (3.93)	6.88 (4.15)	1.55	.21
Total SOSI	54.31 (41.54)	72.91 (41.68)	78.38 (44.77)	99.13 (46.72)	4.17	<.01
	a		b			

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

teachers' contact hours with students, there were only four teachers who had responsibilities with several classrooms. This number of respondents was considered too small to provide an accurate analysis and so these results were eliminated from the ANOVA. However, there were significant differences with the following 13 teaching conditions: elementary versus secondary teachers; split grade versus single grade elementary classes; secondary school class size; teaching position held; weekly number of school time preparation hours; weekly hours of school-related work, excluding classroom teaching time; excessive weekly hours of school-related work, excluding classroom teaching time; school size; physical assault of teachers by a student; incidence of teachers who had been verbally threatened by a student; incidence of teachers who had personal property damaged by a student on school premises; incidence of student defiance with foul language; and employment status. Since there were significant differences between 13 teaching conditions and the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers, hypothesis #3 was not supported.

Hypothesis #4 - Miscellaneous Factors

Hypothesis #4 states that there will be no significant differences between teacher ratings of some individual perceived stressors, such as "Teaching (as a career)", the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers. This hypothesis was tested by using ANOVA procedures with Neuman-Keuls post hoc comparisons. The individual perceived stressors used in hypothesis #4 were taken from the items that did not load on any of the five subscales used in the

SOTSS. These items were filed under a generalized subscale. Items which had a mean of 2.0 or more on the SOTSS were selected for analyses. That is, items that were perceived as nonstressful were eliminated. There was one exception. SOTSS Item #44, "Teaching (as a career)" was used in hypothesis #4 because Kyriacou and Sutcliffe (1978) used a similar question as a "measure of self-reported stress" (p. 160). There were nine individual perceived stressors of teaching used to test hypothesis #4.

Results

The results of the tests indicated that there were significant differences between the nine individual perceived stressors, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers.

Inadequate teaching supplies: The first set of significant differences for individual perceived stressors occurred between the respondents' ratings of SOTSS Item #4, "Working with inadequate teaching supplies" and the five SOTSS subscales, the SOTSS total score, and three SOSI subscales. The cells for the not stressful and slightly stressful ratings were collapsed because the not stressful rating contained seven respondents. This number of respondents was considered too small to provide an accurate analysis. The results of these two cells were regrouped under the rating of not or slightly stressful.

The results of the ANOVA indicated that there were significant main effects for all the SOTSS subscales, the SOTSS total score, and the respondents' ratings of Item #4. See Table 41 for the appropriate F and p values. The Newman-Keuls post hoc comparison indicated that teachers who rated inadequate teaching supplies as very or extremely stressful perceived time management stressors and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #4 as not,

slightly, or moderately stressful. Furthermore, teachers who rated inadequate teaching supplies as moderately stressful perceived time management stressors and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #4 as not or slightly stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated inadequate teaching supplies as moderately, very, or extremely stressful perceived teacher-parent relations, teacher-teacher relations, and teacher-administrator relations as significantly more stressful than teachers who rated Item #4 as not or slightly stressful. Finally, the Neuman-Keuls post hoc analysis indicated that teachers who rated inadequate teaching supplies as extremely stressful perceived teacher-student relations to be significantly more stressful than teachers who rated Item #4 as not, slightly, or moderately stressful. Furthermore, teachers who rated inadequate teaching supplies as moderately stressful perceived teacher-student relations to be significantly more stressful than teachers who rated Item #4 as not or slightly stressful. (See Table 41).

With respect to inadequate teaching supplies, the main distinguishing factors why some teachers perceived working with inadequate teaching supplies to be stressful were the time involved; relationships with parents, students and administrators; and to a lesser extent, relationships with the teaching staff.

The results of the ANOVA indicated that there were significant main effects for the respondents' ratings of SOTSS Item #4, "Working with inadequate teaching supplies" for the SOSI subscales muscle tension, F

Table 41
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Teacher Ratings of SOTSS Item #4,
"Working with Inadequate Teaching Supplies"

Subscale	Not to slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	28	41	32	13		
TM	10.43 (5.49)	13.27 (4.98) a	16.69 (4.84) b	19.46 (4.24)	13.26	<.01
TPR	5.86 (3.63)	8.24 (3.03)	8.63 (2.71)	10.23 (3.44)	6.99	<.01
TSR	25.25 (10.36)	33.39 (8.41) a	36.56 (8.12) b	41.08 (7.40)	12.79	<.01
TTR	4.18 (3.08)	5.90 (2.69)	6.03 (2.71)	6.85 (2.88)	3.63	.02
TAR	9.71 (6.19)	13.17 (4.21)	14.75 (3.76)	15.54 (4.99)	7.17	<.01
Total SOTSS	55.43 (20.64)	73.98 (15.22)	82.66 (17.18)	93.15 (15.26)	18.86	<.01

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 3 and 110.

(3, 110) = 4.07, $p = .01$; depression, $F(3, 110) = 4.67$, $p = <.01$; and anger, $F(3, 110) = 4.09$, $p = <.01$. The Neuman-Keuls post hoc comparison indicated that teachers who rated inadequate teaching supplies as very stressful experienced significantly more symptoms of muscle tension than teachers who rated Item #4 as not or slightly stressful. The Neuman-Keuls post hoc comparison also indicated that teachers who rated inadequate teaching supplies as very stressful experienced significantly more symptoms of depression and anger than teachers who rated Item #4 as not, slightly, or moderately stressful. There were no further significant differences on the other SOSI subscales. (See Table 42).

With further respect to inadequate teaching supplies, the perception of inadequate teaching supplies as being stressful did not suggest a significantly different intensity of stress on the total symptoms of stress. However, teachers who perceived inadequate teaching supplies as stressful did report higher symptoms of muscle tension, depression and anger than teachers who did not perceive inadequate teaching supplies as stressful. There was a significant difference with these three symptoms between teachers who perceived inadequate teaching supplies as very stressful and teachers who did not perceive this item as stressful. Teachers who perceived inadequate teaching supplies as very stressful had somewhat lower scores on the other dimensions which counterbalanced the high muscle tension, depression, and anger scores which resulted in a lower total SOSI score.

Teaching subjects outside specialty. The second set of significant differences for individual perceived stressors occurred between the respondents' ratings of the SOTSS Item #5, "Teaching subjects outside my usual specialty" and all subscales except one on the SOTSS

Table 42

Means and Standard Deviations
of the Symptoms of Stress Inventory
for the Teacher Ratings of SOTSS Item #4,
"Working with Inadequate Teaching Supplies"

Subscale	Not to slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	28	41	32	13		
PHL	4.29 (3.51)	4.44 (4.27)	5.44 (3.64)	6.00 (4.00)	.97	.41
CR	8.82 (6.96)	9.27 (8.46)	11.34 (8.14)	12.08 (8.11)	.91	.44
NRL	1.39 (2.06)	1.85 (2.40)	2.19 (2.05)	1.46 (.97)	.83	.48
GI	5.75 (4.05)	6.46 (5.50)	7.13 (5.20)	7.31 (5.78)	.46	.71
MT	5.57 (4.67)	8.22 (7.08)	10.78 (5.42)	9.92 (5.94)	4.07	<.01
HP	11.18 (7.44)	12.22 (8.40)	15.34 (8.27)	15.46 (9.44)	1.79	.15
DEP	4.00 (3.45)	5.63 (5.33)	8.44 (5.56)	7.31 (3.35)	4.67	<.01
ANX	5.86 (5.04)	6.88 (7.01)	8.41 (5.72)	8.00 (4.60)	1.03	.38
ANG	6.25 (5.56)	7.12 (5.91)	10.91 (5.48)	9.23 (6.11)	4.09	<.01
CD	5.25 (4.63)	5.37 (4.77)	6.44 (3.51)	6.77 (3.24)	.76	.52
Total SOSI	58.36 (38.34)	67.46 (48.68)	86.41 (40.96)	83.54 (41.85)	2.55	.06

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

and the SOTSS total score. The results of the ANOVA indicated that there were significant main effects for all the SOTSS subscales, except teacher-parent relations, for the respondents' ratings of teaching subjects outside their specialty. See Table 43 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching subjects outside their specialty as extremely stressful perceived teacher-student relations and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #5 as not, slightly or moderately stressful. Furthermore, teachers who rated teaching subjects outside their specialty as slightly, moderately, or very stressful perceived teacher-student relations and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #5 as not stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching subjects outside their specialty as extremely stressful perceived teacher-teacher relations to be significantly more stressful than teachers who rated Item #5 as not stressful. The Neuman-Keuls post hoc comparison also indicated that teachers who rated teaching subjects outside one's specialty as extremely stressful perceived teacher-administrator relations to be significantly more stressful than teachers who rated Item #5 as not or moderately stressful. Furthermore, teachers who rated teaching subjects outside one's specialty as slightly, moderately or very stressful, perceived teacher-administrator relations to be significantly more stressful than teachers who rated Item #5 as not stressful. However, the Neuman-Keuls post hoc comparison failed to identify any of the five groups of teacher ratings for teaching subjects outside their specialty as significantly different from each other for time management stressors. There were no significant differences between any of the SOSI subscales and the respondents' ratings of Item #5. (See Table 43).

With respect to the subjects taught, the main distinguishing factors why some teachers perceived teaching subjects outside their usual specialty as stressful were the relations with students, administrators, and to a lesser extent, the teaching staff, as well as the time involved.

Principal leadership. The third set of significant differences for individual perceived stressors occurred between the respondents' ratings of SOTSS Item #14, "When my principal does not show definite leadership in the school" and four SOTSS subscales, the SOTSS total score and one SOSI subscale. The results of the ANOVA indicated that there were significant main effects for the SOTSS total score and all SOTSS subscales except time management for the respondents' ratings of lack of definite leadership in a school. See Table 44 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated lack of definite leadership in a school as very or extremely stressful perceived teacher-parent relations to be significantly more stressful than teachers who rated Item #14 as not or slightly stressful.

The Neuman-Keuls post hoc comparison indicated that there were two sets of significant differences between the teacher ratings of lack of definite leadership in a school and teacher-student relations. First, teachers who rated lack of definite leadership in a school as very or extremely stressful perceived teacher-student relations as significantly more stressful than teachers who rated Item #14 as not or slightly stressful. Second, teachers who rated lack of definite leadership in a school as moderately stressful perceived teacher-student relations as significantly more stressful than teachers who rated Item #14 as not stressful.

Table 43

Means and Standard Deviations

of the Sources of Teacher Stress Survey

for the Teacher Ratings of SOTSS Item #5,

"Teaching Subjects Outside My Usual Speciality"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	15	14	35	33	16		
TM	11.33 (7.03)	13.36 (5.68)	13.37 (5.27)	15.76 (4.89)	16.25 (6.31)	2.41	.05
TPR	6.93 (3.56)	7.29 (4.55)	8.17 (3.29)	8.61 (2.90)	8.06 (3.42)	.80	.53
TSR	22.87 (12.10)	30.71 (9.13)	32.29 (8.28)	36.00 (7.44)	40.31 (9.06)	8.88	<.01
TTR	3.87 (3.25)	5.50 (2.41)	5.49 (2.99)	5.94 (2.36)	7.19 (3.23)	2.80	.03
TAR	8.80 (6.28)	13.71 (4.83)	12.11 (4.72)	13.79 (4.61)	16.75 (2.89)	6.08	<.01
Total SOTSS	53.80 (25.46)	70.57 (20.91)	71.43 (17.29)	80.09 (16.31)	88.56 (17.94)	7.86	<.01

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 4 and 108.

The Neuman-Keuls post hoc comparison indicated that there were three sets of significant differences between the teacher ratings of lack of definite leadership in a school and teacher-teacher relations. First, teachers who rated Item #14 as extremely stressful perceived teacher-teacher relations as significantly more stressful than teachers who rated Item #14 as not, slightly, or moderately stressful. Second, teachers who rated Item #14 as very stressful perceived teacher-teacher relations as significantly more stressful than teachers who rated this item as not or slightly stressful. Third, teachers who rated Item #14 as moderately stressful perceived teacher-teacher relations as significantly more stressful than teachers who rated this item as not stressful.

The Neuman-Keuls post hoc comparison indicated that there were three sets of significant differences between the teacher ratings of lack of definite leadership in a school and teacher-administrator relations. First, teachers who rated Item #14 as extremely stressful perceived teacher-administrator relations as significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. Second, teachers who rated Item #14 as very stressful perceived teacher-administrator relations to be significantly more stressful than teachers who rated this item as not or slightly stressful. Third, teachers who rated Item #14 as slightly or moderately stressful perceived teacher-administrator relations to be significantly more stressful than teachers who rated this item as not stressful.

Finally, the Neuman-Keuls post hoc comparison indicated that there were two sets of significant differences between the teacher ratings of lack of definite leadership in a school and the total of the teacher

stressors. First, teachers who rated Item #14 as very or extremely stressful perceived all the teacher stressors in the five SOTSS subscales as significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. Second, teachers who rated Item #14 as moderately stressful perceived all the teacher stressors in the five subscales of the SOTSS to be significantly more stressful than teachers who rated this item as not stressful. (See Table 44).

With respect to leadership, the main distinguishing factors why some teachers perceived lack of definite leadership by their principals as stressful were very clearly the relationships with administrators, and to a lesser extent, the relationship with teaching staff, students and parents. The F value for teacher-administrator relations was the second highest of the F values reported in this thesis.

The results of the ANOVA indicated that there was a significant main effect for the respondents' ratings of SOTSS Item #14 for the SOSI subscale anger, $F(4, 109) = 2.50, p = .05$. However, the Neuman-Keuls post hoc comparison failed to identify any of the five groups of teacher ratings for Item #14 as significantly different from each other. There were no further significant main effects found on the other SOSI subscales. (See Table 45).

Staff meetings of 1.6 to 2 hours. The fourth set of significant differences for individual perceived stressors occurred between the respondents' ratings of Item #25(c), "Staff meetings that last 1.6 to 2 hours" and all SOTSS subscales, the SOTSS total score, and one SOSI

Table 44

Means and Standard Deviations

of the Sources of Teacher Stress Survey

for the Teacher Ratings of SOTSS Item #14,

"When My Principal Does Not Show Definite Leadership in the School"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	P
n	10	14	24	37	29		
TM	13.90 (6.28)	11.57 (6.84)	13.13 (5.86)	15.49 (4.99)	14.97 (5.62)	1.57	.19
TPR	5.20 (3.19)	6.29 (2.46)	7.54 (3.04)	8.76 (3.46)	9.17 (3.28)	4.54	<.01
TSR	21.20 (9.91)	27.79 (10.71)	31.79 (7.37)	35.89 (8.71)	37.52 (9.07)	8.52	<.01
TTR	2.40 (2.80)	3.86 (1.83)	5.21 (2.92)	6.38 (2.41)	6.97 (2.77)	8.36	<.01
TAR	3.50 (4.55)	10.50 (4.91)	12.63 (4.00)	14.54 (3.19)	15.97 (3.77)	22.34	<.01
Total SOTSS	46.20 (16.24)	60.00 (23.05)	70.29 (18.17)	81.50 (15.37)	84.59 (17.19)	12.87	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 4 and 109.

Table 45

Means and Standard Deviations

of the Symptoms of Stress Inventory

for the Teacher Ratings of SOTSS Item #14,

"When My Principal Does Not Show Definite Leadership in the School"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	10	14	24	37	29		
PHL	5.30 (4.95)	4.29 (3.67)	4.17 (4.47)	5.62 (3.36)	4.58 (3.79)	.68	.61
CR	10.20 (6.94)	8.29 (7.81)	9.13 (8.15)	11.16 (7.53)	10.24 (9.02)	.43	.79
NRL	1.60 (2.12)	1.29 (1.82)	1.71 (2.26)	1.92 (1.86)	2.00 (2.45)	.33	.86
GI	5.40 (5.08)	5.43 (6.25)	5.88 (4.74)	7.51 (5.05)	6.90 (4.90)	.76	.55
MT	6.90 (7.19)	5.21 (4.04)	7.79 (6.59)	10.35 (6.49)	8.79 (5.51)	2.14	.08
HP	11.50 (9.03)	11.71 (9.29)	11.13 (7.08)	15.35 (8.62)	13.52 (8.15)	1.22	.31
DEP	5.80 (5.61)	3.57 (3.48)	6.04 (5.23)	7.59 (5.44)	6.00 (4.50)	1.73	.15
ANX	6.50 (6.31)	5.43 (5.73)	7.42 (6.72)	7.78 (5.28)	7.31 (6.38)	.43	.79
ANG	4.60 (4.93)	6.50 (6.56)	7.00 (5.30)	9.92 (5.90)	9.10 (5.97)	2.50	.05
CD	3.70 (3.40)	4.50 (4.40)	6.29 (5.53)	6.73 (3.49)	5.55 (3.94)	1.51	.20
Total SOSI	61.50 (49.26)	56.21 (43.24)	66.54 (47.51)	83.95 (41.11)	74.00 (43.23)	1.38	.25

subscale. The results of the ANOVA indicated that there were significant main effects for all SOTSS subscales and the SOTSS total score for the respondents' ratings of staff meetings that last 1.6 to 2 hours. See Table 46 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated SOTSS Item #25(c) as slightly, moderately, very, or extremely stressful perceived time management stressors, teacher-student relations, and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #25(c) as not stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated staff meetings of 1.6 to 2 hours as very or extremely stressful perceived teacher-parent relations to be significantly more stressful than teachers who rated Item #25(c) as not stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #25(c) as very stressful perceived teacher-teacher relations to be significantly more stressful than teachers who rated Item #25(c) as not stressful. However, the Neuman-Keuls post hoc comparison failed to identify any of the five groups of teacher ratings of Item #25(c) for teacher-administrator relations as significantly different from each other. (See Table 46).

With respect to length of staff meetings, the main distinguishing factors why some teachers perceived staff meetings that lasted 1.6 to 2 hours as stressful were the time involved, relations with students and parents, and to a lesser extent, relations with the teaching staff and administration.

Table 46

Means and Standard Deviations

of the Sources of Teacher Stress Survey

for the Teacher Ratings of SOTSS Item #25(c),

"Staff Meetings That Last 1.6 to 2 Hours"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	8	16	35	29	20		
TM	6.88 (6.96)	14.69 (5.22)	13.54 (5.14)	15.52 (4.73)	16.85 (4.36)	6.22	<.01
TPR	5.25 (3.99)	7.00 (4.03)	7.11 (2.43)	9.24 (2.46)	9.65 (3.67)	5.32	<.01
TSR	21.00 (6.37)	30.94 (11.46)	33.43 (8.24)	35.83 (8.88)	36.85 (7.61)	5.68	<.01
TTR	3.13 (3.14)	5.13 (3.46)	5.80 (2.74)	6.69 (2.49)	5.50 (2.54)	2.82	.03
TAR	11.63 (6.93)	10.94 (6.45)	12.43 (4.80)	14.66 (4.02)	14.80 (3.12)	2.54	.04
Total SOTSS	47.88 (15.53)	68.69 (21.84)	72.31 (17.90)	81.93 (16.54)	83.65 (12.73)	8.16	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 4 and 103.

The results of the ANOVA indicated a significant main effect for the respondents' ratings of SOTSS Item #25(c), "Staff meetings that last 1.6 to 2 hours" for the SOSI subscale of anger, $F(4, 103) = 2.70$, $p = .03$. The Neuman-Keuls post hoc comparison indicated that teachers who rated staff meetings that lasted 1.6 to 2 hours as very stressful had significantly more symptoms of anger than teachers who rated this item as not stressful. There were no further significant main effects found on the other SOSI subscales. (See Table 47).

Staff meetings of more than 2 hours. The fifth set of significant differences for individual perceived stressors occurred between the respondents' ratings of Item #25(d), "Staff meetings that last more than 2 hours" and all SOTSS subscales, the SOTSS total score, and two SOSI subscales. The cells of the not stressful and slightly stressful ratings were collapsed because the not stressful rating contained six respondents and the slightly stressful rating contained three respondents. This number was considered too small to provide an accurate analysis. The results of these two cells were regrouped under the rating not or slightly stressful.

The results of the ANOVA indicated that there were significant main effects for all SOTSS subscales and the SOTSS total score for the respondents' ratings of staff meetings that lasted more than 2 hours. See Table 48 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated SOTSS Item #25(d) as extremely stressful perceived time management stressors and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #25(d) as not, slightly, moderately, or very stressful. Furthermore, teachers who rated Item #25(d) as moderately or very stress-

Table 47

Means and Standard Deviations

of the Symptoms of Stress Inventory

for the Teacher Ratings of SOTSS Item #25(c),

"Staff Meetings That Last 1.6 to 2 Hours".

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	8	16	35	29	20		
PHL	1.75 (1.91)	6.07 (3.75)	4.71 (4.08)	5.10 (3.34)	5.00 (4.24)	1.83	.13
CR	6.63 (6.52)	12.50 (8.74)	10.23 (7.90)	11.00 (8.36)	8.80 (7.80)	.94	.44
NRL	1.75 (1.71)	1.81 (1.94)	1.71 (2.24)	2.00 (2.12)	2.30 (2.39)	.83	.51
SI	3.75 (3.24)	6.81 (5.06)	6.29 (4.61)	7.83 (5.92)	6.15 (5.41)	1.11	.36
MT	4.75 (3.45)	8.19 (5.78)	7.51 (6.12)	9.59 (6.57)	10.20 (6.83)	1.56	.19
HP	8.88 (8.56)	15.19 (8.28)	11.71 (7.65)	15.72 (8.59)	13.40 (8.11)	1.77	.14
DEP	4.50 (4.07)	6.75 (3.86)	4.60 (4.56)	7.52 (5.41)	7.60 (6.24)	2.04	.09
ANX	3.50 (4.17)	8.94 (4.86)	6.06 (5.07)	9.14 (7.22)	6.90 (6.32)	2.26	.07
ANG	3.13 (4.49)	8.31 (5.90)	7.26 (5.92)	10.07 (5.77)	9.30 (5.97)	2.70	.03
CD	3.75 (3.99)	6.00 (3.97)	5.26 (4.20)	7.38 (4.68)	5.45 (3.32)	1.73	.15
Total SOSI	41.38 (33.23)	80.56 (42.13)	65.34 (42.87)	85.34 (46.80)	75.10 (44.68)	2.03	.10

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

ful perceived time management stressors and the total of the teacher stressors to be significantly more stressful than teachers who rated Item #25(d) as not or slightly stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated staff meetings of more than 2 hours to be extremely stressful perceived teacher-parent relations and teacher-administrator relations to be significantly more stressful than teachers who rated Item #25(d) as not, slightly, moderately, or very stressful. Finally, the Neuman-Keuls post hoc comparison indicated that teachers who rated Item #25(d) as moderately, very, or extremely stressful perceived teacher-student relations and teacher-teacher relations to be significantly more stressful than teachers who rated the item as not or slightly stressful. (See Table 48).

With respect to the length of staff meetings, the main distinguishing factors why some teachers perceived staff meetings that lasted more than 2 hours as stressful were the time involved; relations with parents, students, administrators; and to a slightly lesser extent, relations with the teaching staff.

The results of the ANOVA indicated that there were significant main effects for the respondents' ratings of SOTSS Item #25(d), "Staff meetings that last more than 2 hours" for the SOSI subscales of habit patterns, $F(3, 103) = 2.69$, $p = .05$; and anger, $F(3, 103) = 2.99$, $p = .03$. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #25(d) as extremely stressful had significantly more symptoms of anger than teachers who rated this item as not or slightly stressful. However, the Neuman-Keuls post hoc comparison failed to identify any of the four groups of teacher ratings of Item #25(d) for

Table 48

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Teacher Ratings of SOTSS Item #25(d),
"Staff Meetings That Last More Than 2 Hours"

Subscale	Not or slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	9	21	27	50		
TM	7.78 (7.05) a	12.71 (6.03) b	14.15 (4.15)	16.62 (4.86) c	8.83	<.01
TPR	5.00 (3.81)	6.62 (3.31)	— 7.37 (2.66)	9.44 (3.00)	8.41	<.01
TSR	23.22 (8.94)	32.62 (9.58)	33.00 (9.27)	36.48 (7.63)	6.41	<.01
TTR	2.78 (3.11)	5.81 (3.19)	5.81 (2.91)	6.18 (2.38)	3.92	.01
TAR	10.33 (7.55)	11.81 (5.96)	12.70 (4.31)	14.90 (3.17)	4.22	<.01
Total SOTSS	49.11 (15.00) a	69.57 (19.96) b	73.04 (18.03)	83.62 (14.52) c	12.58	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 3 and 103.

symptoms of habit patterns as significantly different from each other. There were no further significant differences found on the other SOSI subscales. (See Table 49).

Preparing report cards. The sixth set of significant differences for individual perceived stressors occurred between the respondents' ratings of Item #31, "Preparing report cards" and four SOTSS subscales and the SOTSS total score. The results of the ANOVA indicated that there were significant main effects for the respondents' ratings of "Preparing report cards" for four SOTSS subscales and the SOTSS total score. See Table 50 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that the five teachers' ratings for preparing report cards were significantly different from each other for time management. First, teachers who rated Item #31 as extremely stressful perceived time management stressors as significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful. Second, teachers who rated preparing report cards as very stressful perceived time management stressors as significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. Third, teachers who rated preparing report cards as moderately stressful perceived time management stressors as significantly more stressful than teachers who rated this item as not or slightly stressful. Finally, teachers who rated preparing report cards as slightly stressful perceived time management stressors as significantly more stressful than teachers who rated this item as not stressful.

The Neuman-Keuls post hoc comparison indicated that teachers who rated report cards as extremely stressful perceived teacher-student

Table 49

Means and Standard Deviations

of the Symptoms of Stress Inventory

for the Teacher Ratings of SOTSS Item #25(d),

"Staff Meetings That Last More Than 2 Hours"

Subscale	Not or slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	9	21	27	50		
PHL	2.78 (3.56)	5.57 (3.98)	4.67 (3.94)	4.96 (3.66)	1.84	.32
CR	8.33 (7.97)	12.05 (9.15)	8.59 (7.75)	10.00 (7.08)	.92	.44
NRL	.67 (.71)	2.29 (2.43)	1.33 (1.84)	1.92 (2.17)	1.77	.16
GI	4.56 (3.88)	7.81 (5.14)	5.00 (4.19)	7.14 (5.65)	1.95	.13
MT	6.11 (5.21)	8.62 (6.67)	6.89 (5.36)	9.76 (6.54)	1.75	.16
HP	10.44 (9.29)	14.62 (9.17)	10.22 (6.65)	15.06 (7.98)	2.69	.05
DEP	5.11 (4.23)	6.24 (4.71)	4.59 (4.21)	7.24 (5.58)	1.79	.15
ANX	4.78 (5.47)	8.10 (5.88)	5.78 (4.41)	7.98 (6.52)	1.51	.22
ANG	4.00 (4.95)	8.19 (6.04)	7.33 (5.62)	9.82 (6.01)	2.99	.03
CD	4.44 (4.28)	6.24 (4.71)	4.96 (3.59)	6.52 (4.30)	1.21	.31
Total SOSI	51.22 (42.88)	79.71 (47.81)	59.37 (37.22)	80.40 (44.11)	2.32	.08

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

relations as significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful. Teachers who rated preparing report cards as slightly, moderately or very stressful perceived teacher-student relations as significantly more stressful than teachers who rated this item as not stressful.

The Neuman-Keuls post hoc comparison indicated that teachers who rated preparing report cards as extremely stressful perceived teacher-administrators relations to be significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful.

The Neuman-Keuls post hoc comparison indicated that teachers who rated preparing report cards as extremely stressful perceived the total of the SOTSS stressors to be significantly more stressful than teachers who rated this item as not, slightly, moderately or very stressful. Teachers who rated preparing report cards as moderately stressful perceived the total of the SOTSS stressors as significantly more stressful than teachers who rated the total of the SOTSS stressors as not or slightly stressful. Teachers who rated preparing report cards as very stressful perceived the total of the SOTSS stressors as significantly more stressful than teachers who rated this item as not stressful. The Neuman-Keuls post hoc comparison failed to identify any of the five groups of teacher ratings for preparing report cards as significantly different from each other for teacher-parent relations. There were no further significant differences found on the other SOTSS subscales. (See Table 50).

With respect to report cards, the main distinguishing factors why some teachers perceived preparing report cards as stressful were the time taken

Table 50

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Teacher Ratings of SOTSS Item #31, "Preparing Report Cards"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	p
n	8	19	39	27	21		
TM ^a	5.75 (5.47)	9.47 (3.56)	13.72 (4.66)	16.59 (4.00)	19.71 (3.59)	25.29	<.01
TPR	6.25 (4.89)	7.05 (3.73)	8.26 (2.74)	7.22 (3.17)	10.00 (3.10)	3.40	.01
TSR	21.25 a (12.08)	29.95 b (7.63)	33.82 (8.97)	31.93 (10.14)	40.95 c (6.70)	8.34	<.01
TTR	5.38 (4.41)	4.79 (2.99)	6.41 (2.74)	4.78 (2.98)	6.10 (2.05)	1.88	.12
TAR	10.75 (6.98)	11.84 (5.00)	13.56 (4.24)	10.96 (5.91)	16.67 (2.35)	5.17	<.01
Total SOTSS	49.38 b (30.08)	63.11 c (14.36)	75.77 d (17.70)	71.48 e (19.59)	93.43 e (10.69)	12.21	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 4 and 109.

^a All groups differ from each other on the time management subscale.

to prepare reports; to a lesser extent, the necessity of evaluating the students; and only in extreme cases did accountability to the principal seem to be a factor. The F value for time management was the highest F value reported in this thesis.

Classes of 31 to 35 students. The seventh set of significant differences for individual perceived stressors occurred between the teacher ratings of SOTSS Item #41(e), "Teaching a class of students which numbers 31 to 35" and three SOTSS subscales and the SOTSS total score. The cells for the not stressful and slightly stressful ratings were collapsed because these two cells contained two and seven respondents respectively. The number of respondents in each of these two rating headings were considered too small to provide an accurate analysis. The results of these two cells were regrouped under the rating of not or slightly stressful.

The results of the ANOVA indicated that there were significant main effects for Item #41(e) for the SOTSS subscales time management, $F(3, 102) = 10.62, p < .01$; teacher-parent relations, $F(3, 102) = 3.20, p = .03$; teacher-student relations, $F(3, 102) = 5.16, p < .01$ and the total of the teacher stressors, $F(3, 102) = 7.34, p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching a class of 31 to 35 students as extremely stressful perceived time management stressors to be significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful. Furthermore, teachers who rated Item #41(e) as very stressful perceived time management stressors to be significantly more stressful than teachers who rated this item as not or slightly stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching a class of 31 to 35 students as extremely stressful perceived teacher-parent relations

to be significantly more stressful than teachers who rated this item as not or slightly stressful. Finally, the Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(e) as extremely stressful perceived teacher-student relations and the total of the SOTSS stressors to be significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful. There were no further significant differences on the other SOTSS subscales. There were no significant differences between any of the SOSI subscales and the respondents' ratings of Item #41(e). (See Table 51).

With respect to class size, the principal distinguishing factors why some teachers perceived teaching a class of 31 to 35 students as stressful were the time involved dealing with this size of class; to a lesser extent the relationship with parents; and in extreme cases, the relationship with the students.

Classes of 36 or more students. The eighth set of significant differences for individual perceived stressors occurred between the teacher ratings of SOTSS Item #41(f), "Teaching a class of students which numbers 36 or more" and three SOTSS subscales, the SOTSS total score, six SOSI subscales, and the SOSI total score. The cells for the not stressful, slightly stressful and moderately stressful ratings were collapsed because the results of each cell were 1, 3 and 9 respectively. The results of the not stressful and slightly stressful ratings were considered to be individually too small to provide an accurate analysis.

The results of the ANOVA indicated that there were significant main effects for the respondents' ratings of SOTSS Item #41(f), "Teaching a class of students which numbers 36 or more" for the SOTSS subscales time

Table 51

Means and Standard Deviations

of the Sources of Teacher Stress Survey

for the Teacher Ratings of SOTSS Item #41(e),

"Teaching a Class of Students Which Numbers 31 to 35"

Subscale	Not or slightly stressful	Moderately stressful	Very stressful	Extremely stressful	F	P
n	9	23	35	39		
TM	8.33 (5.20) a	12.30 (5.64) b	13.91 (4.14)	17.56 (5.53)	10.62	<.01
TPR	5.33 (3.91) a	8.18 (3.26) b	7.63 (3.43)	8.90 (2.90)	3.20	.03
TSR	25.89 (8.28)	31.48 (9.30)	32.43 (9.96)	37.44 (8.08)	5.16	<.01
TTR	5.11 (2.89)	6.43 (2.97)	5.43 (3.07)	5.85 (2.49)	.77	.52
TAR	12.00 (4.61)	13.17 (4.62)	12.23 (5.08)	14.85 (4.34)	2.26	.09
Total SOTSS	56.67 (19.77)	71.57 (18.38)	71.63 (18.42)	84.59 (17.49)	7.34	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

management, $F(2, 102) = 16.92, p < .01$; teacher-parent relations, $F(2, 102) = 4.78, p = .01$; teacher-student relations, $F(2, 102) = 7.02, p < .01$; and the total of the SOTSS stressors, $F(2, 102) = 10.71, p < .01$. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(f) as extremely stressful perceived time management stressors and the total of the SOTSS stressors to be significantly more stressful than teachers who rated this item as not, slightly, moderately, or very stressful. Teachers who rated Item #41(f) as very stressful perceived the time management stressors and the total of the SOTSS stressors to be significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(f) as extremely stressful perceived teacher-parent relations to be significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. Finally, the Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(f) as very or extremely stressful perceived teacher-student relations to be significantly more stressful than teachers who rated this item as not, slightly, or moderately stressful. There were no further significant main effects found on the other SOTSS subscales. (See Table 52).

With respect to class size, the main distinguishing factors why some teachers perceived teaching a class of 36 or more students as stressful were the time involved; dealing with the students; and to a lesser extent, dealing with the parents.

The results of the ANOVA indicated that there were significant main

Table 52
Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Teacher Ratings of SOTSS Item #41(f),
"Teaching a Class of Students Which Numbers 36 or More"

Subscale	Not, slightly or moderately stressful	Very stressful	Extremely stressful	F	p
n	13	20	72		
TM ^a	8.00 (4.95)	12.15 (4.25)	16.21 (5.29)	16.92	<.01
TPR	5.92 (3.20)	7.10 (2.88)	8.63 (3.34)	4.78	.01
TSR	25.31 (7.99)	32.00 (8.32)	35.29 (9.39)	7.02	<.01
TTR	5.46 (3.26)	6.20 (2.91)	5.67 (2.73)	.35	.71
TAR	10.77 (4.34)	12.75 (4.45)	13.96 (4.80)	2.74	.07
Total SOTSS ^a	55.46 (18.08)	70.20 (14.54)	79.75 (18.99)	10.71	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

^a All groups differ from each other on the time management subscale and on the total SOTSS scores.

effects for the respondents' ratings of SOTSS Item #41(f), "Teaching a class of students which numbers 36 or more" and the total of the SOSI symptoms and for all the SOSI subscales except neural symptoms, depression, anger and cognitive disorganization. See Table 53 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(f) as very or extremely stressful experienced significantly more peripheral and total symptoms of stress than did teachers who perceived this item to be not, slightly, or moderately stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated Item #41(f) as extremely stressful experienced significantly more cardiopulmonary and gastrointestinal symptoms of stress and symptoms of muscle tension, habit patterns and anxiety than did teachers who perceived this item to be not, slightly, or moderately stressful. (See Table 53).

With respect to class size, teachers who perceived teaching a class of 36 or more students as very or extremely stressful had significantly more total symptoms of stress than teachers who perceived this item as not, slightly, or moderately stressful. The principal contributing factors were higher symptoms of muscle tension, higher peripheral symptoms and to a lesser extent, higher cardiopulmonary, anxiety, gastrointestinal and habit patterns symptoms of stress. Cardiopulmonary and gastrointestinal symptoms and symptoms of muscle tension, habit patterns and anxiety were significantly higher for teachers who perceived teaching a class of 36 or more students as extremely stressful than for teachers who perceived this item as not, slightly, or moderately stressful.

Table 53

Means and Standard Deviations

of the Symptoms of Stress Inventory

for the Teacher Ratings of SOTSS Item #41(f),

"Teaching a Class of Students Which Numbers 36 or More"

Subscales	Not, slightly or moderately stressful	Very stressful	Extremely stressful	<u>F</u>	<u>P</u>
n	13	20	72		
PHL	1.92 (2.33)	5.20 (3.25)	5.35 (3.92)	4.93	<.01
CR	4.46 a (4.27)	9.35 b (7.01)	11.08 (8.05)	4.36	.02
NRL	.77 (1.42)	1.85 (2.35)	2.01 (2.11)	1.95	.15
GI	3.31 a (2.84)	6.50 b (3.71)	7.40 (5.47)	3.82	.03
MT	3.77 a (3.85)	7.50 b (6.07)	9.86 (6.11)	6.38	<.01
HP	7.85 a (7.15)	13.30 b (7.77)	14.50 (8.19)	3.18	.03
DEP	3.77 (3.19)	5.60 (5.00)	7.04 (5.27)	2.63	.08
ANX	3.31 a (3.82)	6.50 b (5.76)	8.11 (5.91)	4.14	.02
AMG	5.23 (4.51)	7.60 (5.98)	9.14 (6.14)	2.59	.08
CD	3.38 (3.50)	6.00 (4.70)	6.14 (4.04)	2.51	.09
Total SOSI	37.77 (29.53)	69.40 (41.99)	80.64 (43.16)	5.96	<.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 2 and 102.

Teaching (as a career). The ninth set of significant differences for individual perceived stressors occurred between the respondents' ratings of SOTSS Item #44, "Teaching (as a career)" and two SOTSS subscales and the SOTSS total score. The cells for the very stressful and extremely stressful ratings were collapsed because the extremely stressful rating contained only one respondent. This number was considered too small to provide an accurate analysis. The results of these two cells were regrouped under the rating of very or extremely stressful.

The results of the ANOVA indicated a significant main effect for the ratings of teaching as a career for the SOTSS subscales time management stressors, $F(3, 110) = 7.09, p < .01$; teacher-student relations, $F(3, 110) = 3.83, p = .01$; and the total of the teacher stressors, $F(3, 110) = 3.86, p = .01$. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching as moderately, very, or extremely stressful perceived time management stressors as significantly more stressful than teachers who rated teaching as not or slightly stressful. The Neuman-Keuls post hoc comparison also indicated that teachers who rated teaching as very or extremely stressful perceived teacher-student relations to be significantly more stressful than teachers who rated teaching as not or slightly stressful. Finally, the Neuman-Keuls post hoc comparison indicated that teachers who rated teaching as very or extremely stressful perceived the total of the teacher stressors to be significantly more stressful than teachers who rated teaching as slightly stressful. There were no further significant differences found on the other SOTSS subscales. (See Table 54).

With respect to teaching, the main distinguishing factors why teachers

Table 54

Means and Standard Deviations
of the Sources of Teacher Stress Survey
for the Teacher Ratings of SOTSS Item #44,
"Teaching (as a Career)"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very to extremely stressful	F	p
n	15	28	45	26		
TM	11.80 (7.59) a	11.32 (5.20)	15.09 (4.40) b	17.31 (5.45)	7.09	<.01
TPR	7.53 (2.67)	8.25 (3.89)	8.07 (3.36)	7.85 (3.40)	.17	.92
TSE	29.67 (12.74) a	29.57 (9.10)	34.02 (8.78) b	37.54 (9.78)	3.83	.01
TTR	6.20 (3.63)	5.00 (2.76)	5.69 (2.79)	5.85 (2.89)	.68	.57
TAR	11.80 (5.97)	11.79 (4.79)	13.71 (4.53)	13.92 (5.78)	1.38	.25
Total SOTSS	67.00 (28.48) b a	65.93 (20.14)	76.58 (17.41) b	82.46 (19.15)	3.86	.01

Note. When lines are used in subscales, groups not connected by lines are significantly different from each other.

who perceived teaching as a very or extremely stressful career were the time involved and the relationships with students.

The results of the ANOVA indicated that there were significant main effects for all the SOSI subscales, except neural symptoms of stress, the SOSI total score and the respondents' ratings of "Teaching (as a career)". See Table 55 for the appropriate F and p values. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching as very or extremely stressful had significantly more symptoms of habit patterns, depression and anger, peripheral and total symptoms of stress, than teachers who rated teaching as not, slightly, or moderately stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching as very or extremely stressful had significantly more symptoms of muscle tension than teachers who rated teaching as slightly stressful. The Neuman-Keuls post hoc comparison also indicated that teachers who rated teaching as very or extremely stressful had significantly more symptoms of anxiety than teachers who rated teaching as not or slightly stressful. The Neuman-Keuls post hoc comparison indicated that teachers who rated teaching as very or extremely stressful had significantly more symptoms of cognitive disorganization than teachers who rated teaching as not stressful. However, the Neuman-Keuls post hoc comparison failed to identify any group of teachers as significantly different from each other for cardiopulmonary or gastrointestinal symptoms of stress. (See Table 55).

With respect to teaching, teachers who perceived teaching as very or extremely stressful had significantly more total symptoms of stress than teachers who perceived teaching as not, slightly, or moderately stressful.

Table 55

Means and Standard Deviations
of the Symptoms of Stress Inventory for
the Teacher Ratings of SOTSS Item #44, "Teaching (as a Career)"

Subscale	Not stressful	Slightly stressful	Moderately stressful	Very to extremely stressful	F	p
n	15	28	45	26		
PHL	3.33 (2.90)	3.79 (3.79)	4.84 (4.12)	6.92 (3.31)	4.27	<.01
CR	7.07 (7.69)	9.61 (8.14)	9.33 (7.89)	13.54 (7.34)	2.62	.05
NRL	1.33 (2.61)	1.50 (1.67)	1.84 (2.24)	2.27 (1.97)	.87	.46
GI	4.20 (3.82)	5.29 (3.48)	1.29 (5.71)	8.08 (5.46)	2.88	.04
MT	6.80 (5.70)	6.46 (5.63)	8.89 (6.09)	10.92 (6.63)	2.89	.04
HP	10.27 (8.62)	11.71 (7.67)	12.82 (8.84)	17.19 (6.93)	3.09	.03
DEP	4.47 (4.67)	4.75 (4.25)	6.09 (4.93)	9.00 (5.31)	4.41	<.01
ANX	4.00 (4.26)	5.79 (5.04)	7.51 (6.73)	9.96 (5.24)	4.18	<.01
ANG	5.27 (4.45)	6.75 (5.05)	8.07 (6.01)	11.73 (6.16)	5.37	<.01
CD	3.93 (3.97)	5.57 (4.14)	5.53 (4.53)	7.58 (3.56)	2.68	.05
Total SOSI	50.67 (40.09)	61.21 (39.67)	72.22 (47.51)	97.19 (35.25)	4.99	<.01

Note. When lines are used in a subscale, groups not connected by lines are significantly different from each other.

The degrees of freedom for each subscale are 3 and 110.

The principal contributing factors were significantly higher symptoms of anger, depression and anxiety, and peripheral symptoms. To a lesser extent, habit patterns, muscle tension, cognitive disorganization, gastrointestinal and cardiopulmonary symptoms of stress were significant contributing factors.

Conclusions. There were significant differences with the following individual perceived stressors from the Sources of Teacher Stress Survey:

- (a) Item #4, "Working with inadequate teaching supplies."
- (b) Item #5, "Teaching subjects outside my usual specialty."
- (c) Item #14, "When my principal does not show definite leadership in the school."
- (d) Item #25(c), "Staff meetings that last 1.6 to 2 hours."
- (e) Item #25(d), "Staff meetings that last more than 2 hours."
- (f) Item #31, "Preparing report cards."
- (g) Item #41(e), "Teaching a class of students which numbers 31 to 35."
- (h) Item #41(f), "Teaching a class of students which numbers 36 or more."
- (i) Item #44, "Teaching (as a career)."

Since the results of the ANOVA procedures and the Neuman-Keuls post hoc comparisons indicated that there were significant differences between all of the nine individual perceived stressors, the major perceived stressors of teaching, and/or the main symptoms of stress experienced by teachers, hypothesis #4 was not supported.

Chapter Summary

The analyses of the data from the Sources of Teacher Stress Survey and the Symptoms of Stress Inventory were presented. Hypothesis #1

(correlations between the SOTSS and SOSI) was supported. Hypothesis #2 (teacher characteristics), hypothesis #3 (teaching conditions) and hypothesis #4 (miscellaneous factors) were not supported. Hypothesis #1 was supported because there were no significant relationships between the major perceived stressors of teaching and the main symptoms of stress experienced by teachers. Hypothesis #2 was not supported because there were significant differences between nine out of 15 teacher characteristics and the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers. Hypothesis #3 was not supported because there were significant differences between 13 out of 19 teaching conditions and the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers. Finally, hypothesis #4 was not supported because there were significant differences between all nine individual perceived stressors, the major perceived stressors of teaching and/or the main symptoms of stress experienced by teachers.

The results presented in Chapter IV will be interpreted and discussed in Chapter V. The limitations and strengths of the study will be presented. Implications of the study in relation to various groups of people involved with education in British Columbia will be discussed. Directions for future research will be proposed.

CHAPTER V

CONCLUSIONS, LIMITATIONS, STRENGTHS, IMPLICATIONS, AND FUTURE RESEARCH

In this chapter, the main conclusions of the study will be discussed followed by a discussion of the limitations and strengths of the study. Implications of the study in relation to various levels of the teaching profession and the British Columbia education system will be presented. This chapter will conclude with proposals for the direction of future teacher stress research.

Conclusions

The analyses conducted in Chapter IV produced a large number of results. As such, there was difficulty sorting all the results clearly and concisely. Some of the results appeared to be confusing or contradictory. Certainly a multitude of conclusions were possible. However, there were several conclusions that stand out from the rest because of the magnitude of the differences that were found and because of their corroboration with various related aspects of the questionnaires. Only these most powerful conclusions will be dealt with in this chapter. The conclusions will be presented in decreasing order starting with the most powerful and ending with the least powerful.

Conclusion #1

Teachers who have experienced overt negative student reactions, for example, being verbally threatened, being defied through use of foul language, being physically assaulted, and having damage done to personal property, perceived more stressors in teaching and more symptoms of stress than their peers. In particular, teachers who have experienced such overt negative student reactions one to two times in their teaching career perceived the most stressors in teaching (see Tables 36 and 38). However, the more often teachers have experienced overt negative student reactions, the more symptoms

of stress they experienced. The results indicate that teachers who have experienced three or more overt negative student reactions have many more physiological and cognitive symptoms of stress and, to a lesser degree, more behavioral symptoms of stress, than teachers who have never experienced overt negative student reactions (see Tables 35, 37, 39, and 40). The results of the SOSI suggest that teachers who have experienced three or more overt negative student reactions would certainly benefit from learning and successfully practicing stress management procedures.

Conclusion #2

Research to date on the relationship between teacher absenteeism due to sickness and teacher stress is conflicting. Comparing the results of the symptoms of stress and the perceived stressors of teachers who were absent due to sickness in this study, the conflicting previous research findings appear to be somewhat resolved.

Teachers who were sick the previous year had more symptoms of stress than their more healthy peers (see Table 18). Furthermore, the results indicate that the greater the amount of teacher absence due to sickness, the more extreme the physiological, cognitive and some behavioral symptoms of stress become. These results are supported by Collier (1975), Douglas (1977) and Pratt (1978) who found that stress is correlated with illness.

Teachers who were sick 1 to 2 days the previous year perceived more stressors in teaching than their peers, particularly peers who had not been absent due to sickness (see Table 17). What is interesting is that teachers who were absent 3 or more days perceived less teaching stressors than teachers who were absent 1 to 2 days. There were no significant differences between the perceived stressors of teachers absent due to sickness 3 or more days and teachers who were not absent. These results could lend support to Bridges (1980) who found that the relationship between job satisfaction

and absenteeism was unclear. These results could also lend some support to Kyriacou and Sutcliffe (1979) who found no relationships between job stress and teacher absenteeism.

The results of the SOSI very clearly indicate that teachers who were absent due to sickness were not successfully coping with their symptoms of stress. These teachers need to improve their stress management skills. The results of the SOTSS suggest that teachers who were absent due to sickness would benefit from improving their time management skills.

Conclusion #3

Teachers who rated "Teaching (as a career)" as very or extremely stressful had more symptoms of stress than teachers who rated teaching as not or slightly stressful (see Table 55). Teachers who felt teaching to be a stressful career had the symptoms of stress which reinforced their perceptions or perhaps these teachers' perceptions of teaching reinforced their existing symptoms of stress. Teachers who rated teaching as very to extremely stressful perceived only time management and teacher-student relations as more stressful than teachers who rated these items as not or slightly stressful (see Table 54). Since teachers who rated teaching as very or extremely stressful perceived teacher-parent relations, teacher-teacher relations and teacher-administrator relations to be no more stressful than their peers, these results indicate that these teachers coped with some portions of teaching. Obviously, teachers who rated teaching as very or extremely stressful need to improve their time management skills, relationships with students and their stress management skills to help them cope more successfully with their career.

Conclusion #4

A class size with a maximum of 30 students was perceived by teachers as being tolerable or moderately stressful. However, teachers perceived

teaching a class of 31 to 35 students as very stressful. The 39 teachers who rated teaching a class of 31 to 35 students as extremely stressful perceived more teaching stressors than their peers (see Table 51). Time management, teacher-student relations and teacher-parent relations were the significant stressors. These 39 teachers did not have more symptoms of stress than their peers. Teachers perceived teaching a class of 36 or more students as very to extremely stressful. The 72 teachers who rated teaching a class of 36 or more students as extremely stressful perceived more stressors in teaching and had more symptoms of stress than the 13 teachers who rated this item as not, slightly, or moderately stressful (see Tables 52 and 53). The results indicate that teaching a class of 36 or more students is too large since it is likely to be stressful for a large number of teachers. To reduce teacher perceptions of stress to an acceptable level, classes should be kept to 30 students or less.

Conclusion #5

Staff meetings which last longer than 1.5 hours were perceived as being stressful. Teachers who rated staff meetings of 1.6 to 2 hours as very or extremely stressful perceived more stressors in teaching than the teachers who rated this item as not stressful (see Table 46). Teachers who rated staff meetings of 2 or more hours as moderately, very, or extremely stressful generally perceived more stressors than teachers who rated this item as not or slightly stressful (see Tables 48 and 49). Principals can reduce teachers' perceptions of stress by ensuring that staff meetings are not longer than 1.5 hours.

Conclusion #6

Teachers perceived that working with inadequate teaching supplies was stressful. Teachers who rated working with inadequate supplies as moderately, very, or extremely stressful perceived more stressors in

teaching than teachers who rated this item as not or slightly stressful.

Teachers who rated this item as very stressful had more symptoms of muscle tension, depression and anger, than their peers (see Tables 41 and 42). Consequently, these results indicate that principals and the Ministry of Education can reduce teachers' perceptions of stress and some symptoms of stress by ensuring that teachers have adequate supplies for teaching. Also, perhaps teachers who perceive working with inadequate supplies as stressful should lower their expectations as to what constitutes adequate teaching supplies.

Conclusion #7

Teachers perceived working for a principal who did not show definite leadership in the school as stressful. The 66 teachers who rated this item as very or extremely stressful perceived more stressors in teaching than teachers who rated this item as not, slightly, or moderately stressful (see Table 44). The most obvious stressor for teachers who rated this item as slightly, moderately, very, or extremely stressful was teacher-administrator relations. Clearly, a principal who shows definite leadership in a school helps to minimize teachers' perceptions of stress in teaching.

Summary

The seven main conclusions are summarized below in order of importance.

(a) Teachers who have experienced three or more overt negative student reactions perceived more teaching stressors and had more symptoms of stress than their peers.

(b) Teachers who were sick the previous year had more symptoms of stress than their peers.

(c) Teachers who perceived teaching as extremely stressful had more symptoms of stress and perceived more teaching stressors than teachers who perceived teaching as not or slightly stressful.

(d) The results of the study indicate that teaching a class of 36 or more students is too large since this condition is likely to be stressful for a large number of teachers. To maintain teacher perceptions of stress at an acceptable level, classes should be kept to 30 students or less.

(e) Teachers perceived staff meetings of 1 to 1.5 hours as the maximum length.

(f) Teachers perceived working with inadequate teaching supplies as stressful.

(g) A principal who shows definite leadership in a school helps to minimize teachers' perceptions of stress in teaching.

Limitations

There were several limitations to this study of teacher stress. First, to some extent the precise questions in the final version of the SOTSS may be a function of the economic and political climate existing when the data were collected. Second, there was an absence of questions in the SOTSS on role conflict. Third, the section on stress management procedures did not have precise headings. Fourth, the results of 51 respondents could not be used.

Economic and Political Influences

The data in this study were collected in the fall of 1981 and the data in the pilot study were collected in the spring of 1981. The reader will recall that in order for an item from the pilot survey to be included in the final version it had to meet a minimum criteria of a mean of 2.0 on the pilot sample. It may be that given a different set of economic and political circumstances (e.g., school budget cuts) that some different items (e.g., TSPS Item #33, "The expectations of teachers from the Ministry of Education") might pass the cut off criteria and be included in the final form.

Role Conflict

No questions were included on the pilot survey about role conflict as a stressor. With additional readings on teacher stress and on the concept of stress since the SOTSS was distributed, the author became aware that teachers considered role conflict to be a stressor. Future research on teacher stress should definitely include questions on role conflict and perhaps incorporate additional research methodology (e.g., The Critical Incident Technique) to guard against similar omissions.

Stress Management Procedures

The Stress Management Procedures section of the SOTSS was not included in the Teacher Stress Pilot Survey (TSPS). There were three parts of this section that did not have precise headings or subheadings.

First, the rating headings for the Stress Management Procedures section of the SOTSS were: 0 (never); 1; 2; 3; 4 (regular daily use). The absence of specific rating headings for the ratings "1, 2, 3" allowed for individual interpretation of these three headings. Since these headings did not contain specific time allotments, some respondents, for example, who exercised 6 days a week possibly may have circled rating heading "4" (regular daily use) because these respondents might have felt that exercising 6 days a week was so close to exercising daily that their response should be regular daily use. Also, one respondent who exercised 4 days a week may have circled rating "2" while another respondent who exercised only 3 days a week may have circled the higher rating "3". Consequently, the results, such respondents might have provided for this section of the SOTSS would be inaccurate. A suggested improvement for these rating headings would be: 0 (never); 1 (once a week or less); 2 (2 to 3 days a week); 3 (4 to 6 days a week); 4 (regular daily use).

Second, there were no minimum time allotments for the use of relaxa-

tion or meditation procedures or for aerobic exercise. Consequently, the results of a respondent who ran for 10 minutes a day three times a week would be included with the results of a respondent who ran 20 minutes a day 3 days a week. The headings should be reworded to:

1. Relaxation or other meditation procedure (minimum of 10 minutes per session).
2. Some form of aerobic exercise (minimum of 20 minutes per session).

These time restrictions would have separated respondents who seriously engaged in relaxation, meditation, and/or aerobic exercise from those who less enthusiastically engaged in these activities.

Third, there were no subheadings for the use of relaxation or meditation procedures or for aerobic exercise for respondents who may have alternated two or more forms of relaxation or meditation or two or more forms of exercise. For example, a person may have jogged 5 days a week and played racket sports on the remaining 2 days. This person would have engaged in some form of aerobic exercise on a regular daily basis. Consequently, any such respondents in this survey were not able to indicate that they exercised on a regular daily basis. An improvement would have been to include "a combination of the above" after the six specific relaxation or meditation procedures and after the four specific forms of exercise on page 5 of the SOTSS.

The lack of specific time allotments for the rating headings "1, 2, 3"; of minimum time allotments for the use of relaxation or meditation procedures or for aerobic exercise; and of subheadings that accounted for respondents who alternated two or more forms of relaxation or meditation or two or more forms of exercise, likely negatively affected the accuracy of the frequency distribution for the Stress Management Procedures section of the SOTSS. Consequently, the analyses of the stress management procedures may be inaccurate. This may partially account for the contradictory results

in Table 19, where respondents who used one or more relaxation and/or meditation procedures daily had more neural and habit pattern symptoms of stress than respondents who rarely or never used a relaxation or meditation procedure.

Incomplete Questionnaires

Unfortunately, the results of 51 respondents were not used because these respondents returned incomplete questionnaires. Some of the respondents with incomplete results returned only one booklet while most failed to fill in one or more questions in the questionnaire sections of the SOTSS and/or the SOSI. Failure to complete the questions or to return both booklets are symptoms of cognitive disorganization, one of the subscales measured in the SOSI. Possibly, a significant amount of these respondents may have been teachers under stress. The results of these respondents would have improved the accuracy of the analyses conducted in this study. One method of reducing the amount of incomplete results would have been to mention the importance of returning totally completed questionnaires. This information could have been included in the covering letter, on the cover of the SOTSS, and perhaps on the last page of the SOSI.

Summary

There were three limitations of this study of teacher stress. First, there were no questions on role conflict included on the pilot questionnaire or on the SOTSS. Second, three rating headings on the Stress Management Procedures section of the SOTSS did not include specific time measurements that would make the results more accurate. Also, there were no minimum time allotments for the use of relaxation or meditation procedures or for aerobic exercise. Furthermore, there were no subheadings for teachers to respond to if they alternated the use of two or more relaxation or meditation procedures or two or more forms of aerobic exercise. Third, the results of 51 respondents were not used because they returned incomplete questionnaires.

Strengths

There were at least seven strengths to this study on teacher stress. First, this study was based on the interactional model of stress. Second, the SOTSS and SOSI were reliable measurement instruments. Third, the study was statistically based. Fourth, the sample was reasonably large and represented over 29 percent of the Chilliwack teachers. Fifth, the Personal Data section of the SOTSS was very detailed. Sixth, the prevalence of teacher stress was not based on the results of one item in the questionnaires. Finally, the study was Canadian and so provided purely Canadian results.

As discussed in Chapter II, the interactional model of stress is becoming more widely used in stress research. In this model, stress results from the complex interaction between the environment and the person. Stress research based on the interactional model should combine the study of stressors, coping strategies, and the symptoms of stress with demographic variables. As mentioned in Chapter II, there is extremely little teacher stress research based on the interactional model of stress. Only research by Feitler and Tokar (1981) and Needle et al. (1981) thoroughly investigated teacher stress using all four areas of the interactional model of stress.

This study was based on the interactional model of stress. The SOTSS provided results for the stressors in teaching, the coping strategies and the demographic variables. The SOSI provided results for the symptoms of stress besides additional demographic variables. Furthermore, the SOSI provided a much more thorough description of the respondents' symptoms of stress than any of the teacher stress research discussed in Chapter II. The Stress Management Procedures section of the SOTSS also provided a more thorough description of the respondents' coping strategies than any

of the research discussed in Chapter II. Consequently, the chief strength of this study was the fact that it was based on the interactional model of stress. This study has at least provided a more accurate analysis of teacher stress than studies not based on this model or studies that only included two or three of the four variables of the interactional model of stress.

The second strength of this study was that both the SOTSS and SOSI were reliable instruments. The SOTSS was developed from a pilot survey conducted in Chilliwack with 25 teachers. Only the Stress Management Procedures section was not piloted. Three out of the four criteria used to select the teaching stressors in the SOTSS were statistical criteria as described in Chapter III. The fourth criterion was based on comments by the TSPS participants. Flaws in the Personal Data section of the TSPS were discovered and subsequently revised for the Personal Data section in the SOTSS. The SOSI was adapted from the Cornell Medical Index, 1949 (Leckie & Thompson, 1979 b) in 1977 and was revised in 1978 and 1979 to eliminate problems and redundancies. As discussed in Chapter III, the SOSI was a statistically reliable instrument.

The third strength of this study was that the study was statistically based. Pearson correlation coefficient analyses, independent t-tests or one-way analyses of variance procedures with Neuman-Keuls post hoc comparisons were used to analyze the results of the SOTSS and the SOSI.

Fourth, the sample size of 114 teachers was large enough to give statistical validity to the results. Also, the sample represented over 29 percent of the teaching population in Chilliwack.

Fifth, the Personal Data section of the SOTSS was very detailed. This section allowed the author to investigate a wide variety of teacher characteristics and teaching conditions.

Sixth, findings on the prevalence of teacher stress were not based on one question. Kyriacou and Sutcliffe (1978) assessed the level of teacher stress according to the teacher responses to the item, "In general, how stressful do you find being a teacher?" To use the results of such a question and say that approximately 20 percent of the respondents reported teaching to be very stressful or extremely stressful and then infer that "about one-fifth of the teachers in this study are experiencing a large amount of stress" (p. 166) cannot be considered very accurate. In this current study, the author asked the respondents to give a stress rating for the question "Teaching (as a career)." The results of this question were then analyzed with the SOTSS and SOSI subscale results. This analysis allowed the author to see if there were any relationships between the respondents' ratings of this question and the perceived stressors and symptoms of stress. Consequently, a researcher could more accurately ascertain whether teachers who perceived teaching as a very stressful or extremely stressful career actually experienced a large amount of stress in comparison to their peers. Furthermore, since all the analyses of specific stressors and the demographic variables were compared against the SOTSS and SOSI subscales, the results of the item "Teaching (as a career)" assumed less overall importance to this study than did the similar but isolated question in the study of Kyriacou and Sutcliffe.

The final strength of this study was that it was Canadian. There has been very little Canadian-based research until recently. Most of the Canadian research has been conducted by teachers' federations such as the British Columbia Teachers' Federation (BCTF). To date the authors of this type of research primarily have investigated only the perceived stressors in teaching. Most research of teacher stress has taken place in Great Britain

or the United States. Since teaching conditions are unique in some ways in each country, this study has provided purely Canadian results.

Summary. There were at least seven major strengths of this study on teacher stress. First, the study was based on the interactional model of stress which at least provided a more accurate analysis of teacher stress than studies not entirely based on this model. Second, the SOTSS and SOSI were reliable measurement instruments. Third, this study was statistically based. Fourth, the sample was reasonably large and represented a substantial portion of the Chilliwack teaching population. Fifth, the Personal Data section of the SOTSS was extensive and allowed the author to investigate numerous teaching characteristics and teaching conditions. Sixth, the prevalence of teacher stress was based on the results of numerous items on the measurement instruments. Finally, this study was Canadian and so added to the limited pool of research on teacher stress in Canadian teachers.

Implications and Direction of Future Research

In this last section of Chapter V, the implications of this study will be discussed in relation to the results of the Stress Management Procedures section of the SOTSS, to various levels of the teaching profession and to the various levels of the British Columbia education system. This section will conclude with a few proposals for the direction of future teacher stress research.

Implications

Stress management procedures. The results of the SOTSS Stress Management Procedures section indicated that few teachers engage in relaxation or meditation forms of stress management procedures. There were only seven teachers out of 114 who used one or more procedures on a regular daily basis. Most of the stress management procedures listed in

the SOTSS, that is, progressive relaxation, self-hypnosis, autogenic relaxation, transcendental meditation, yoga and Benson's relaxation response, require several training sessions, follow-up sessions, and a minimum of one 15 minute practice session daily for successful results. Closer investigation of the seven respondents could likely reveal that one or more of these respondents received little or no training or follow-up in a relaxation or meditation procedure and so might not be using the procedure accurately. Furthermore, one or more of the seven respondents might not always be spending a minimum of 15 minutes daily. Therefore, such respondents might not be successfully reducing their symptoms of stress. These reasons, plus the very small sample size of respondents using stress management procedures besides the reasons discussed under limitations of this study, may account for the contradictory findings of Table 19 where respondents who used relaxation and/or meditation procedures daily had higher neural and habit patterns of stress than respondents who never or rarely used these procedures. A further reason for the seemingly contradictory findings may be that the seven respondents felt stressed and so needed to use relaxation or meditation procedures daily. Therefore, these respondents would be more stressed than most of their peers if they were not using the stress management procedures correctly.

As discussed in Chapter II, various studies indicated three groups of successful coping strategies for teachers. The most successful group involved strategies where the teacher learned and used some form of relaxation skills such as cue-controlled relaxation (Guziki et al., 1980) or systematic desensitization (Hannum et al., 1976). Coates and Thoresen (1976) and Barrios and Shigetomi (1979) provide extensive reviews of the success rates of various coping skills. Furthermore, there is considerable research which indicates that relaxation, meditation and biofeedback procedures may help control or reduce physiological disorders such as

asthma (Alexander, 1977), headaches (Williams, 1977), cardiac arrhythmias (Engel, 1977), diarrhea, epilepsy, or bruxism (Masur, 1977). In the above examples, Blanchard and Masur provide extensive reviews of research in the specified areas.

Since only seven respondents used relaxation or meditation stress management procedures daily, and since certain groups of teachers showed more symptoms of stress than their peers, these procedures deserve serious attention by specific groups of teachers and various levels of the teaching profession and provincial education system. These groups of teachers, and various levels of the teaching profession and provincial education system will be identified in the ensuing discussion on further implications of this study.

Teachers. This study on teacher stress identified three groups of teachers who experienced considerably more symptoms of stress than their peers. First, teachers who have experienced overt negative student reactions three or more times. Second, teachers who were absent because of sickness. Third, teachers who perceived teaching as a very stressful or extremely stressful career.

There are four sets of implications that arise with the identification of the three groups. First, any teachers who belong to all three groups, that is, who have experienced overt negative student reactions three or more times, who have been absent due to sickness in the past year, and who truly perceive teaching as a very or extremely stressful career, must consider reducing their symptoms of stress as their health and productivity as a teacher are seriously threatened. These teachers should engage in at least one stress management procedure daily. This procedure could be one form of aerobic exercise daily for a minimum of 20 minutes and/or the teacher could learn and then correctly engage in one relaxation or meditation

procedure daily. Obviously these teachers should first consult their doctors to ascertain their state of health. Those teachers who are overweight and/or who have health problems would be wise to learn and correctly engage in a relaxation or meditation procedure daily or very carefully follow an exercise program developed by a doctor. A teacher who belongs to the three groups mentioned above would perceive more time management and teacher-student relations stressors than their peers. Consequently, such teachers should improve their time management skills, and methods of disciplining and successfully interacting with students through in-service training, reading, and consistent practice.

Second, teachers who have experienced overt negative student reactions three or more times in their teaching career should consider engaging in a stress management procedure on a daily basis.

Third, teachers who were absent due to sickness in the last year should consider engaging in a stress management procedure on a daily basis. Since these teachers perceived more time management stressors than their peers, these teachers should also consider improving their time management skills.

Fourth, teachers who truly perceive teaching as a very stressful or extremely stressful career should consider engaging in a stress management procedure on a daily basis. These teachers perceived more time management and teacher-student stressors than teachers who perceived teaching as not or slightly stressful. Consequently, teachers who perceive teaching as very stressful or extremely stressful should also consider improving their time management skills and methods of dealing with students.

Principals. Principals can play an important role in reducing the perceived stressors of teachers in at least four ways. First, results of this study indicated that teachers prefer principals to show definite leadership

in the school. When principals do not show definite leadership there appears to be more stressors in the teaching staff in the areas of teacher-parent relations, teacher-student relations, teacher-teacher relations, and teacher-administrator relations. In particular, respondents who rated situations when a principal does not show definite leadership as slightly, moderately, very or extremely stressful, perceived more teacher-teacher and teacher-administrator stressors than the respondents who perceived this item as not stressful. Consequently, principals should show definite leadership in their schools. However, changes in this direction should certainly be on a planned basis and should include taking courses or in-service on education administration.

Second, respondents who rated teaching with inadequate supplies as moderately, very or extremely stressful perceived teacher-administrator relations to be more of a stressor than respondents who rated this situation as not or slightly stressful. These results suggested that principals should ensure that the teaching staff always has adequate teaching supplies.

Third, the results indicate that teachers perceived the maximum length of staff meetings to be 1.5 hours. Since principals are usually in charge of staff meetings, the principals should ensure that staff meetings do not last for more than 1.5 hours.

Fourth, respondents who experienced overt negative student reactions one to two times perceived teacher-administrator relations to be more of a stressor than respondents who never experienced overt negative student reactions or who experienced these reactions three or more times. These results indicate that the first two times a teacher experiences overt negative student reactions the teacher perceives the principal to be one of the significant stressors. Perhaps this means that a principal can play a significant role in helping to prevent these reactions in the future.

The results suggest that after the second occurrence, the teacher no longer perceives the principal to be a significant stressor.

In summary, principals can help reduce teachers' perceptions of teacher stress in four ways. The principals can show definite leadership in the school. They should ensure that teachers have adequate teaching supplies. Principals should keep staff meetings to a maximum of 1.5 hours. Finally, principals should be very sensitive to the first two times a teacher experiences overt negative student reactions. This may be a time that a principal can play a role in preventing such future reactions.

School board trustees and administrators. There are at least three ways that the trustees and school board administrators can help to reduce teacher stress. First, the administration and trustees, in conjunction with the local teachers' association, should develop and implement a remediation program for teachers who are given sick leave due to stress-related illnesses. This program should ensure that these teachers take training in one or more relaxation or meditation procedures offered by the British Columbia Teachers' Federation (BCTF) and go for occasional follow-up sessions. These teachers should also take in-service to improve their time management skills and to improve their methods of disciplining and interacting with students. As part of this remediation program the trustees and school board administrators should require these teachers to submit a written statement from the BCTF to the superintendent confirming that they have taken stress management training and in-service in time management and in methods of dealing with students, before these teachers start teaching again. Teachers who have taken such a remediation program should have reduced their symptoms of stress and should have more control over their time management and teacher-student stressors than previously. As

a result, these teachers are less likely to have stress-related sicknesses in the future compared to similar teachers who have not been on a remediation program. In the long term, teachers with stress-related sicknesses who have taken a remediation program are likely to be more healthy than previously and consequently, less of a future expense to the district. The costs of the remediation program should be borne by the school district and to some extent by the BCTF and the Ministry of Education.

Second, the trustees and school board administrators should encourage teachers who feel stressed to take stress management training, in-service in time management skills and/or in successful methods of dealing with students. The school district should continue to pay for such services.

Third, the trustees and school board administration should ensure that there are no classes of more than 35 students. To help reduce teacher perceptions of stress, classes should be kept to a maximum of 30 students.

Fourth, school board administration should ensure that there is an efficient system for filling school orders of various teaching

Local teachers' associations. Local teachers' associations can help reduce stress experienced by teachers in at least two ways. First, local associations should, in conjunction with the school board, develop and implement a definite remediation program for teachers who are given sick leave due to stress-related sickness. Support for such a remediation program by the local associations should help these teachers perceive the program as a worthwhile method of dealing with their problems. These teachers then may be more receptive to the remediation program and partake in it conscientiously and successfully. Second, the local associations should encourage teachers who feel stressed to take stress management training, in-service in time management skills and/or in successful methods of dealing with students.

British Columbia Teachers' Federation. The BCTF can play one of the most important roles in reducing teacher stress in at least four ways. First, and most importantly, the BCTF should offer very specific training programs for stressed teachers in a variety of the more established stress management procedures. These training programs should include such procedures as autogenic relaxation, progressive relaxation, transcendental meditation, self-hypnosis, yoga, Benson's relaxation response and perhaps biofeedback. The variety of procedures offered should allow stressed teachers to choose the procedure or combination of procedures that they find most beneficial. Intermittent follow-up sessions should be included to ensure that the teachers are practicing the procedures correctly and to monitor their progress. The instructors for these stress management procedures should be highly trained personnel and knowledgeable in the field of stress. Since these training programs may be expensive, especially initially, the BCTF should elicit financial and organizational support from the Provincial Ministries of Education and Health as well as the Federal Ministry of Health.

Second, the BCTF should have well trained personnel who can give workshops on time management skills and successful strategies on dealing with students.

Third, the BCTF should encourage the local associations to coordinate activities with the local school boards to develop and implement a remediation program for teachers who are given sick leave due to stress-related illnesses.

Fourth, the BCTF should publicize through BCTF literature, the three characteristics of teachers most likely to experience symptoms of stress that this study identified. These characteristics are, in review, teachers who have experienced overt negative student reactions three or more times,

teachers who have been absent due to sickness in the past year, and teachers who truly perceive teaching as a stressful career. The BCTF should encourage these teachers to take a stress management training program, and/or in-services on time management and successful strategies on dealing with students.

Fifth, the BCTF should concentrate on distributing objective, data-based research articles on teacher stress, rather than subjective, opinion-based articles. In particular, these research articles should be based on the interactional model of stress.

Provincial government. There are at least two ways the provincial government can help reduce teacher stress. First, the Ministry of Education and perhaps the Ministry of Health should help finance and organize relaxation and meditation training programs for teachers in conjunction with the BCTF. The emphasis should be on employing highly trained personnel who are able to set up well developed programs. Second, the Ministry of Education should ensure that all textbooks arrive at the schools well in advance of school opening in September so that teachers have adequate textbooks for teaching.

Universities. Personnel in the faculties of education in British Columbia universities should seriously consider offering a course that provides instruction on stress management procedures, time management skills and successful but practical methods of disciplining and interacting with students. Student teachers exposed to these skills may then be less likely to experience unacceptable levels of stress when they are employed than some teachers now seem to experience.

Summary. In summary, the results of this study show that few teachers

use relaxation or meditation stress management procedures. However, there are specific groups of teachers who experience more teacher stress than their peers and so should use such procedures. The implications of these results were discussed and strategies were proposed that various levels of the teaching profession and the provincial education system could employ to help reduce teacher stress. First, teachers who have experienced three or more overt negative student reactions, who have been absent due to sickness in the previous year, and who perceive teaching as a very or extremely stressful career, should learn and engage in at least one stress management procedure daily for 15 to 20 minutes. These teachers should also try to improve their time management skills and learn successful methods of disciplining and interacting with students. Principals should show definite leadership in their schools and should ensure that the teaching staff always has adequate teaching supplies. Principals should keep staff meetings to a maximum of 1.5 hours and should be very sensitive to the first two times a teacher experiences overt negative student reactions. The school board administration and trustees should work in conjunction with the local teacher associations to have teachers who are granted sick leave due to stress-related illnesses take a remediation program before continuing with teaching. This program would involve training in a relaxation or meditation procedure, in time management skills, and in successful methods of disciplining and interacting with students. The school board administration and trustees should also keep the maximum class size to 35 students. To help reduce teacher perceptions of stress, classes should be kept to a maximum of 30 students. Besides supporting the school board policy of having teachers who are on sick leave due to stress-related illnesses take a remediation program, the

local teacher associations should encourage teachers who feel stressed to take stress management training, in-service in time management skills and/or in successful methods of dealing with students. The BCTF should organize well developed programs for relaxation and meditation procedures with highly trained personnel. Also, the BCTF should organize workshops on time management skills and successful strategies for dealing with students. The BCTF should publicize the three characteristics of teachers most likely to experience teacher stress. The BCTF should concentrate on distributing teacher stress information that is data-based. The provincial Ministries of Education and Health and perhaps the federal Ministry of Health should help finance and organize relaxation and meditation stress management programs for teachers in conjunction with the BCTF. The Ministry of Education should ensure that all textbooks arrive at the schools well in advance of school opening in September. Finally, the faculties of education in the universities should offer instruction on stress management procedures, time management skills, and successful but practical methods of disciplining and interacting with children.

Direction of Future Research

Research of teacher stress has reached a cross-roads. No longer should teacher stress "research" consist of opinions by teachers or researchers. No longer should teacher stress "research" exclude research data. As Hiebert and Farber (1983) note in their review of teacher stress literature, these opinion-based types of articles conservatively account for 70.4% of the 71 papers tabulated in their study. These articles, classified as Type 1 articles, strongly suggest that teaching is stressful. No longer should data-based research rely upon simple questionnaires that only discern what events teachers perceived to be stressful and then list these stressors in

rank order. These questionnaires only measure perceived stressors but in no way can a researcher accurately interpret the results to show that teaching is a stressful occupation.

However, this study and other recent research (Feitler & Tokar, 1981; Needle et al., 1981) indicate that teacher stress can be measured. To do such research with some degree of accuracy, the research must be based on the interactional model of stress. Only when the demographic variables are analyzed in relation to the respondents' symptoms of stress, coping strategies and perceived stressors do the overall results have accuracy and meaning. Now that teacher stress research based on the interactional model of stress is proven to be feasible and fairly accurate, future research on teacher stress must be based on the interactional model. To do otherwise would be to continue the disservice done to the teaching profession over the past 10 to 15 years by many opinion-oriented authors. As Hiebert and Farber (1983) speculate, "the vast number of reports proclaiming teaching as stressful might be instrumental in setting up an 'expectancy to be stressed' that would leave teachers more vulnerable to stress-induced disorders" (p. 2).

Another area of teacher stress that certainly needs in-depth investigation is the coping strategies of teachers. Results based on the interactional model of stress will certainly help to fill the current void.

Finally, since many authors of opinion-based articles say that teaching is a stressful career, and in some cases, authors say that teaching is potentially one of the most stressful careers in the world (Hunter, 1977b), researchers should start to compare the stress levels among jobs. Results from instruments such as the SOSI will certainly provide meaningful information in this direction. Furthermore, use of such instruments,

along with relevant demographic variables, will help establish which groups of various professions are experiencing more stress. When identified, these persons would then be able to do something about it.

To conclude, future research on teacher stress must be based on the interactional model of stress. Besides reporting more accurate results and conclusions, this type of research will also provide valuable information on the coping strategies of teachers. The other direction research on teacher stress should take is to compare the intensity of stress for teachers with other occupations by using such instruments as the SOSI. Only in this way can we more accurately ascertain how stressful teaching is compared to other occupations.

Chapter Summary

In this chapter, the main conclusions of this study were discussed followed by a discussion of the limitations and strengths of the study. Implications of the study in relation to various levels of the teaching profession and of the British Columbia education system were presented. Finally, directions for future research of teacher stress were proposed.

APPENDIX A

TEACHER STRESS PILOT SURVEY

Teacher Stress Pilot Study

This study is being conducted to determine the major sources of teacher stress in Chilliwack. The purpose of this pilot survey is to ascertain which questions are the best ones to ask in the final survey and which questions are difficult to understand or are ambiguous.

This survey has been divided up into two sections. The first section deals with the sources of teacher stress. The second section consists of personal data. Throughout the survey, there are several instances where the same question is asked in different ways. This is to find out which is the best question(s) to use in the final survey. At the bottom of each page there are three lines that have been left for you to comment about any of the questions or to rephrase them in a way that is easier to understand. Please feel free to mention sources of stress you think were omitted.

As it is not necessary to know the identity of the respondents, the questionnaire will be anonymous. It would be appreciated if you will complete the survey prior to Thursday, May 28 and return it in the enclosed stamped-addressed envelope. Other phases of this research cannot be carried out until this data has been collected and analyzed.

Thank you for your co-operation.

Dave Clyne

Sources of Teacher Stress

The events listed below consist of a wide variety of potential sources of teacher stress that you may have encountered in your teaching career. Please circle the degree to which you find these situations stressful according to the following scale:

- 0 - Not Stressful
- 1 - Slightly Stressful
- 2 - Moderately Stressful
- 3 - Very Stressful
- 4 - Extremely Stressful

eg. Driving in rush hour. 0 . 1 . 2 . **3** . 4
 (This person finds "driving in rush hour" to be very stressful.)

Note: Whenever the word "principal" is used, it means the head administrator in your school. Please substitute head teacher for principal if it applies to you.

Circle the degree to which you find these situations stressful according to scale:

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
1. Communicating with teachers on staff with whom I agree.....	0	1	2	3	4
2. When my principal does not show definite leadership in the school.....	0	1	2	3	4
3. Parents of my students who want to know what I am teaching.....	0	1	2	3	4
4. Noise in the classroom.....	0	1	2	3	4
5. Teaching a class of students which numbers:					
(a) 15 or less.....	0	1	2	3	4
(b) 16 - 20.....	0	1	2	3	4
(c) 21 - 25.....	0	1	2	3	4
(d) 25 - 30.....	0	1	2	3	4
(e) 31 - 35.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
6. Disciplining students that I do not teach and having them react negatively.....	0	1	2	3	4
7. Being called to the door or phone when teaching.....	0	1	2	3	4
8. When my principal talks too much in staff meetings.....	0	1	2	3	4
9. Maintaining the standard of work I expect from my students.....	0	1	2	3	4
10. When other teachers do not consistently maintain school discipline.....	0	1	2	3	4
11. When there is a lot of teacher participation in staff meetings.....	0	1	2	3	4
12. When my class is quiet.....	0	1	2	3	4
13. The interaction between my principal and the teachers at staff meetings.....	0	1	2	3	4
14. Questioning students that I teach about their misbehavior and who react positively..	0	1	2	3	4
15. The behavior of other teachers on staff....	0	1	2	3	4
16. My interaction with the teaching staff.....	0	1	2	3	4
17. Students who react negatively when I discipline them.....	0	1	2	3	4
18. Keeping up with marking.....	0	1	2	3	4
19. The content of staff meetings.....	0	1	2	3	4
20. Working with a class of one ability group..	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
21. The inability to influence the negative home environment of disruptive students in my class(es).....	0	1	2	3	4
22. When there is time to relax during the teaching day.....	0	1	2	3	4
23. The communication of my principal with the teaching staff.....	0	1	2	3	4
24. Students in my class(es) who are difficult to motivate.....	0	1	2	3	4
25. The size of my present school.....	0	1	2	3	4
26. The expectations of teachers from the district superintendent.....	0	1	2	3	4
27. Student behavior on ordinary school days (when there are no special events).....	0	1	2	3	4
28. Having to live up to the expectations of other teachers on staff.....	0	1	2	3	4
29. My students' listening skills.....	0	1	2	3	4
30. When there is a lack of teacher input into planning district-sponsored professional days.....	0	1	2	3	4
31. The time I spend making up lesson aids, such as charts or flashcards.....	0	1	2	3	4
32. When I have a disagreement with another teacher on staff.....	0	1	2	3	4
33. The expectations of teachers from the Ministry of Education.....	0	1	2	3	4
34. When students have difficulty starting and doing their assignments of which they are capable.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
35. Staff meetings that last:					
(a) 1 hour or less.....	0	1	2	3	4
(b) 1 - 1.5 hours.....	0	1	2	3	4
(c) 1.5 - 2 hours.....	0	1	2	3	4
(d) 2 hours or more.....	0	1	2	3	4
36. When a principal does not support me with a student discipline problem.....	0	1	2	3	4
37. The amount of time I have available to relax during the teaching day.....	0	1	2	3	4
38. When a student is frequently absent.....	0	1	2	3	4
39. Parents of my students who are concerned about their child's progress.....	0	1	2	3	4
40. Maintaining my values with my students.....	0	1	2	3	4
41. The amount of time I spend on marking.....	0	1	2	3	4
42. Children who do not do as they are told immediately.....	0	1	2	3	4
43. Working with inadequate teaching supplies..	0	1	2	3	4
44. When there are power struggles occurring within the teaching staff.....	0	1	2	3	4
45. The amount of time it takes to implement new curricula.....	0	1	2	3	4
46. When there is no time to relax during the teaching day.....	0	1	2	3	4
47. General student attitude toward school.....	0	1	2	3	4
48. The home environment influence on the school behavior of my students.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
49. The expectations that parents have of me to uphold social values.....	0	1	2	3	4
50. When a principal maintains a neutral stance with me when parents disagree with something I have done that affects their child.	0	1	2	3	4
51. When my students are rarely late.....	0	1	2	3	4
52. When a principal does not maintain consistent discipline within his school.....	0	1	2	3	4
53. When my principal shows definite leadership in the school.....	0	1	2	3	4
54. When there is teacher involvement in school decision-making.....	0	1	2	3	4
55. The time I spend in preparation.....	0	1	2	3	4
56. The expectations of teachers from the British Columbia Teachers' Federation.....	0	1	2	3	4
57. When a principal does not support me when parents disagree with something I have done that affects their child.....	0	1	2	3	4
58. The communication of the teaching staff to my principal.....	0	1	2	3	4
59. When a student deliberately defies me.....	0	1	2	3	4
60. My interaction with disruptive students in my class(es).....	0	1	2	3	4
61. The demands my principal places on me.....	0	1	2	3	4
62. When my students work productively on their assignments of which they are capable.....	0	1	2	3	4

COMMENTS:

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
63. Questioning students that I teach about their misbehavior and who react negatively.	0	1	2	3	4
64. My interactions with my principal.....	0	1	2	3	4
65. The feedback other teachers on staff give me for the job I do.....	0	1	2	3	4
66. Students leaving class due to school cultural activities such as concerts.....	0	1	2	3	4
67. When a principal supports me when parents disagree with something I have done that affects their child.....	0	1	2	3	4
68. The interaction I have with parents of my students who are unconcerned about their child's progress.....	0	1	2	3	4
69. My interaction with my class.....	0	1	2	3	4
70. When students have problems interacting with each other.....	0	1	2	3	4
71. The expectations of teachers from the school board trustees.....	0	1	2	3	4
72. The interaction between the teachers and principal at our staff meetings.....	0	1	2	3	4
73. When there is a lack of consensus on minimum academic standards in my school....	0	1	2	3	4
74. The interaction I have with parents of my students who have no problems in my class(es).....	0	1	2	3	4
75. My interaction with my principal when I ask him for teaching materials that cost: (a) under \$35.00..... ... cont.	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
(b) \$35.00 - \$75.00.....	0	1	2	3	4
(c) \$76.00 - \$105.00.....	0	1	2	3	4
(d) over \$105.00.....	0	1	2	3	4
76. Student behavior on special days such as the day of a concert, a school sports event or a hat day.....	0	1	2	3	4
77. The amount of time it takes to prepare for new programs and textbooks.....	0	1	2	3	4
78. The interaction between my principal and I when a student is upset with me and tells him.....	0	1	2	3	4
79. When a principal maintains a neutral stance with me over a student discipline problem of mine.....	0	1	2	3	4
80. Parents of my students who show little or no interest in what I teach their child....	0	1	2	3	4
81. My students' attitudes toward work.....	0	1	2	3	4
82. Supervision (eg. playground, lunch hour, etc.).....	0	1	2	3	4
83. When students interact properly with each other.....	0	1	2	3	4
84. When there is a low noise level in my class(es).....	0	1	2	3	4
85. Disagreements with my principal.....	0	1	2	3	4
86. Motivating my students.....	0	1	2	3	4
87. When there is little administrative recognition for good teaching.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
88. Discipline sanctions available within the school system as laid down by the Ministry of Education.....	0	1	2	3	4
89. The pace of the school day.....	0	1	2	3	4
90. When students are rarely absent.....	0	1	2	3	4
91. When there is a high noise level in my class(es).....	0	1	2	3	4
92. The amount of salary I receive for the work I do.....	0	1	2	3	4
93. When there is a high amount of administrative recognition for good teaching.....	0	1	2	3	4
94. The time spent on extracurricular activities.....	0	1	2	3	4
95. The attitude of other teachers on staff....	0	1	2	3	4
96. Incidental bookkeeping, such as collecting money for hot dog sales.....	0	1	2	3	4
97. When few staff meetings are called.....	0	1	2	3	4
98. When there are personality conflicts on the teaching staff.....	0	1	2	3	4
99. When a lot of extra staff meetings are called.....	0	1	2	3	4
100. When my students have the necessary supplies for class.....	0	1	2	3	4
101. When the home environment negatively influences my students having academic difficulty.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
102. Working with the facilities in my school...	0	1	2	3	4
103. Teaching subjects outside my usual specialty.....	0	1	2	3	4
104. The negative feedback parents give me for the job I do.....	0	1	2	3	4
105. The content of school-based professional days.....	0	1	2	3	4
106. The expectations my principal has of me....	0	1	2	3	4
107. The amount of administrative recognition I receive for good teaching.....	0	1	2	3	4
108. When there is a lack of teacher involvement in school decision-making.....	0	1	2	3	4
109. Reduced teacher mobility due to current teacher surplus.....	0	1	2	3	4
110. Lack of demands that my principal places on me.....	0	1	2	3	4
111. Not enough preparation time.....	0	1	2	3	4
112. Questioning students that I do not teach about their misbehavior and who react negatively.....	0	1	2	3	4
113. Students leaving class due to sports, such as inter-school games.....	0	1	2	3	4
114. The interaction I have with parents of my students who are disruptive in class.....	0	1	2	3	4
115. When there is a consensus on minimum academic standards in my school.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
116. The interaction I have with parents of my students who have academic problems.....	0	1	2	3	4
117. The lack of opportunity for career development in teaching.....	0	1	2	3	4
118. When a principal maintains consistent discipline within his school.....	0	1	2	3	4
119. Students who need extra help.....	0	1	2	3	4
120. Working with a class of mixed ability groups.....	0	1	2	3	4
121. Children who do as they are told immediately	0	1	2	3	4
122. Disciplining students I teach and having them react positively.....	0	1	2	3	4
123. The content of district-sponsored professional development days.....	0	1	2	3	4
124. The amount of supplies available for teaching.....	0	1	2	3	4
125. The interaction between my principal and I when a parent is upset with me and tells him.....	0	1	2	3	4
126. When other teachers consistently maintain school discipline.....	0	1	2	3	4
127. Maintaining classroom discipline.....	0	1	2	3	4
128. The communication between my principal and me.....	0	1	2	3	4
129. Teaching.....	0	1	2	3	4
130. When students lack the necessary supplies for class.....	0	1	2	3	4

COMMENTS: _____

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful
131. The amount of paperwork I am required to do.....	0	1	2	3	4
132. When a student is frequently late.....	0	1	2	3	4
133. When a principal supports me with a student discipline problem.....	0	1	2	3	4
134. The listening skills of my disruptive students.....	0	1	2	3	4
135. When there is no administrative recognition for good teaching.....	0	1	2	3	4
136. When there is a lack of teacher participation in staff meetings.....	0	1	2	3	4
137. Having to discipline students I teach.....	0	1	2	3	4
138. Disciplining students I teach and having them react negatively.....	0	1	2	3	4
139. When there is teacher input into planning district-sponsored professional days.....	0	1	2	3	4
140. Having to discipline students I do not teach.....	0	1	2	3	4
141. When there are disagreements among teachers on staff.....	0	1	2	3	4
142. Questioning students that I do not teach about their misbehavior and having them react positively.....	0	1	2	3	4
143. Working with insufficient teaching supplies	0	1	2	3	4
144. Organizing my time in order to complete school oriented tasks.....	0	1	2	3	4

COMMENTS: _____

PERSONAL DATA

1. Age _____
2. Sex: Female _____ Male _____
3. Marital status: Married _____ Single _____
4. Number of children living at home: _____
5. Circle the number of years of education you have completed:

1, 2, 3, 4, 5	6, 7, 8, or more
College or University (Undergraduate)	(Graduate)
6. Circle the highest degree you hold:

No Degree, B.A., B.Sc., B.Ed., M.A., M.Sc., M.Ed.
Other (please specify): _____
7. Circle the university where you received this degree:

U.B.C., S.F.U., U. of Victoria
Other (please specify): _____
8. Circle the head administrator in your school:

(a) Principal
(b) Head Teacher
9. Circle the combination of numbers that represent the number of years you have been teaching. Include the current school year. (e.g. If it is 12, circle the 10 and 2.)

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40
10. Circle the grade level(s) you teach:

K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

11. Elementary teachers only: Is your class a split grade class?

YES	NO
-----	----
12. Circle the combination of numbers that represent the percentage of time you teach classes:

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

COMMENTS: _____

13. If you teach less than 100% of the time, circle the correct position you hold:

- | | |
|----------------------|------------------------------|
| 1. Relieving Teacher | 4. Special Education Teacher |
| 2. Principal | 5. Other (please specify): |
| 3. Vice-Principal | _____ |

14. Circle your weekly amount of preparation time during school hours:

- | | | | |
|---------|---------|---------|---------|
| 0.0 hr. | 2.0 hr. | 4.0 hr. | 6.0 hr. |
| 0.5 hr. | 2.5 hr. | 4.5 hr. | |
| 1.0 hr. | 3.0 hr. | 5.0 hr. | |
| 1.5 hr. | 3.5 hr. | 5.5 hr. | |

FOR THE FOLLOWING QUESTIONS #15-23, PLEASE CIRCLE THE COMBINATION OF NUMBERS THAT REPRESENT:

15. The number of hours per week you spend teaching in the classroom:

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30.

16. The number of hours per week you spend on school-related work such as supervision, marking, preparing, extracurricular activities: (Do not include classroom teaching time.)

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90.

17. The number of hours per week you work that you feel is excessive:

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90.

18. The approximate percentage of your students who are living with their original parents:

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

19. The approximate percentage of your students who are from a split home:

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

20. The approximate percentage of your students whose home environment you consider to be unstable:

- 1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

COMMENTS: _____

21. The approximate percentage of students in your class that belong to each socio-economic group:

(1) lower socio-economic group

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

(2) average socio-economic group

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

(3) upper socio-economic group

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

22. A. Elementary teachers only: The number of students you have in your regular class.

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30.

B. Secondary teachers only: The average number of students you have per class.

1, 2, 3, 4, 5, 6, 7, 8, 9,
10, 20, 30, 40.

23. The approximate number of students in your school:

25, 50, 75, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000.

24. A. Do you specialize in any subject or subjects?

YES NO

B. If YES, which subjects do you specialize in?

25. Do you teach a class of special education students?

YES NO

COMMENTS:

APPENDIX B

SOURCES OF TEACHER STRESS SURVEY

2

FIRST BOOKLET

SOURCES OF TEACHER STRESS SURVEY

DIRECTIONS: This survey contains a list of various situations that are potential sources of teacher stress. Please read each question carefully and indicate how stressful you find the situation.

NOTE: If you have a head teacher in your school please consider the word "principal" to mean "head teacher" when the word "principal" appears.

Please do not write in this section. Computer information only.

	ID		Card
			1
Col.	1		4

SOURCES OF TEACHER STRESS SURVEY

The events listed below consist of a wide variety of potential sources of teacher stress that you may have encountered in your teaching career. Please circle the degree to which you perceive these situations to be stressful according to the following scale:

- 0 - Not Stressful
- 1 - Slightly Stressful
- 2 - Moderately Stressful
- 3 - Very Stressful
- 4 - Extremely Stressful

e.g. Driving in rush hour. 0 1 2 **3** 4

(This person finds "driving in rush hour" to be very stressful.)

Do not spend too much time on any particular question, but give your immediate response.

Circle the degree to which you perceive these situations to be stressful according to the scale:	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	
1. The amount of time I spend on marking	0	1	2	3	4	Col. 5
2. When other teachers do not consistently maintain school discipline	0	1	2	3	4	
3. When the home environment negatively influences my students having academic difficulty	0	1	2	3	4	
4. Working with inadequate teaching supplies ...	0	1	2	3	4	
5. Teaching subjects outside my usual specialty	0	1	2	3	4	
6. <u>Disciplining students that I do not teach</u> and having them react negatively	0	1	2	3	4	Col. 10

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	
7. When there are power struggles occurring within the teaching staff	0	1	2	3	4	Col. 11
8. Frequent interruptions to my classroom teaching and routines (e.g. messages, etc.)	0	1	2	3	4	
9. The listening skills of my disruptive students	0	1	2	3	4	
10. When there are disagreements among teachers on staff	0	1	2	3	4	
11. Working with a class of mixed ability groups	0	1	2	3	4	Col. 15
12. Maintaining the standard of work I expect from my students	0	1	2	3	4	
13. <u>Questioning MY</u> students about their misbehavior and having them react negatively	0	1	2	3	4	
14. When my principal does not show definite leadership in the school	0	1	2	3	4	
15. Keeping up with marking	0	1	2	3	4	
16. Having to discipline students I do not teach	0	1	2	3	4	Col. 20
17. When a principal maintains a neutral stance with me when parents disagree with something I have done that affects their child.	0	1	2	3	4	
18. The inability to influence the negative home environment of disruptive students in my class(es)	0	1	2	3	4	
19. <u>Disciplining MY</u> students and having them react negatively	0	1	2	3	4	
20. The amount of time it takes to prepare for new programs and textbooks	0	1	2	3	4	

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	
21. Organizing my time in order to complete school oriented tasks	0	1	2	3	4	Col. 25
22. Having a principal who does not support me with a student discipline problem	0	1	2	3	4	
23. <u>Questioning students that I do not teach about their misbehavior and having them react negatively</u>	0	1	2	3	4	
24. The negative feedback parents give me for the job I do	0	1	2	3	4	
25. Staff meetings that last:						
(a) 1 hour or less	0	1	2	3	4	Col. 29
(b) 1 to 1.5 hours	0	1	2	3	4	
(c) 1.6 to 2 hours	0	1	2	3	4	
(d) more than 2 hours	0	1	2	3	4	
26. Parents of my students who show little or no interest in what I teach their child ...	0	1	2	3	4	Col. 33
27. When students have difficulty starting and doing their assignments of which they are capable	0	1	2	3	4	
28. Involvement in extracurricular activities .	0	1	2	3	4	
29. Not enough preparation time	0	1	2	3	4	
30. The amount of paperwork I am required to do	0	1	2	3	4	
31. Preparing report cards	0	1	2	3	4	Col. 38
32. When there is a high, <u>unproductive</u> noise level in my class(es)	0	1	2	3	4	
33. When a principal does not maintain consistent discipline within his school	0	1	2	3	4	
34. When a student deliberately defies me	0	1	2	3	4	
35. When a lot of extra staff meetings are called	0	1	2	3	4	

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	
36. Supervision (e.g. playground, lunch hour, etc.)	0	1	2	3	4	Col. 43
37. When there is little administrative recognition for good teaching	0	1	2	3	4	
38. Having a principal who does not support me when parents disagree with something I have done that affects their child	0	1	2	3	4	
39. When a student is frequently late	0	1	2	3	4	
40. When there are personality conflicts on the teaching staff	0	1	2	3	4	
41. Teaching a class of students which numbers:						
(a) 15 or less	0	1	2	3	4	Col. 48
(b) 16 to 20	0	1	2	3	4	
(c) 21 to 25	0	1	2	3	4	
(d) 26 to 30	0	1	2	3	4	
(e) 31 to 35	0	1	2	3	4	
(f) 36 or more	0	1	2	3	4	
42. The interaction I have with parents of my students who are unconcerned about their child's progress	0	1	2	3	4	Col. 54
43. When there is a high but <u>productive</u> noise level in my class(es)	0	1	2	3	4	
44. Teaching (as a career)	0	1	2	3	4	
45. Children who do not do as they are told immediately	0	1	2	3	4	

Please do not write in this section. Computer information only.

ID		Card	
			2
Col. 1			4

STRESS MANAGEMENT PROCEDURES

Many people regularly use some sort of stress management procedure to help reduce the effects of stress. Please indicate how frequently you engage in the following activities.

	Never				Regular Daily Use	
1. Relaxation or other meditation procedure.						
(a) progressive relaxation	0	1	2	3	4	Col. 5
(b) self-hypnosis	0	1	2	3	4	
(c) autogenic relaxation	0	1	2	3	4	
(d) transcendental meditation	0	1	2	3	4	
(e) yoga	0	1	2	3	4	
(f) Benson's relaxation response	0	1	2	3	4	
(g) prayer	0	1	2	3	4	
(h) other (specify): _____	0	1	2	3	4	
_____	0	1	2	3	4	
_____	0	1	2	3	4	Col. 14
2. Some form of aerobic exercise.						
(a) running or jogging	0	1	2	3	4	Col. 15
(b) walking	0	1	2	3	4	
(c) racket sports	0	1	2	3	4	
(d) swimming	0	1	2	3	4	
(e) other (specify): _____	0	1	2	3	4	
_____	0	1	2	3	4	
_____	0	1	2	3	4	Col. 21
3. Many people have developed their own special strategy for reducing stress. If you have some special strategy which works for you, please describe it briefly.						

PERSONAL DATA

Please answer all questions. Put the appropriate number(s) of your response in the square(s) to the right. ONE number only for each square.

e.g. Age (1) 29 years and under
(2) 30 to 44 years
(3) 45 years and over 3

(This person is 45 years old or older.)

1. Sex (1) Male
(2) Female

Col. 22

2. Age (1) 29 years and under
(2) 30 to 44 years
(3) 45 years and over

3. Marital Status
(1) Single
(2) Married
(3) Separated or Divorced

4. Number of children living at home.
(1) 0
(2) 1
(3) 2 to 3
(4) 4 to 6
(5) 7 or more

5. What is the highest degree you hold?
(1) No degree
(2) Bachelor's degree
(3) Master's degree
(4) Doctoral degree
(5) Other (specify): _____

Col. 26

6. How many years have you been teaching? Include the current school year.
(1) 1
(2) 2 to 4
(3) 5 to 9
(4) 10 to 19
(5) 20 years or more

7. What grade level do you teach most of the time this school year?
(1) Primary (K-3)
(2) Intermediate (4-7)
(3) Primary and Intermediate (e.g. split 3/4)
(4) Junior Secondary (8-10)
(5) Senior Secondary (11 & 12)
(6) Junior and Senior Secondary (8-12)
(7) Other (specify): _____

8. (This question is for elementary teachers only.)
Do you teach a split grade class in elementary school most of the time? (e.g. Gr. 5/6 split)
(1) Yes
(2) No

9. A. ELEMENTARY teachers only: What is the number of students you have in your regular class this year? (Kindergarten teachers with two classes, give the average number of students per class.)

- (1) I have no regular class.
 (2) 15 or less
 (3) 16 to 20
 (4) 21 to 25
 (5) 26 to 30
 (6) 31 to 35
 (7) 36 or more

Col. 30

- B. SECONDARY teachers only: What is the average number of students you have per class this year?

- (1) I have no regular class.
 (2) 15 or less
 (3) 16 to 20
 (4) 21 to 25
 (5) 26 to 30
 (6) 31 to 35
 (7) 36 or more

10. A. ELEMENTARY teachers only: Describe your student contact hours per week. (ONE digit only for each square, e.g.)

- (01) I teach the SAME class of students ALL subjects EVERYDAY. (If you indicate this answer, go directly on to question #11.)
 (02) I have responsibilities with several classrooms. (e.g. I am a Librarian, Learning Assistance teacher, etc.)
 (03) I teach ONE class MOST of the time, but I teach ONE or MORE subjects to a class or classes OTHER than my own for SOME time each week.

Col. 32 33

Indicate the total time spent PER WEEK teaching these OTHER classes in Columns 34-35.

- (04) 1 hour or less
 (05) 1.1 to 2 hours
 (06) 2.1 to 4 hours
 (07) 4.1 to 6 hours
 (08) More than 6 hours

Col. 34 35

Indicate the subject(s) you teach the other classes from the list below in Columns 36-37 and, if applicable, in Columns 38-39.

- (09) Art
 (10) Foreign Language (e.g. French)
 (11) Language Arts
 (12) Mathematics
 (13) Music
 (14) Physical Education
 (15) Science
 (16) Social Studies
 (17) Other (specify): _____

Col. 36 37

Col. 38 39

- (18) I have an unusual situation that cannot be accurately described from the above. (Please describe it on the lines below and enter "18" in Columns 32-33.)
-
-
-

10. B. SECONDARY teachers only: From the following list of specialized subject areas, indicate your FIRST, SECOND (if any), and THIRD (if any) areas of specialization this teaching year, in Columns 40-41, 42-43, and 44-45 respectively. (ONE digit only for each square, e.g.)

- (01) Art
 (02) Commerce
 (03) English
 (04) Foreign Language(s)
 (e.g. French)
 (05) Home Economics
 (06) Industrial Education
 (07) Mathematics
 (08) Music
 (09) Physical Education
 (10) Science
 (11) Social Studies
 (12) Other (specify): _____

Col. 40 41

Col. 42 43

Col. 44 45

11. Indicate whether you are employed full-time or part-time by the School District.

- (1) Full-time
 (2) Part-time

12. Indicate which category best describes your position.

- (1) Regular teacher (e.g. P.E., English or Grade 7, etc.)
 (2) Enrichment class teacher
 (3) Librarian
 (4) Counsellor
 (5) Learning Assistance teacher
 (6) Special Education teacher
 (7) English as a Second Language teacher
 (8) Department Head
 (9) Other (specify): _____

13. What are your WEEKLY number of preparation hours (or "spares") during school time? (Do not include before school, recess, lunch hour, after school or library periods.)

- (1) None
 (2) Less than 1 hour
 (3) 1 to 2 hours
 (4) 2.1 to 4 hours
 (5) 4.1 to 6 hours
 (6) More than 6 hours

14. How many hours per WEEK do you spend on school-related work such as supervision, marking, preparing, extra-curricular activities? (Do not include classroom teaching time. ONE digit only for each square, e.g.

- (01) None
 (02) 1 to 5 hours
 (03) 6 to 10 hours
 (04) 11 to 15 hours
 (05) 16 to 20 hours
 (06) 21 to 25 hours
 (07) 26 to 30 hours
 (08) 31 to 35 hours
 (09) 36 to 40 hours
 (10) More than 40 hours

Col. 49 50

15. How much of the time in your answer to #14 do you feel is beyond what should be reasonably expected of you? (ONE digit only for each square, e.g.)
- | | |
|---------------------|-------------------------|
| (01) None | (06) 21 to 25 hours |
| (02) 1 to 5 hours | (07) 26 to 30 hours |
| (03) 6 to 10 hours | (08) 31 to 35 hours |
| (04) 11 to 15 hours | (09) 36 to 40 hours |
| (05) 16 to 20 hours | (10) More than 40 hours |
| | (11) Other (specify): |

Col. 51 52

16. Approximately how much time did you spend on student-related extracurricular activities (exclusive of preparation, supervision, etc.) or any program run for the benefit of students, last YEAR? (e.g. house games, team sports, music, drama, food programs, etc.)
- | | |
|--------------------------------|-------------------------|
| (1) I did not teach last year. | (4) 51 to 100 hours |
| (2) 20 hours or less | (5) 101 to 200 hours |
| (3) 21 to 50 hours | (6) More than 200 hours |
17. What is the approximate number of pupils in your school?
- | | |
|-----------------|-------------------|
| (1) 100 or less | (4) 401 to 600 |
| (2) 101 to 200 | (5) 601 to 800 |
| (3) 201 to 400 | (6) More than 800 |
18. Approximately how many DAYS were you absent from teaching LAST YEAR due to ill health?
- | | |
|-----------------------------------|-----------------|
| (1) I was not teaching last year. | (4) 3 to 5 |
| (2) 0 | (5) 6 to 10 |
| (3) 1 to 2 | (6) 11 or more. |
19. Have you been physically assaulted by a student in your teaching career?
- | | |
|------------------|---------------------|
| (1) Never | (3) 3 to 5 times |
| (2) 1 to 2 times | (4) 6 or more times |
20. Have you been verbally threatened by a student in your teaching career?
- | | |
|------------------|---------------------|
| (1) Never | (3) 3 to 5 times |
| (2) 1 to 2 times | (4) 6 or more times |
21. In your teaching career, have you had personal property wilfully damaged by a student on school premises?
- | | |
|------------------|---------------------|
| (1) Never | (3) 3 to 5 times |
| (2) 1 to 2 times | (4) 6 or more times |
22. In your teaching career, have students in any way defied you by using foul language?
- | | |
|------------------|---------------------|
| (1) Never | (3) 3 to 5 times |
| (2) 1 to 2 times | (4) 6 or more times |

Col. 59

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APPENDIX C

LETTER OF PERMISSION TO USE SYMPTOMS OF STRESS INVENTORY

SYMPTOMS OF STRESS INVENTORY: A SELF ASSESSMENT

) (REPRODUCED IN THIS THESIS WITH
PERMISSION OF MS THOMPSON)

45437 Kipp Ave
Chilliwack, B.C.
V2P 1Z3
83-09-10

Dear Charles,

Enclosed is a copy of the final version of my thesis for you to check as per Step #9 of the Graduate Student Checklist. I have also enclosed a letter of permission, ^{from Mr. Thompson,} to duplicate the Symptoms of Stress Inventory in my thesis. You said this letter was necessary when you looked over my thesis this summer, prior to my oral. This letter applies to pp. 250-261 and pp. 279-290 of the thesis.

Yours truly,

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

July 22, 1983

*Management of Stress Response Program
School of Nursing, SC-76*

*Office: T405 — (206) 543-6960
Clinic: T429 — (206) 543-6802*

Mr. David Clyne
45437 Kipp Avenue
Chilliwack, B.C.
CANADA V291Z3

Dear Mr. Clyne:

You have our permission to reproduce the Symptoms of Stress Inventory in your thesis at Simon Fraser University.

Sincerely,

Elaine A. Thompson, R.N., M.A.
Management of Stress Response Program

EAT/cul

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

October 20, 1980

*Management of Stress Response Program
School of Nursing, SC-76*

Office: T405 — (206) 543-6960
Clinic: T429 — (206) 543-6802

B.A. Hiebert, Ph.D.
Assistant Professor
Simon Fraser University
Faculty of Education
Burnaby, B.C.
CANADA V5A 1S6

Dear Dr. Hiebert:

Please forgive the tardy response to your letter of August 13th; Maxine Leckie is no longer with the University of Washington and your letter just now reached me.

I am enclosing a copy of the Symptoms of Stress Inventory and its interpretive Manual.

You have our permission to reproduce and use the SOS, with the understanding that you will share the (anonymous) data with us for the purposes of establishing normative data baselines.

Hoping this will be useful to you, I am

Sincerely yours,

Elaine Thompson, R.N., M.A.

ET/cl
Enclosures

SECOND BOOKLET

SYMPTOMS OF STRESS INVENTORY

A Self Assessment

THIS QUESTIONNAIRE IS DESIGNED TO MEASURE THE DIFFERENT WAYS PEOPLE RESPOND TO STRESSFUL SITUATIONS. IN THE BOOK ARE SETS OF QUESTIONS DEALING WITH VARIOUS PHYSICAL, PSYCHOLOGICAL AND BEHAVIORAL RESPONSES. WE ARE PARTICULARLY INTERESTED IN THE FREQUENCY WITH WHICH YOU MAY HAVE EXPERIENCED THESE STRESS RELATED SYMPTOMS DURING THE PAST two weeks.

DEPARTMENT OF PSYCHOSOCIAL NURSING
UNIVERSITY OF WASHINGTON

ID			Card	
			3	

Col. 1 4

PLEASE CIRCLE THE MOST APPROPRIATE RESPONSE TO EACH QUESTION.

SOMETIMES PEOPLE UNDER STRESS EXPERIENCE A VARIETY OF PHYSICAL RESPONSES. DURING THE DESIGNATED PERIOD HAVE YOU BEEN BOTHERED BY:

	Never	Infrequently	Sometimes	Often	Very Frequently	
1. Flushing of your face.....	0	1	2	3	4	Col. 5
2. Sweating excessively even in cold weather	0	1	2	3	4	
3. Severe itching.....	0	1	2	3	4	
4. Skin rashes	0	1	2	3	4	
5. Breaking out in cold sweats	0	1	2	3	4	
6. Cold hands or feet	0	1	2	3	4	
7. Hot or cold spells	0	1	2	3	4	

HAVE YOU NOTICED ANY OF THE FOLLOWING SYMPTOMS WHEN NOT EXERCISING:

8. Pains in your heart or chest	0	1	2	3	4	Col. 12
9. Thumping of your heart	0	1	2	3	4	
10. Rapid or racing heart beats	0	1	2	3	4	
11. Irregular heart beats	0	1	2	3	4	
12. Rapid breathing	0	1	2	3	4	
13. Difficult breathing	0	1	2	3	4	

HAVE YOU EXPERIENCED:

14. A dry mouth	0	1	2	3	4	Col. 18
15. Having to clear your throat often	0	1	2	3	4	

	Never	Infrequently	Sometimes	Often	Very Frequently	
16. A choking lump in your throat	0	1	2	3	4	Col. 20
17. Hoarseness	0	1	2	3	4	
18. Nasal stuffiness	0	1	2	3	4	
19. Colds	0	1	2	3	4	
20. Colds with complications (e.g. bronchitis).....	0	1	2	3	4	
21. Increased asthma attacks	0	1	2	3	4	

HAVE YOU EXPERIENCED:

22. Spells of severe dizziness	0	1	2	3	4	Col. 26
23. Feeling faint	0	1	2	3	4	
24. Blurring of your vision	0	1	2	3	4	
25. Migraine headaches	0	1	2	3	4	
26. Tension headaches	0	1	2	3	4	
27. Sinus headaches	0	1	2	3	4	
28. Increased seizures (convulsions)	0	1	2	3	4	

HAVE YOU BEEN BOTHERED BY:

29. Indigestion	0	1	2	3	4	Col. 33
30. Nausea	0	1	2	3	4	
31. Severe pains in your stomach ..	0	1	2	3	4	
32. Increased appetite	0	1	2	3	4	
33. Poor appetite	0	1	2	3	4	

	Never	Infrequently	Sometimes	Often	Very frequently	
34. Loose bowel movements or diarrhea	0	1	2	3	4	Col. 38
35. Heartburn	0	1	2	3	4	
36. Constipation	0	1	2	3	4	

MUSCLE TENSION IS A COMMON WAY OF EXPERIENCING STRESS. HAVE YOU NOTICED EXCESSIVE TENSION, STIFFNESS, SORENESS OR CRAMPING OF THE MUSCLES IN YOUR:

	Never	Infrequently	Sometimes	Often	Very frequently	
37. Neck	0	1	2	3	4	Col. 41
38. Jaw	0	1	2	3	4	
39. Forehead	0	1	2	3	4	
40. Eyes	0	1	2	3	4	
41. Back	0	1	2	3	4	
42. Shoulders	0	1	2	3	4	
43. Hands or arms	0	1	2	3	4	
44. Legs	0	1	2	3	4	
45. Abdomen or stomach	0	1	2	3	4	

IN YOUR DAY-TO-DAY ACTIVITIES, HAVE YOU NOTICED SYMPTOMS OF ANXIETY OR RESTLESSNESS, SUCH AS:

	Never	Infrequently	Sometimes	Often	Very frequently	
46. Fidgeting with your hands	0	1	2	3	4	Col. 50
47. Pacing	0	1	2	3	4	
48. Chewing on your lips	0	1	2	3	4	

Item	Never	Infrequently	Sometimes	Often	Very frequently
49. Difficulty sitting still	0	1	2	3	4
50. Increased eating	0	1	2	3	4
51. Increased smoking	0	1	2	3	4
52. Biting your nails	0	1	2	3	4
53. Having to urinate frequently	0	1	2	3	4
54. Having to get up at night to urinate	0	1	2	3	4
55. Difficulty in falling asleep	0	1	2	3	4
56. Difficulty in staying asleep at night	0	1	2	3	4
57. Early morning awakening	0	1	2	3	4
58. Changes in your sexual relationship	0	1	2	3	4
HAVE YOU NOTICED:					
59. Worrying about your health	0	1	2	3	4
60. Stuttering or stammering	0	1	2	3	4
61. Shaking or trembling	0	1	2	3	4
62. Being keyed up and jittery	0	1	2	3	4
63. Feeling weak and faint	0	1	2	3	4
64. Frightening dreams	0	1	2	3	4
65. Being uneasy and apprehensive	0	1	2	3	4

Col. 63

Col. 58

Col. 53

ID			Card
			4

Col. 1 4

STRESS IS OFTEN ACCOMPANIED BY A VARIETY OF EMOTIONS. DURING THE DESIGNATED PERIOD HAVE YOU FELT:

	0	1	2	3	4	
66. Alone and sad	0	1	2	3	4	Col. 5
67. Unhappy and depressed	0	1	2	3	4	
68. Like crying easily	0	1	2	3	4	
69. Like life is entirely hopeless.	0	1	2	3	4	
70. That you wished you were dead .	0	1	2	3	4	
71. That worrying gets you down ...	0	1	2	3	4	

DOES IT SEEM:

	0	1	2	3	4	
72. That little things get on your nerves	0	1	2	3	4	Col. 11
73. You are easily annoyed and irritated	0	1	2	3	4	
74. When you feel angry, you act angrily toward most everything.	0	1	2	3	4	
75. Angry thoughts about an irritating event keep bothering you	0	1	2	3	4	
76. You become mad or angry easily.	0	1	2	3	4	
77. Your anger is so great that you want to strike something ..	0	1	2	3	4	Col. 16
78. You let little annoyances build up until you just explode	0	1	2	3	4	
79. You become so upset that you hit something	0	1	2	3	4	

IN YOUR DAY-TO-DAY LIVING DO YOU FIND:

	Never	Infrequently	Sometimes	Often	Very Frequently	
80. Working tires you out completely	0	1	2	3	4	Col. 19
81. Severe aches and pains make it difficult for you to do your work	0	1	2	3	4	
82. You get up tired and exhausted in the morning even with your usual amount of sleep	0	1	2	3	4	
83. You suffer from severe nervous exhaustion	0	1	2	3	4	
84. You get nervous and shaky when approached by a superior	0	1	2	3	4	
85. Your thinking gets completely mixed up when you have to do things quickly	0	1	2	3	4	Col. 24
86. You become so afraid you can't move	0	1	2	3	4	
87. You must do things very slowly to do them without mistakes	0	1	2	3	4	
88. You get directions and orders wrong	0	1	2	3	4	
89. You are unable to keep thoughts from running through your mind .	0	1	2	3	4	
90. You are fearful of strangers and/or strange places make you afraid	0	1	2	3	4	Col. 29
91. Sudden noises make you jump or shake	0	1	2	3	4	

	Never	Infrequently	Sometimes	Often	Very Frequently	
92. Frightening thoughts keep coming back	0	1	2	3	4	Col. 31
93. You become suddenly frightened for no good reason	0	1	2	3	4	
94. You have difficulty in concentrating	0	1	2	3	4	
95. What other ways do you experience stress, tension or anxiety?						

MEN GO TO ITEM 108.

The following section is for WOMEN ONLY:

AROUND THE TIME OF YOUR PERIOD DO YOU FEEL:	Never	Infrequently	Sometimes	Often	Very Frequently	
96. Tense or jumpy	0	1	2	3	4	Col. 34
97. Mildly depressed	0	1	2	3	4	
98. Moderately depressed	0	1	2	3	4	
99. Severely depressed	0	1	2	3	4	
100. Have you been pregnant within the last year	yes		no			Col. 38
101. Did you experience any complications during this pregnancy	yes		no			

- 102. Did you experience any complications during or after delivery yes no Col. 40
- 103. Have you had a hysterectomy yes no
- 104. Have you had both ovaries removed yes no
- 105. In the last year have you experienced any symptoms due to this surgery yes no
- 106. Have you experienced menopause . yes no
- 107. In the last year have you experienced any symptoms related to menopause yes no

CIRCLE THE APPROPRIATE NUMBERS IN ITEMS 108 - 111.

108. How many cigarettes per day do you smoke?

- 0. none
- 1. less than 6
- 2. between 7 and 19
- 3. 20 (1 pack) or more

Col. 46

109. How much coffee or tea do you drink each day?

- 0. none
- 1. 3 cups or less
- 2. 4 to 7 cups
- 3. 8 or more cups

Col.
47

110. How often do you drink alcoholic beverages?

- 0. never
- 1. less than once per month
- 2. once or twice per week
- 3. weekends only
- 4. daily or four or more days per week

111. When you do drink, how much do you usually drink?

- 0. none
- 1. 1 or 2 drinks per occasion
- 2. 3 to 4 drinks per occasion
- 3. 5 or more drinks

112. What type of alcoholic beverage do you usually drink?
(Circle all appropriate answers.)

- 1. Beer
- 2. Wine
- 3. Liquor

Col.
50

PERSONAL DATA

113. Age: _____

114. Sex: Female _____ Male _____

115. Occupation: _____

116. Ethnic background:

1. Afro-American
2. Asian American
3. Caucasian
4. Chicano or Spanish surnamed
5. Native American

117. Circle the number of years of education you have completed:

<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>more</u>
High School				College				Graduate				

118. Circle the highest educational degree you have completed:

- a. Grade school
- b. High school
- c. Community College (Associate degree)
- d. College (Bachelor's degree)
- e. Master's degree
- f. Doctoral degree

This questionnaire, adapted in part from the
Cornell Medical Index, 1949. It may not be
copied or reproduced without first obtaining
permission from Maxine S. Leckie or Elaine Thompson.

Department of Psychosocial Nursing SC-76
University of Washington
Seattle, Washington 98195

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APPENDIX D

LETTER OF APPROVAL FROM SIMON FRASER UNIVERSITY

ETHICS COMMITTEE

COVERING LETTER TO SOTSS/SOSI PARTICIPANTS

LETTER TO RESIDENT ADMINISTRATORS

LETTER OF THANKS TO PARTICIPANTS

SIMON FRASER UNIVERSITY

263.

MEMORANDUM

To..... David B.F. Clyne,
..... Department of Education
Subject... Ethical Approval.....

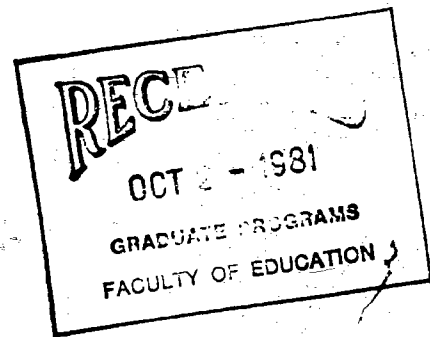
From..... Dr. Audrey Doerr, Chairman,
..... University Research Ethics
..... Review Committee.....
Date..... September 16, 1981.....

On behalf of the University Research Ethics Review Committee

I approve your research proposal, "Major Sources and Intensity of Teaching Stress in Chilliwack Teachers," as satisfying the University requirements for the ethical design and conduct of research.

AD/rj

cc: Dr. Bryan Hiebert,
Department of Education
Dr. Tuinman, Chairman
Graduate Programs.



Chilliwack School District No. 33

LITTLE MOUNTAIN ELEMENTARY SCHOOL

PRINCIPAL - P. NEUMANN

VICE-PRINCIPAL - D. CLYNE

81-10-19

Dear Colleague:

A topic of increasing concern lately is teacher stress. Much has been written in the past few years. It is difficult to ascertain the real amount of stress in teaching and the accuracy of the material published because a large portion of it has been based on opinions. Actual research articles or books are scarce and are mostly American or British.

As a graduate student at Simon Fraser University, under the supervision of Dr. Bryan Hiebert and Dr. Norm Robinson, I am writing a thesis on the perceived sources and amount of teacher stress. In the process, I request your assistance by participating in a survey. The results may be highly beneficial to our district in terms of identifying the major sources of stress among Chilliwack teachers generally and in various subgroups.

Mr. Fisher, District Superintendent, has granted permission to conduct the survey. The principals have given their support and have co-operated in the distribution of the surveys. The Chilliwack District Teachers' Association is also in support. The research project has been approved by the Simon Fraser University Ethics Committee.

I have randomly selected your name along with half the teachers from each school. Enclosed are two surveys. The FIRST to complete is the YELLOW booklet entitled "Sources of Teacher Stress Survey". This survey is designed to identify the kinds of events that teachers find stressful. The SECOND survey to complete is the WHITE booklet called "Symptoms of Stress Inventory: A Self Assessment" which is designed to determine people's reaction to stress.

I realize that your time is valuable and hope that you will find time to complete these. Each survey should take about 10 minutes. Please put BOTH surveys in the addressed envelope so the results will be kept together. The surveys are anonymous. To ensure anonymity, do not put your name on the booklets or the envelope. You are under no obligation to participate. However, a high response rate is needed for the study to be treated seriously. The completed surveys will be destroyed upon completion of the thesis.

A copy of the completed study may be obtained by contacting me at 792-3920 (home) or 792-0681 (school). If you have any questions or concerns about the surveys, please contact me at the above numbers or my supervisor, Dr. Bryan Hiebert at 291-3389.

Thank you for your time. Your co-operation is greatly appreciated. Please return the surveys in the addressed envelope via the school mail system prior to Friday, October 30, 1981.

Thank you,

Dave Clyne

Enclosures

Chilliwack School District No. 33

LITTLE MOUNTAIN ELEMENTARY SCHOOL

PRINCIPAL P. NEUMANN

VICE-PRINCIPAL D. CLYNE

October 19, 1981

Dear

Enclosed are envelopes containing the stress surveys which I presented at the September Principals' Meeting. Please distribute each envelope personally to the selected teachers and encourage them to participate.

Thank you for your support and co-operation.

Yours truly,

Dave Clyne

DC/kh

Enclosures

Chilliwack School District No. 33

LITTLE MOUNTAIN ELEMENTARY SCHOOL

PRINCIPAL R. NEUMANN

VICE-PRINCIPAL D. CLYNE

October 26, 1981

Dear

I would like to thank you if you have already responded to the "Teacher Stress Survey". If you have not yet completed the survey, please consider this a reminder that the success of the project depends on a high response rate. I would appreciate it if your survey could be completed by this Friday, October 30, and returned via the school mail system. Thank you for your assistance.

Yours truly,

Dave Clyne

APPENDIX E

FREQUENCY DISTRIBUTION FOR
THE SOURCES OF TEACHER STRESS SURVEY

FREQUENCY DISTRIBUTION FOR
THE SYMPTOMS OF STRESS INVENTORY

FIRST BOOKLET

SOURCES OF TEACHER STRESS SURVEY

FREQUENCY DISTRIBUTION

DIRECTIONS: This survey contains a list of various situations that are potential sources of teacher stress. Please read each question carefully and indicate how stressful you find the situation.

NOTE: If you have a head teacher in your school, please consider the word "principal" to mean "head teacher" when the word "principal" appears.

Please do not write in this section. Computer information only.

ID		Card	
			1
Col.	1		4

SOURCES OF TEACHER STRESS SURVEY
FREQUENCY DISTRIBUTION

The events listed below consist of a wide variety of potential sources of teacher stress that you may have encountered in your teaching career. Please circle the degree to which you perceive these situations to be stressful according to the following scale:

- 0 - Not Stressful
- 1 - Slightly Stressful
- 2 - Moderately Stressful
- 3 - Very Stressful
- 4 - Extremely Stressful

e.g. Driving in rush hour. 0 1 2 **3** 4

(This person finds "driving in rush hour" to be very stressful.)

Do not spend too much time on any particular question, but give your immediate response.

Circle the degree to which you perceive these situations to be stressful according to the scale:

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	Mean
1. The amount of time I spend on marking	17	35	41	16	5	1.62
2. When other teachers do not consistently maintain school discipline	6	18	47	30	13	2.23
3. When the home environment negatively influences my students having academic difficulty	4	25	37	34	14	2.25
4. Working with inadequate teaching supplies ...	7	21	41	32	13	2.20
5. Teaching subjects outside my usual specialty	15	14	35	33	16	2.19
6. <u>Disciplining students that I do not teach and having them react negatively</u>	3	18	28	38	27	2.60

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	Mean
7. When there are power struggles occurring within the teaching staff	13	27	32	35	7	1.97
8. Frequent interruptions to my classroom teaching and routines (e.g. messages, etc.)	13	27	34	29	11	1.98
9. The listening skills of my disruptive students	2	10	41	40	21	2.60
10. When there are disagreements among teachers on staff	14	33	35	26	6	1.80
11. Working with a class of mixed ability groups	21	33	35	17	8	1.63
12. Maintaining the standard of work I expect from my students	13	33	38	28	2	1.76
13. Questioning MY students about their misbehavior and having them react negatively	6	24	36	36	12	2.21
14. When my principal does not show definite leadership in the school	10	14	24	37	29	2.54
15. Keeping up with marking	13	29	35	28	9	1.92
16. Having to discipline students I do not teach	13	37	33	19	12	1.83
17. When a principal maintains a neutral stance with me when parents disagree with something I have done that affects their child.	13	11	20	38	32	2.57
18. The inability to influence the negative home environment of disruptive students in my class(es)	10	24	40	26	14	2.09
19. Disciplining MY students and having them react negatively	7	16	36	32	23	2.42
20. The amount of time it takes to prepare for new programs and textbooks	7	33	34	25	15	2.07

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	Mean
21. Organizing my time in order to complete school oriented tasks	11	36	40	21	6	1.78
22. Having a principal who does not support me with a student discipline problem	12	7	13	32	50	2.89
23. <u>Questioning students that I do not teach about their misbehavior and having them react negatively</u>	8	23	33	34	16	2.24
24. The negative feedback parents give me for the job I do	11	20	23	29	31	2.43
25. Staff meetings that last:						
(a) 1 hour or less	71	26	8	2	2	0.51
(b) 1 to 1.5 hours	30	36	28	9	2	1.21
(c) 1.6 to 2 hours	8	16	35	29	20	2.34
(d) more than 2 hours	6	3	21	27	50	3.05
26. Parents of my students who show little or no interest in what I teach their child ...	11	35	42	18	8	1.80
27. When students have difficulty starting and doing their assignments of which they are capable	7	28	48	27	4	1.94
28. Involvement in extracurricular activities .	28	28	33	16	9	1.56
29. Not enough preparation time	12	22	31	24	25	2.25
30. The amount of paperwork I am required to do	8	31	35	21	19	2.11
31. Preparing report cards	8	19	39	27	21	2.30
32. When there is a high, <u>unproductive</u> noise level in my class(es)	2	8	18	49	37	2.97
33. When a principal does not maintain consistent discipline within his school	5	8	17	46	38	2.91
34. When a student deliberately defies me	3	8	12	45	46	3.08
35. When a lot of extra staff meetings are called	7	10	37	40	20	2.50

	Not Stressful	Slightly Stressful	Moderately Stressful	Very Stressful	Extremely Stressful	Mean
36. Supervision (e.g. playground, lunch hour, etc.)	17	24	45	18	10	1.83
37. When there is little administrative recognition for good teaching	15	25	39	22	13	1.94
38. Having a principal who does not support me when parents disagree with something I have done that affects their child	13	6	14	47	34	2.73
39. When a student is frequently late	6	40	44	20	4	1.79
40. When there are personality conflicts on the teaching staff	8	40	32	28	6	1.86
41. Teaching a class of students which numbers:						
(a) 15 or less	83	20	6	0	0	0.29
(b) 16 to 20	62	36	10	1	0	0.54
(c) 21 to 25	38	28	39	7	0	1.13
(d) 26 to 30	13	23	36	29	8	1.96
(e) 31 to 35	2	7	23	35	39	2.96
(f) 36 or more	1	3	9	20	72	3.51
42. The interaction I have with parents of my students who are unconcerned about their child's progress	11	30	43	25	5	1.85
43. When there is a high but <u>productive</u> noise level in my class(es)	29	43	34	7	1	1.19
44. Teaching (as a career)	15	28	45	25	1	1.73
45. Children who do not do as they are told immediately	5	36	34	31	8	2.01

Please do not write in this section. Computer information only.

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STRESS MANAGEMENT PROCEDURES

Many people regularly use some sort of stress management procedure to help reduce the effects of stress. Please indicate how frequently you engage in the following activities.

	Never				Regular Daily Use	Mean
1. Relaxation or other meditation procedure.						
(a) progressive relaxation	68	17	18	4	5	0.76
(b) self-hypnosis	104	5	4	1	0	0.14
(c) autogenic relaxation	101	5	2	3	1	0.20
(d) transendental meditation	105	4	3	2	0	0.14
(e) yoga	98	5	7	3	1	0.28
(f) Benson's relaxation response	110	3	0	0	0	0.03
(g) prayer	53	13	11	8	28	1.51
(h) other (specify): _____	5	1	7	6	13	2.66
_____	1	0	7	4	5	2.71
_____	1	1	2	2	3	2.56
2. Some form of aerobic exercise.						
(a) running or jogging	55	22	16	13	8	1.10
(b) walking	31	23	26	16	18	1.71
(c) racket sports	83	17	7	6	1	0.47
(d) swimming	63	29	17	3	2	0.70
(e) other (specify): _____	4	6	9	10	8	2.32
_____	0	2	5	5	4	2.69
_____	0	1	1	1	1	2.50

3. Many people have developed their own special strategy for reducing stress. If you have some special strategy which works for you, please describe it briefly.

PERSONAL DATA

Please answer all questions. Put the appropriate number(s) of your response in the square(s) to the right. ONE number only for each square.

- e.g. Age (1) 29 years and under
(2) 30 to 44 years
(3) 45 years and over

3

(This person is 45 years old or older.)

1. Sex (1) Male - 53
(2) Female - 61
2. Age (1) 29 years and under - 22
(2) 30 to 44 years - 56
(3) 45 years and over - 35
3. Marital Status
(1) Single - 16
(2) Married - 84
(3) Separated or Divorced - 14
4. Number of children living at home.
(1) 0 - 11 (4) 4 to 6 - 32
(2) 1 - 47 (5) 7 or more - 1
(3) 2 to 3 - 23
5. What is the highest degree you hold?
(1) No degree - 28
(2) Bachelor's degree - 75
(3) Master's degree - 10
(4) Doctoral degree - 0
(5) Other (specify): - 0
6. How many years have you been teaching? Include the current school year.
(1) 1 - 4 (4) 10 to 19 - 37
(2) 2 to 4 - 12 (5) 20 years or more - 28
(3) 5 to 9 - 33
7. What grade level do you teach most of the time this school year?
(1) Primary (K-3) - 23
(2) Intermediate (4-7) - 24
(3) Primary and Intermediate (e.g. split 3/4) - 6
(4) Junior Secondary (8-10) - 34
(5) Senior Secondary (11 & 12) - 16
(6) Junior and Senior Secondary (8-12) - 6
(7) Other (specify): - 5
8. (This question is for elementary teachers only.)
Do you teach a split grade class in elementary school most of the time? (e.g. Gr. 5/6 split)
(1) Yes - 17
(2) No - 35

9. A. ELEMENTARY teachers only: What is the number of students you have in your regular class this year? (Kindergarten teachers with two classes, give the average number of students per class.)

- | | |
|----------------------------------|--------------------|
| (1) I have no regular class. - 3 | (4) 21 to 25 - 20 |
| (2) 15 or less - 2 | (5) 26 to 30 - 18 |
| (3) 16 to 20 - 6 | (6) 31 to 35 - 3 |
| | (7) 36 or more - 1 |

B. SECONDARY teachers only: What is the average number of students you have per class this year?

- | | |
|----------------------------------|--------------------|
| (1) I have no regular class. - 2 | (4) 21 to 25 - 23 |
| (2) 15 or less - 2 | (5) 26 to 30 - 21 |
| (3) 16 to 20 - 10 | (6) 31 to 35 - 1 |
| | (7) 36 or more - 0 |

10. A. ELEMENTARY teachers only: Describe your student contact hours per week. (ONE digit only for each square, e.g.)

- (01) I teach the SAME class of students ALL subjects EVERYDAY. (If you indicate this answer, go directly on to question #11.) - 24
- (02) I have responsibilities with several classrooms. (e.g. I am a Librarian, Learning Assistance teacher, etc.) - 4
- (03) I teach ONE class MOST of the time, but I teach ONE or MORE subjects to a class or classes OTHER than my own for SOME time each week. - 23

Indicate the total time spent PER WEEK teaching these OTHER classes in Columns 34-35.

- | |
|----------------------------|
| (04) 1 hour or less - 5 |
| (05) 1.1 to 2 hours - 5 |
| (06) 2.1 to 4 hours - 10 |
| (07) 4.1 to 6 hours - 2 |
| (08) More than 6 hours - 2 |

Indicate the subject(s) you teach the other classes from the list below in Columns 36-37

and, if applicable, in Columns 38-39. Col. 36-37 Col. 38-39

- | | | |
|--|-----|---|
| (09) Art | - 3 | 0 |
| (10) Foreign Language
(e.g. French) | - 1 | 0 |
| (11) Language Arts | - 2 | 0 |
| (12) Mathematics | - 0 | 0 |
| (13) Music | - 6 | 2 |
| (14) Physical Education | - 7 | 1 |
| (15) Science | - 3 | 1 |
| (16) Social Studies | - 1 | 1 |
| (17) Other (specify): | - 0 | 2 |

- (18) I have an unusual situation that cannot be accurately described from the above. (Please describe it on the lines below and enter "18" in Columns 32-33.) - 1

10. B. **SECONDARY teachers only:** From the following list of specialized subject areas, indicate your **FIRST**, **SECOND** (if any), and **THIRD** (if any) areas of specialization this teaching year, in Columns 40-41, 42-43, and 44-45 respectively. (ONE digit only for each square, e.g.)

	Col. 40-41	Col. 42-43	Col. 44-45
(01) Art	3	1	1
(02) Commerce	2	0	0
(03) English	7	4	0
(04) Foreign Language(s) (e.g. French)	5	1	0
(05) Home Economics	2	0	1
(06) Industrial Education	5	0	0
(07) Mathematics	7	9	0
(08) Music	1	0	0
(09) Physical Education	5	3	0
(10) Science	7	4	1
(11) Social Studies	5	9	3
(12) Other (specify):	9	4	4

11. Indicate whether you are employed full-time or part-time by the School District.

- (1) Full-time - 99
(2) Part-time - 15

12. Indicate which category best describes your position.

- (1) Regular teacher (e.g. P.E., English or Grade 7, etc.) - 93
(2) Enrichment class teacher - 2
(3) Librarian - 4
(4) Counsellor - 4
(5) Learning Assistance teacher - 3
(6) Special Education teacher - 5
(7) English as a Second Language teacher - 0
(8) Department Head - 2
(9) Other (specify): - 1

13. What are your WEEKLY number of preparation hours (or "spares") during school time? (Do not include before school, recess, lunch hour, after school or library periods.)

- (1) None - 54 (4) 2.1 to 4 hours - 36
(2) Less than 1 hour - 4 (5) 4.1 to 6 hours - 8
(3) 1 to 2 hours - 10 (6) More than 6 hours - 1

14. How many hours per WEEK do you spend on school-related work such as supervision, marking, preparing, extra-curricular activities? (Do not include classroom teaching time. ONE digit only for each square, e.g.)

- (01) None - 0 (06) 21 to 25 hours - 14
(02) 1 to 5 hours - 13 (07) 26 to 30 hours - 5
(03) 6 to 10 hours - 24 (08) 31 to 35 hours - 2
(04) 11 to 15 hours - 29 (09) 36 to 40 hours - 1
(05) 16 to 20 hours - 26 (10) More than 40 hours - 0

15. How much of the time in your answer to #14 do you feel is beyond what should be reasonably expected of you? (ONE digit only for each square, e.g.

0	5
---	---

)
- | | | | |
|---------------------|------|-------------------------|-----|
| (01) None | - 43 | (06) 21 to 25 hours | - 1 |
| (02) 1 to 5 hours | - 35 | (07) 26 to 30 hours | - 0 |
| (03) 6 to 10 hours | - 14 | (08) 31 to 35 hours | - 0 |
| (04) 11 to 15 hours | - 11 | (09) 36 to 40 hours | - 0 |
| (05) 16 to 20 hours | - 6 | (10) More than 40 hours | - 0 |
| | | (11) Other (specify): | - 0 |
16. Approximately how much time did you spend on student-related extracurricular activities (exclusive of preparation, supervision, etc.) or any program run for the benefit of students, last YEAR? (e.g. house games, team sports, music, drama, food programs, etc.)
- | | | | |
|--------------------------------|------|-------------------------|------|
| (1) I did not teach last year. | - 9 | (4) 51 to 100 hours | - 13 |
| (2) 20 hours or less | - 44 | (5) 101 to 200 hours | - 18 |
| (3) 21 to 50 hours | - 19 | (6) More than 200 hours | - 8 |
17. What is the approximate number of pupils in your school?
- | | | | |
|-----------------|------|-------------------|------|
| (1) 100 or less | - 4 | (4) 401 to 600 | - 36 |
| (2) 101 to 200 | - 17 | (5) 601 to 800 | - 6 |
| (3) 201 to 400 | - 30 | (6) More than 800 | - 21 |
18. Approximately how many DAYS were you absent from teaching LAST YEAR due to ill health?
- | | | | |
|-----------------------------------|------|----------------|------|
| (1) I was not teaching last year. | - 8 | (4) 3 to 5 | - 34 |
| (2) 0 | - 15 | (5) 6 to 10 | - 16 |
| (3) 1 to 2 | - 34 | (6) 11 or more | - 7 |
19. Have you been physically assaulted by a student in your teaching career?
- | | | | |
|------------------|------|---------------------|-----|
| (1) Never | - 94 | (3) 3 to 5 times | - 3 |
| (2) 1 to 2 times | - 16 | (4) 6 or more times | - 1 |
20. Have you been verbally threatened by a student in your teaching career?
- | | | | |
|------------------|------|---------------------|-----|
| (1) Never | - 63 | (3) 3 to 5 times | - 9 |
| (2) 1 to 2 times | - 36 | (4) 6 or more times | - 6 |
21. In your teaching career, have you had personal property willfully damaged by a student on school premises?
- | | | | |
|------------------|------|---------------------|------|
| (1) Never | - 62 | (3) 3 to 5 times | - 10 |
| (2) 1 to 2 times | - 39 | (4) 6 or more times | - 3 |
22. In your teaching career, have students in any way defied you by using foul language?
- | | | | |
|------------------|------|---------------------|------|
| (1) Never | - 32 | (3) 3 to 5 times | - 21 |
| (2) 1 to 2 times | - 45 | (4) 6 or more times | - 16 |

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SECOND BOOKLET

SYMPTOMS OF STRESS INVENTORY

A Self Assessment

FREQUENCY DISTRIBUTION

THIS QUESTIONNAIRE IS DESIGNED TO MEASURE THE DIFFERENT WAYS PEOPLE RESPOND TO STRESSFUL SITUATIONS. IN THE BOOK ARE SETS OF QUESTIONS DEALING WITH VARIOUS PHYSICAL, PSYCHOLOGICAL AND BEHAVIORAL RESPONSES. WE ARE PARTICULARLY INTERESTED IN THE FREQUENCY WITH WHICH YOU MAY HAVE EXPERIENCED THESE STRESS RELATED SYMPTOMS DURING THE PAST two weeks.

DEPARTMENT OF PSYCHOSOCIAL NURSING
UNIVERSITY OF WASHINGTON

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PLEASE CIRCLE THE MOST APPROPRIATE RESPONSE TO EACH QUESTION.

SOMETIMES PEOPLE UNDER STRESS EXPERIENCE A VARIETY OF PHYSICAL RESPONSES. DURING THE DESIGNATED PERIOD HAVE YOU BEEN BOTHERED BY:

	Never	Infrequently	Sometimes	Often	Very Frequently	Mean
1. Flushing of your face.....	37	35	32	7	3	1.16
2. Sweating excessively even in cold weather	55	25	23	10	1	0.92
3. Severe itching.....	83	20	5	6	0	0.42
4. Skin rashes	86	14	11	2	1	0.40
5. Breaking out in cold sweats	86	21	4	3	0	0.33
6. Cold hands or feet	59	18	19	14	4	1.00
7. Hot or cold spells	70	19	24	0	1	0.62

HAVE YOU NOTICED ANY OF THE FOLLOWING SYMPTOMS WHEN NOT EXERCISING:

8. Pains in your heart or chest	78	14	17	2	3	0.58
9. Thumping of your heart	66	27	18	3	0	0.63
10. Rapid or racing heart beats	71	25	16	1	1	0.56
11. Irregular heart beats	94	11	7	1	1	0.28
12. Rapid breathing	87	14	12	1	0	0.36
13. Difficult breathing	91	11	8	2	2	0.36

HAVE YOU EXPERIENCED:

14. A dry mouth	61	24	24	4	1	0.77
15. Having to clear your throat often	40	39	16	14	5	1.17

		<i>Never</i>	<i>Infrequently</i>	<i>Sometimes</i>	<i>Often</i>	<i>Very frequently</i>	<i>Mean</i>
16.	A choking lump in your throat	82	18	12	2	0	0.42
17.	Hoarseness	44	33	28	7	2	1.04
18.	Nasal stuffiness	38	32	25	122	7	1.28
19.	Colds	29	38	30	12	5	1.35
20.	Colds with complications (e.g. bronchitis).....	77	17	14	5	1	0.56
21.	Increased asthma attacks	109	2	2	0	1	0.09

HAVE YOU EXPERIENCED:

22.	Spells of severe dizziness	86	22	5	1	0	0.31
23.	Feeling faint	76	27	10	1	0	0.44
24.	Blurring of your vision	73	24	14	2	1	0.54
25.	Migraine headaches	82	13	16	2	1	0.48
26.	Tension headaches	35	38	33	6	2	1.14
27.	Sinus headaches	67	26	19	2	0	0.61
28.	Increased seizures (convulsions)	112	2	0	0	0	0.02

HAVE YOU BEEN BOTHERED BY:

29.	Indigestion	48	34	22	5	2	0.99
30.	Nausea	75	26	10	3	0	0.48
31.	Severe pains in your stomach ..	71	24	13	5	1	0.61
32.	Increased appetite	48	24	31	8	3	1.07
33.	Poor appetite	72	27	11	3	1	0.54

	Never	Infrequently	Sometimes	Often	Very Frequently	Mean
34. Loose bowel movements or diarrhea	48	37	12	5	2	0.91
35. Heartburn	62	32	12	4	4	0.74
36. Constipation	59	33	19	3	0	0.70

MUSCLE TENSION IS A COMMON WAY OF EXPERIENCING STRESS. HAVE YOU NOTICED EXCESSIVE TENSION, STIFFNESS, SORENESS OR CRAMPING OF THE MUSCLES IN YOUR:

37. Neck	35	23	33	12	11	1.48
38. Jaw	88	12	11	2	1	0.39
39. Forehead	82	16	14	2	0	0.44
40. Eyes	46	20	35	12	1	1.14
41. Back	41	21	31	12	9	1.36
42. Shoulders	38	23	30	16	7	1.40
43. Hands or arms	83	17	10	4	0	0.43
44. Legs	68	21	18	4	3	0.71
45. Abdomen or stomach	77	18	16	2	1	0.53

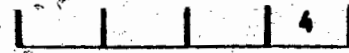
IN YOUR DAY-TO-DAY ACTIVITIES, HAVE YOU NOTICED SYMPTOMS OF ANXIETY OR RESTLESSNESS, SUCH AS:

46. Fidgeting with your hands	59	26	21	5	3	0.83
47. Pacing	74	18	11	10	1	0.65
48. Chewing on your lips	74	18	16	6	0	0.60

		Never	Infrequently	Sometimes	Often	Very Frequently	Mean
49.	Difficulty sitting still	45	30	24	13	2	1.10
50.	Increased eating	40	28	34	8	4	1.19
51.	Increased smoking	103	3	6	2	0	0.18
52.	Biting your nails	84	12	12	2	4	0.51
53.	Having to urinate frequently ...	60	26	21	6	1	0.79
54.	Having to get up at night to urinate	44	32	26	8	4	1.09
55.	Difficulty in falling asleep ...	43	29	28	12	2	1.13
56.	Difficulty in staying asleep at night	44	37	16	14	3	1.08
57.	Early morning awakening	53	26	19	14	2	1.00
58.	Changes in your sexual relation- ship	57	23	24	7	3	0.91

HAVE YOU NOTICED:

59.	Worrying about your health	51	24	26	10	3	1.04
60.	Stuttering or stammering	85	18	10	1	0	0.36
61.	Shaking or trembling	87	17	10	0	0	0.33
62.	Being keyed up and jittery	46	32	24	10	2	1.04
63.	Feeling weak and faint	75	25	12	2	0	0.48
64.	Frightening dreams	77	18	14	4	1	0.54
65.	Being uneasy and apprehensive ..	39	34	29	9	3	1.15



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STRESS IS OFTEN ACCOMPANIED BY A VARIETY OF EMOTIONS. DURING THE DESIGNATED PERIOD HAVE YOU FELT:

		Never	Infrequently	Sometimes	Often	Very Frequently	Mean
66.	Alone and sad	41	33	33	5	2	1.07
67.	Unhappy and depressed	35	33	39	5	2	1.18
68.	Like crying easily	66	21	20	5	2	0.74
69.	Like life is entirely hopeless.	82	22	8	1	1	0.40
70.	That you wished you were dead .	100	12	1	1	0	0.15
71.	That worrying gets you down ...	57	27	23	7	0	0.83

DOES IT SEEM:

72.	That little things get on your nerves	26	33	44	9	2	1.37
73.	You are easily annoyed and irritated	24	37	36	15	2	1.42
74.	When you feel angry, you act angrily toward most everything.	40	30	26	15	3	1.22
75.	Angry thoughts about an irritating event keep bothering you	30	32	35	16	1	1.35
76.	You become mad or angry easily.	34	38	36	6	0	1.12
77.	Your anger is so great that you want to strike something ..	65	37	8	3	1	0.58
78.	You let little annoyances build up until you just explode	57	29	22	5	1	0.81
79.	You become so upset that you hit something	85	22	5	1	1	0.34

IN YOUR DAY-TO-DAY LIVING DO YOU FIND:

	Never	Infrequently	Sometimes	Often	Very Frequently	Mean
80. Working tires you out completely	18	24	47	22	3	1.72
81. Severe aches and pains make it difficult for you to do your work	79	23	10	2	0	0.43
82. You get up tired and exhausted in the morning even with your usual amount of sleep	27	45	31	8	3	1.25
83. You suffer from severe nervous exhaustion	65	33	12	4	0	0.61
84. You get nervous and shaky when approached by a superior	53	43	14	4	0	0.73
85. Your thinking gets completely mixed up when you have to do things quickly	45	40	23	5	1	0.92
86. You become so afraid you can't move	105	6	3	0	0	0.11
87. You must do things very slowly to do them without mistakes	58	41	14	1	0	0.63
88. You get directions and orders wrong	47	50	13	2	2	0.79
89. You are unable to keep thoughts from running through your mind .	31	33	31	14	5	1.38
90. You are fearful of strangers and/or strange places make you afraid	69	33	10	2	0	0.52
91. Sudden noises make you jump or shake	48	39	20	4	3	0.90

	Never	Infrequently	Sometimes	Often	Very Frequently	Mean
92. Frightening thoughts keep coming back	58	42	9	5	0	0.66
93. You become suddenly frightened for no good reason	83	25	5	1	0	0.33
94. You have difficulty in concentrating	36	36	39	2	1	1.09
95. What other ways do you experience stress, tension or anxiety?						

MEN GO TO ITEM 108.

The following section is for WOMEN ONLY:

AROUND THE TIME OF YOUR PERIOD DO YOU FEEL:	Never	Infrequently	Sometimes	Often	Very Frequently	Mean
96. Tense or jumpy	19	13	18	10	1	1.36
97. Mildly depressed	15	17	19	7	3	1.44
98. Moderately depressed	29	17	9	5	1	0.89
99. Severely depressed	43	12	5	1	0	0.41
100. Have you been pregnant within the last year	Yes	No	Missing			
	2	59	0			
101. Did you experience any complications during this pregnancy	1	58	2			

* Total number of women was 61.

	Yes	No	Missing
102. Did you experience any complications during or after delivery	0	58	3
103. Have you had a hysterectomy	7	54	0
104. Have you had both ovaries removed	3	58	0
105. In the last year have you experienced any symptoms due to this surgery	1	58	2
106. Have you experienced menopause .	13	47	1
107. In the last year have you experienced any symptoms related to menopause	14	47	0

CIRCLE THE APPROPRIATE NUMBERS IN ITEMS 108 - 111.

108. How many cigarettes per day do you smoke?

0. none	102
1. less than 6	2
2. between 7 and 19	6
3. 20 (1 pack) or more	4

109. How much coffee or tea do you drink each day?

0. none	9
1. 3 cups or less	59
2. 4 to 7 cups	41
3. 8 or more cups	5

110. How often do you drink alcoholic beverages?

0. never	14
1. less than once per month	28
2. once or twice per week	36
3. weekends only	23
4. daily or four or more days per week	13

111. When you do drink, how much do you usually drink?

0. none	16
1. 1 or 2 drinks per occasion	76
2. 3 to 4 drinks per occasion	16
3. 5 or more drinks	5
Missing	1

112. What type of alcoholic beverage do you usually drink?
(Circle all appropriate answers.)

0. None	14	3. Liquor	9	6. Beer & Liquor	
1. Beer	11	4. Beer & Wine	4		2
2. Wine	39	5. Wine & Liquor	17	7. Beer, Wine & Liquor	17
Missing	1				

PERSONAL DATA

113. Age: 23 years to 63 years Mean = 39 years

114. Sex: Female 61 Male 53

115. Occupation: Teachers

116. Ethnic background:

1. Afro-American 1

2. Asian American 1

3. Caucasian 109

4. Chicano or Spanish surnamed 0

5. Native American 2

Missing 1

117. Circle the number of years of education you have completed:

0	0	0	0	0	0	2	16	47	27	14	6	1
<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>more</u>
High School					College				Graduate			

Missing - 1 Mean = 16.5

118. Circle the highest educational degree you have completed:

a. Grade school 0

b. High school 12

c. Community College (Associate degree) 12

d. College (Bachelor's degree) 80

e. Master's degree 10

f. Doctoral degree 0

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Reference Notes

1. Truch, S. Personal communication, January 7, 1982.

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