To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of EFFIE J. DEAN find it satisfactory and recommend that it be accepted.

_______________________________________
Gordon S. Gates, Ph.D., Chair

_______________________________________
James Howard, Ph.D.

_______________________________________
Paul E. Pitre, Ph.D.
ACKNOWLEDGEMENTS

I would like to acknowledge Dr. Gordon Gates for his consistent dedication to the completion of this project.
EXPLORING THE INDIVIDUAL CONTRIBUTORY PERSONALITY FACTORS OF STRESS: A SURVEY OF WASHINGTON STATE ELEMENTARY TEACHERS

Abstract

by Effie J. Dean, Ed. D.
Washington State University
December 2010

Chair:  Gordon Gates

Prolonged stress is shown to lead to low productivity, which is one of the leading causes of poor performance, and high absenteeism/turnover in occupational fields (Norton, 2002). The field of education is a prime example of low productivity resulting from prolonged stress (Norton, 2002). Currently, there are many existing studies on environmental stress factors that lead to teacher stress, while few studies have examined the link between stress and individual personality factors. Even harder to find is data on the connection of stress specific to teachers’ personalities. Research is needed to investigate the strength of the correlation between the individual factors of personality and perceived stress in teachers. This study was guided by three purposes. First, the study reported measures of occupational commitment, locus of control, and perceived stress for a random sample of elementary teachers selected from schools in Washington State. Other descriptive variables including teacher demographic information (i.e. gender and years of service) as well as measurements on their schools (i.e. student passing rates on the Fourth grade Reading, Writing, Math Washington Assessment of Student Learning
(WASL), average number of students per classroom, percentage of students per race, percent of students in special programs, and percentage of students qualified for free and reduced price meals), were also examined and presented as well. The second purpose of the study was to examine the bivariate correlations between the various variables of interest as identified in the review of literature. Finally, the study sought to determine which set of personality variables best predicted reported levels of teacher stress using regression analysis to assess the unique contribution of each of the independent variables entered into the model with the dependent measure of teacher stress.

Three hundred and eighty randomly selected Washington State Elementary Teachers were invited to complete a survey consisting of the Perceived Stress Survey (PSS), Teachers’ Occupational Commitment Scale (TOCS), and Work Locus of Control Scale (WLOCS). Results indicated that there were significant correlations between low stress and high levels of occupational commitment and locus of control in teachers. A strong correlation between occupational commitment and locus of control was found to exist as well. Both of these traits, as well as the male gender, were all found to be significant predictors of low stress. Replications of this study are recommended to verify its findings.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vii</td>
</tr>
<tr>
<td>CHAPTERS</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>18</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>52</td>
</tr>
<tr>
<td>4. RESULTS</td>
<td>68</td>
</tr>
<tr>
<td>5. CONCLUSION</td>
<td>85</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>95</td>
</tr>
<tr>
<td>APPENDIX</td>
<td></td>
</tr>
<tr>
<td>A. SURVEY COVER LETTERS</td>
<td>109</td>
</tr>
<tr>
<td>B. SURVEY</td>
<td>112</td>
</tr>
<tr>
<td>C. LETTERS OF PERMISSION</td>
<td>119</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. A PRIORI POWER ANALYSIS.................................................................53

2. PSS MEAN, SD, & RANGE 1994...............................................................60

3. SCHOOL DEMOGRAPHIC DATA..............................................................71

4. SCHOOL ENROLLMENT DATA...............................................................71

5. SCHOOL ACHIEVEMENT DATA.............................................................72

6. PSS ITEM ANALYSIS...........................................................................74

7. TOCS ITEM ANALYSIS........................................................................75

8. WLOCS ITEM ANALYSIS.....................................................................76

9. PREDICTING PSS SCORES...............................................................82
Dedication

This dissertation is dedicated to my beloved children who have been a constant support throughout this entire process. They made the journey worth the effort.
CHAPTER ONE
INTRODUCTION

Too many teachers are stressed. High and prolonged levels of stress have been shown to result in teacher productivity problems. Lack of productivity is seen in low performance, and high absenteeism/turnover. Many scholars attribute high stress levels to low resources and high demands evident in the occupation. Although environmental factors associated with stress have been extensively reviewed, little attention has been paid to individual personality contributory factors. Those who study stress suggest that some of the variability in the experience of stress can be attributed to the personality and/or identity of individuals given differences in their socialization. For example, some factors such as gender and years of service have been previously associated with teacher stress. Other variables however, such as Type A personality, achievement striving, and occupational commitment have received less attention in research involving educators. Still other factors including locus of control, have been studied as they relate to stress, but not with teachers. A justification for studying the individual personality contributory factors of teacher stress centers on its potential to advance theory on educator’s responses to stress. Policy recommendations ensue from theory that is better positioned to explain differences in the perception of stress. By examining the contribution and interaction of for example gender, occupational commitment, and locus of control, researchers will be able to assess the viability of profiles for educators who may be prone to experience high levels of stress. It should be noted that the purpose of such profiling is not to expel or falsely assume that any particular individual possessing the said characteristics will also exhibit high stress levels. Rather, the function of profiles can more correctly be stated as offering guidance to researchers
in where attention is needed for furthering understanding of coping mechanisms and socialization. Also, administrators will be able to use the outcomes of this research in selecting the kinds of training and support systems their teachers may need.

The following chapter provides further details to introduce the background for this study of stress. Also included in the chapter are definitions of terms, a statement of the problem, and purpose for the research, along with hypotheses, an overview of the methods, and significance of the research findings. The second chapter to follow the first offers a more in-depth look at the concepts of stress, including occupational stressors. Also, the demands and resources involved in teaching will be explored. The chapter also examines literature on occupational commitment, locus of control, gender, and years of service as they have been studied in relation to stress. Chapter three presents the research methods for the dissertation. Specifically, the design of the study, sampling procedures, instruments, data gathering, and analysis procedures which were followed are explained. Chapter four presents the findings. Chapter five of the dissertation provides the conclusion for this study that explored the individual contributory factors of stress as observed in a sample of elementary teachers in Washington State.

Background for the Study

In order to understand this study on teacher stress, it is necessary to offer some background. Particularly, this section introduces and discusses the concepts and variables used throughout the dissertation. Although a definition for some terms will be woven into this discussion, the section that follows provides a more exhaustive and easily identified list. The background for the study includes an overview of some of the major historical shifts in research conducted on stress. It describes major findings as related to teacher stress in preparation for the study’s statement of problem and purpose, which follow the definition of terms. This section was
organized around the concepts of stress, occupational stress, environmental factors, and individual contributory personality factors.

**Stress.** Stress has been defined in many ways through the decades. One way that it has been defined is as a response to prolonged and increased pressures that cannot be dealt with by one’s existing coping strategies (Kyriacou, 1987). Taking this resulting imbalance a step further, Blankenship (2007) added that not only does an incongruence between the demand of a situation and the individual's capability to respond need to exist, but the consequences also need to be important to the individual. Further, it is not always clear what the term stress is referring to. In some cases, it is being used to refer to the properties of a stimulus and in other cases just to the subject’s experience. This confusion has led to defining a “stressor” as an environmental stimulus which can be physical, psychological, or behavioral. This stimulus is also seen as part of the excess of the environmental demands over an individual’s perceived capability to meet those demands (McGrath, 1970). Perceptions have become a key point in defining stress.

Additions to the definitions and concepts of stress have come from many different lenses. Stress is not always necessarily negative. Psychologist Jean Piaget (1972) used a term called "equilibration" to describe a subject’s attempt to manage stress. He stated that some stress was good because it was during moments of stress that one was likely to learn and grow. Put another way, stress challenges humans to develop (Kelehear, 2005). On the other hand, stress was defined several decades ago by Selye (1974) as “the nonspecific response of the body to any demand” (p. 14). Because these “responses” include endocrinal as well as psychological and physical reactivity to demands, they can, if intense enough or repeated frequently enough, upset the homeostasis of the body. In such cases, the individual is said to have become “hyper-reactive to stress”, a condition which has been associated with decreased performance on a range of
physical and psychological tasks. This condition is also associated with illness and disease when prolonged arousal of the sympathetic nervous system occurs (Sharpley, Reynolds, Acosta, & Dua, 1996). Since the early 1800’s, stress has been connected with human illness (Hinkle, 1973). The concept of stress is now commonly accepted as an important factor in human wellness (Viner, 1999).

Long term work related stress can eventually lead to high turnover from burnout. Burnout is defined as physical, emotional, and mental exhaustion from chronic occupational stress (Golembiewski, Munzenrider, & Carter, 1983). Symptoms can be in the form of somatic and/or mental health issues (Brenner & Bentall, 1984). Burnout is listed as the main cause of attrition (Lachmant & Diamante, 1987). Research, in fact, shows that turnover can cost an organization from 5 to 25 times an employee’s monthly salary when recruitment and training costs are considered, as well as court costs from employees blaming illness on work related stress (Bachkirova, 2005).

*Occupational stress.* Many consequences of stress are associated with one’s place of employment. Occupational stress is a significant problem. Only in recent years have researchers begun to study stress in the workplace. Disorders from stress decrease work productivity, which includes performance, illness/absenteeism and retention (Sethi & Schuler, 1984; Ganster & Schaubroeck, 1991). One study used a group pre and post test design to investigate the influence of an employee assistance program (EAP) on employees’ stress levels and thus their productivity. Results showed that stress positively related to low performance, and high absenteeism/intent to leave. They also showed that counseling services lowered stress/absenteeism, and increased performance (Ramanathan, 1992).
Other studies have also confirmed that high levels of prolonged stress lead to poor work performance (Quick, Quick, Nelson & Harnell, 1997). Considering performance at various tasks, an inverted-U relationship was established between arousal and performance by Yerkes and Dodson (1908). That is, low and very high states of arousal predict poor performance, while moderate arousal predicts maximum performance. Thus, the likelihood of persons working to their potential is decreased if they are in a state of prolonged or extreme arousal due to stress (Murray, 1996).

Illnesses associated with stress have also been researched. Prolonged stress is associated with heart disease, hypertensive diseases, gastrointestinal disorders, insomnia, depression, and alcoholism (Furnham, 1992). One study examined how job related stress increased health problems, and thus absenteeism. Researchers collected data via survey questionnaires from 1,925 staff at Monash University campuses (Sharpley, Reynolds, Acosta, & Dua, & 1996). Results indicated a significant positive relationship between job stress and health problems, the latter suggesting that self-reported stress at work was associated with absences from work, and frequency of illnesses. Further research has shown that the intense and/or prolonged activation of a stress response inhibits the competency of the immune system, which contributes to the frequency, intensity and duration of diseases (Bachkirova, 2005).

The field of education has proven to be highly stressful (Borg, 1990; Kyriacou, 2001). Teachers’ stress is an international problem. Negative teacher stress is defined as an unpleasant, negative emotion such as anger, anxiety, tension, frustration or depression. These emotional responses result from an aspect in the teacher’s workplace (Kyriacou, 2001). Borg (1990) stated that approximately one third of all teachers will find their occupation extremely stressful. Teachers report much higher levels of stress (Smith, Brice, Collins, Matthews, & McNamara,
2000) when compared to other professions. Teachers had a 31% higher stress level than nurses, and a 27% higher level than other professional managers. As in other occupations, stress effects teacher productivity. Productivity issues include performance, illness/absenteeism and turnover. Researchers in one study investigated these issues by studying the occupational stress of 500 secondary and elementary school teachers. They found that the occupational stress in education was considerable and affected teachers’ productivity negatively. Poor productivity was seen in the form of health problems, low work performance, and eventually turnover (Pei & Guoli, 2007). Due to recent increased stress levels, teachers are leaving the field at alarming rates (Young & McLeod, 2001). This public school teacher shortage is rated moderate to extreme by many superintendents, which is evident in the decreasing pool and frequent turnover of teachers (Metzger, 2003). Norton (2002) states that the turnover has reached a crisis proportion of 50% in some states. These problems have an adverse affect on students’ academic success. These results raise serious concerns for schools when considering such issues as the costs of lower productivity, increasing health care needs, absenteeism, and rehiring/retraining expenses (Sharpley, Reynolds, Acosta, & Dua, & 1996).

**Environmental factors.** Since teacher stress is currently in the national spotlight, responses to this information have resulted in a significant amount of research. Environmental factors have been the main focus of this quest. Teacher stress is related to many items in the categories of job demands and resources (Friedman, 1995a; Bakkar, Demerouti & Euwena, 2005). Each of these categories contains various issues.

Hackman and Oldham (1980) and Bakkar, Demerouti and Verbeke (2004) argue that imbalances between resources and demands in the work place could be linked to high levels of stress. Demerouti, Bakker, Nachreiner and Schaufeli (2001) defined these concepts of job
demands and job resources. Job demands were explained as physical, social, or organizational aspects of a job that required sustained physical or mental effort and were therefore associated with certain physiological and psychological costs. Job resources referred to physiological, psychological, social, or organizational aspects of a job that supported an employee physiologically or psychologically (Demerouti, et al., 2001). Examples of physical demands in teaching included long hours and high workloads (Thomas, 1982; McCormick, 1997). Social demands included high expectations (Coon, 1992; Yu & Ning, 2004). Recent moves in educational policy toward a centralized system have increased teacher accountability. High numbers of teachers have left the field because of this stressor, according to a Washington State study (Mabry & Margolis, 2006). Increased social demands have had an effect on teacher related stress, as have organizational demands. An example of organizational demands on teachers included management issues. Conflicts within an organization’s administrative hierarchy seem to raise stress levels in teachers (French, 1987). Failing to provide administrative guidelines and to involve teachers in decisions are examples of ineffective administrative leadership (Booth, 1987). These specific demands are unique to education and may result in teacher stress.

Suggested solutions for dealing with stress in education are seen in job resources. Researchers have conducted many studies in search of environmental supports to combat the physiological and psychological costs of job demands. Data from the literature on these resources revealed physical, social and organizational supports (Friedman, 1995b; Bakkar, et al., 2005). Suggested physiological resources that help teachers deal with the costs of stress have been presented in many studies (Croyle, 1982; Hamann & Gordon, 2000). How one actively copes with stress through exercise, relaxation, life outside of work and leisure may moderately determine how one is affected by stress (Montgomery & Rupp, 2005). Social resources fall into
two realms of support. These include support inside the school system, and support from without. Both areas can have a phenomenal impact on teachers’ stress levels (Barriele, 1984). Organizational resources, which can block teachers’ stress, often involve a focus on control issues (Pearson & Hall, 1993; Davis & Wilson, 2000). Zembylas and Papanstasious (2004) used another term for control, which was empowerment. This was defined as a teacher’s power to participate in decision making in their organization. Professional training is an organizational resource that seems to increase a teacher’s sense of empowerment. The importance of decision making power, and professional training in stress levels of teachers was shown in research conducted by Zembylas and Papanstasious (2004). Teacher empowerment can be increased by organizational resources. All of these studies concentrated on the unique contributions of job demands and job resources in explaining occupational stress (Karasek, 1998).

*Individual contributory personality factors.* The relationship between occupational demands and resources to one’s stress level has been heavily studied throughout the past few decades, where as the relationship between stress and individual personality contributory factors has only been researched lightly. Individual personality contributory factors of stress can be explained by the transaction model. Cox (1978) stated that stress was the result of an inter-play between the environment and an individual. Travers and Cooper (1996) believed that stress was personal and that personality traits could affect stress responses. Parkes (1994) investigated individual differences in stress responses to the same environment. He suggested that individual differences played a part in the variation of workplace stress. Although teachers are exposed to many of the same environmental stressors, not all respond with high stress levels (Travers & Cooper, 1997). Therefore, individual factors have become a new area of interest in research. Parkes (1994) pointed out that few personality traits had been researched in relation to stress.
Through the years, scant amounts of research have looked at individual contributory personality factors such as Type A Personality traits, achievement striving, and occupational commitment in relation to teacher stress levels. Few studies have touched on connections of gender, and years of service to stress either. Each of these factors deserves a closer look.

A person with a Type A personality is noted as possessing impatience, aggression, and achievement striving. It has been suggested that this personality type shows more physiological and emotional reactivity when faced with job demands (Ganster & Schaubroeck, 1991). When Type A Personality traits were studied in relation to stress, they were found to be positively related (Jex, Admas, Elacqua & Bachrach, 2002). Also, achievement striving, which is defined by Friedman and Ulmer (1984) as a continuous struggle to achieve and considered to be a component of the Type A Personality (Friedman & Rosenman, 1959), has also been linked positively to stress levels (Ward & Fischer, 1987). Stress has also been linked to other traits.

Occupational commitment’s relation to stress was studied by Burns and Bluen (1992) who found a negative correlation between the two. Possible reasons for these results according to Kobasa (1982) and Antonovsky (1979) were that those with greater commitment to a profession cope with stress more easily because they intrinsically value their occupation. This trait may warrant further confirmation.

Gender differences have been studied by Gardiner and Tiggerman (1999), along with years of service (Male & May, 1998) in relation to stress. Results from these studies found females to rate higher in levels of stress than males (Gardiner & Tiggermann, 1999) though international studies have been found to have mixed results (Ushasree, Seshu-Reddy, & Vinolya, 1995; Antiniou, Polychroni, & Walters 2000). Those with longer years of service and lower
levels of service were found to rate lower in their stress level (Male & May, 1998). Further studies are needed in these areas.

One study in the United Kingdom recently tied many of these individual factors into one study. The relationship of teacher stress to each of these factors was investigated. Jepson and Forrest (2006) conducted a study to determine the existence of a correlation between individual personality contributory factors of teachers and stress. Pearson’s correlation results presented a strong negative correlation between stress and occupational commitment. The other independent variables, Type A Personality and achievement striving, had weaker correlations to stress. No significant results were found between stress and gender, or years/level of service, though many past studies have shown mixed results. In conclusion, occupational commitment, gender, and years of service may warrant further investigation.

Although the results of this research were noteworthy, several limits would need to be corrected in any future studies. Limits to this study included the fact that it was conducted on foreign soil, only had 95 subjects and did not use a randomized sample. Therefore, a future study correcting these limits may provide useful results on the subject of teacher stress.

One other addition to future studies in the area of individual personality contributory factors of stress could be helpful. Information on locus of control and its relation to stress has shown promising results. Research has positively linked the individual personality factor labeled locus of control to life and job satisfaction, and negatively to stress and occupational burnout. This factor has only rarely been included in studies linking it specifically to teacher stress though. One study specifically investigated teachers’ stress in relation to locus of control and found that a high locus of control leads to lower stress levels (Bachkirova, 2005). A meta-analysis by Ng, Sorenson, and Eby (2006) investigated studies on the subject of locus of control
and its relation to stress. Locus of control was defined as one’s control over one’s own fate and was first linked negatively to occupational stress by Rotter in 1966. Judge and Bono (2001) linked this concept to job satisfaction in a positive direction. The hypothesis of the analysis by Ng et al., (2006) was that locus of control was positively linked to life satisfaction, and job satisfaction, while negatively related to job stress and burnout. They observed studies over a 20 year period, many of which used Rotter’s (1966) locus of control scale (LOC) or Spector’s Work Locus of Control scale (WLOCS) as their instruments. Results found a significant positive connection between locus of control and life satisfaction and job satisfaction, while a significant negative connection was found between locus of control and stress. It seems that any future studies in the area of individual personality contributory factors and teacher stress should include this trait.

Definition of Terms

Achievement Striving- A trait of a Type A Personality profile which continually seeks higher levels of occupational success.

Autonomy- A type of empowerment which can be described as control over decisions made in one’s environment.

Burnout- A state of exhaustion, depersonalization and self-depreciation resulting from long term stress is labeled as “burnout”.

Empowerment- Empowerment is defined by Zembylas and Papanastasiou (2004) in terms of a teachers’ power to participate in decision making, both in their environment (autonomy) and in their self growth (locus of control).

Equilibration- A subject’s attempt to manage stress.
Gender- This term refers to a set of characteristics applied to the categories of masculine or feminine.

Job Demands- Job stressors are explained as physical, social or organizational aspects of a job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs. Such stressors are thought to lead to exhaustion, a component of burnout as defined by Friedman (1995) and assessed by Maslach (1982).

Job Resources- Resources refer to physiological, social, or organizational aspects of a job such as being functional in achieving work goals, reducing job demand costs, and stimulating personal growth/development.

Occupational Commitment- The level at which an individual is dedicated to their current area of employment.

Perceived Stress- This occurs when environmental stimuli exceeds an individual’s perceived ability to surmount it.

Stressor- An environmental stimulus that can be physical, psychological or behavioral, and is perceived as an excess of the environmental demands over an individual’s perceived capability to meet those demands.

Type A Personality Traits- A personality profile that includes aggression, determination, perfectionism and striving.

Work Locus of Control (WLOCS)- This is the extent to which people believe that they have control over their own fate at work. In this study locus of control will be used interchangeably with work locus of control.

Years of Experience- The number of years one has been actively employed in a particular field.
Statement of Research Problem and Purpose

Prolonged stress has been shown to lead to low productivity, which is one of the leading causes of poor performance, and high absenteeism/turnover in occupational fields (Norton, 2002). The field of education is a prime example of low productivity resulting from prolonged stress (Norton, 2002). Currently, there are many existing studies on environmental stress factors that lead to teacher stress, while few studies have examined the link between stress and individual personality factors. Even harder to find is data on the connection of stress specific to teachers’ personalities. One study by Jepson and Forrest (2006) specifically looked at occupational commitment, which was shown to have a strong negative correlation with stress, and Type A/achievement striving, which had only weak positive correlations. Gender and years of service were not significant. Problems with this study included completion on foreign soil, with few subjects, who were not chosen randomly. Also, one other individual factor that has been linked to stress is work locus of control, which was not included in Jepson and Forrest’s research (Rotter, 1966; Langer, 1983; Judge & Bono, 2001; Ng et al., 2006). Further research is needed to investigate the strength and direction of the association between the individual factors of personality and the perceived stress of teachers.

This study was conducted to assess the nature of the relationship between individual personality factors such as occupational commitment, work locus of control, gender, and years of service, with perceived stress. The study is part of ongoing research that seeks to better understand why one person is more susceptible to stress than another given the same environmental conditions. The study was guided by three purposes. First, the study reports measures of occupational commitment, work locus of control, and perceived stress for a random sample of elementary teachers selected from schools in Washington State. Other descriptive
variables including teacher demographic information (i.e., gender and years of service) as well as measurements for their schools (i.e., student passing rates on the fourth grade reading, writing, and math Washington Assessment of Student Learning, total school enrollment, average number of students per classroom, percentages of students per ethnic category, percentage of students qualified for free and reduced price meals, and percentages of students in special education and bilingual education). The second purpose of the study was to examine the bivariate correlations between the variables of occupational commitment, locus of control, years of experience, and perceived stress as identified in the review of literature. Finally, the study sought to determine which set of personality variables best predicted the reported levels of teacher stress using regression analysis. The regression model assessed the unique contribution of each of the independent variables of personality on the dependent measure of teacher stress.

*Theoretical Hypotheses*

Four hypotheses identify the theoretical relationships that were of particular interest given the previous discussion in the study’s background, problem, and purpose. The null hypotheses tested in this study included the following:

1. “There is no correlation between perceived stress and occupational commitment in elementary teachers working in Washington State.”

2. “There is no correlation between perceived stress and locus of control in elementary teachers working in Washington State.”

3. “There is no correlation between perceived stress and years of service in elementary teachers working in Washington State.”

4. “The individual personality factors do not predict perceived stress levels of elementary teachers in Washington State.”
Methods

The following section provides an overview of the methods employed to gather and analyze data for this study. A more complete description is provided in chapter three of the dissertation. Dillman’s (2007) tailored design survey methodology was employed with a randomly selected sample of teachers. The survey contained measures of occupational commitment, work locus of control, and perceived stress. The survey was posted online and subjects were sent correspondence via their school email addresses. Since the schools of the selected teachers were known, school level data provided by the Office of Superintendent of Public Instruction (OSPI) were also collected from its School Report Card website.

Collected data were merged into a single data file for analysis. Scale scores for the measures of occupational commitment, work locus of control, and stress were computed from teacher responses. Measures of central tendency and variability were computed and reported for a descriptive analysis of the sample to address the first purpose of the study. Correlations were computed between stress, occupational commitment, work locus of control, years of experience and gender. The analysis exposed the degree and direction of the bivariate association and provided the foundation for conducting the regression analysis. Simple linear multiple regression was performed using perceived stress as the dependent variable. The independent variables entered into the model were the measures of individual personality collected by survey.

Significance

Teaching is noted as being a highly stressful occupation. High job demands and low resources are viewed as contributing to problems of low performance, high absenteeism and frequent turnover. Yet, not all teachers perceive or experience these environmental factors similarly. There remains variability to be explained in perceived levels of teacher stress. More
research is needed to understand the individual contributory factors associated with stress. The results from this investigation possess theoretical, practical, and substantive significance. Theoretically, these data contribute to or extend existing theory in current literature about the nature of the relationship between stress and individual personality factors. Specifically, the study explored the relevance of occupational commitment, locus of control, gender, and years of service associated with teacher stress. These data increase understanding of teacher stress.

Practically speaking, information from this study could prove to be vital to management practices in Washington State school districts. Hans (2000) stated that individual contributory factors can aid districts in flagging current personnel in need of intervention from high stress levels. Districts could use the information to target vulnerable employees for intervention, which would thereby increase educational productivity as shown in research conducted by Ramanathan (1992). For example, low levels of occupational commitment and work locus of control in an employee may alert administrators of staff who may not register high stress levels yet, but have a vulnerability to stress. This way, they can intervene before high stress leads to low productivity. Further, districts could use these data to screen future employees, as suggested in research by Carroll and Gmelch (1992). For example, scores may alert administrators when they are hiring new employees who do not yet rate high in stress, but would once they entered the field. Further, females who are low in years of service may also require districts to provide supports as a preventive measure before stress levels soar. If districts could utilize this information to guard against teacher stress, employee productivity would be protected. Lastly, given the study’s statewide sampling, these findings provide insight into current levels of stress, occupational commitment, and work locus of control in Washington State elementary teachers.
Substantively, the findings result in a greater body of knowledge related to individual personality contributory factors of stress. This study could also lead to future inquiries in this area. Studies on occupational commitment and locus of control could include investigating direct links between these two traits and specific elements of low productivity, such as low performance, and high absenteeism/turnover. Further, research on environments that entice and nurture high levels of these traits could direct districts as they create future policies. Also, research on training that is most helpful in lowering stress for females with low years of service may help districts increase productivity in their classrooms.
CHAPTER TWO
LITERATURE REVIEW

Teacher stress levels have increased over the last two decades, which has resulted in teaching being deemed one of the most stressful professions in America (Borg, 1990; Norton, 2002). A review of the literature reveals numerous and competing definitions, concepts and theories to describe, explain, and predict teacher stress. The three major sections included in this review include: (a) an overview of stress, (b) teacher stress, and (c) individual contributory factors of stress. The overview section looks at the development of the concept of stress, which includes various definitions, components, stages and the cycle of stress. This section also presents symptoms of stress, focusing specifically on occupational stress, which sometimes results in burnout. Following this, the section which concentrates on teacher stress includes a comparison of the stress level of a career in education to other occupations, as well as a look at the severity of this problem at the international level. Next, the job demands and resources related to education are broken down into physical, social and organizational categories. After this, individual contributory factors of stress are examined. This section presents various factors that have been explored in relation to educators, such as Type A personality traits, occupational commitment, gender, years/level of service, and locus of control determinants. The following chapter provides a look at each of these concepts as they are related to stress.

Stress an Overview

This overview section looks at the development of the concept of stress, which includes various definitions, components, stages and the cycle of stress. This section also presents symptoms of stress, focusing specifically on occupational stress. The results of occupational
stress are shown in low productivity, which includes poor performance, absenteeism and turnover. Turnover is related to burnout, the extreme result of prolonged stress. Each of these concepts are part of the concept called stress.

**Stress defined.** Stress has been defined in many ways over the years. According to Kyriacou (1987), stress was first viewed as an individual’s response to prolonged and increased pressures present in the environment. Argyle (1964) noted differences in the stress people reported despite similarities in their situational condition, which turned the attention of researchers to the problem of perception. Argyle modified the definition by adding that perceptions vary from individual to individual in relation to the same stimuli. McGrath (1970) continued this line of reasoning and defined stress as a response to differences between the perceived capability and requirements of meeting demands within subjects. Therefore, he saw stress as occurring when environmental stimuli exceeded an individual’s perceived ability to deal with it. While it seems that perception has been a key term in defining stress through the decades, it is not always clear what the term "stress" is referring to. In some cases, it is used to refer to the properties of a stimulus and in other cases just to the subject’s experience. Also, assuming an experience of distress will follow from a particular stimulus is problematic as it fails to account for the interpretation of that stimulus by the particular subject involved (Putwain, 2007). Perception does seem to be prominent in defining stress.

**The development of stress.** Hansen and Sullivan (2003) offered the following three components to help clarify the ways perception could be manifest. These three consisted of the stressor, the strain, and the appraisal. The stressor was the event, or the series of events, which occurred in the environment. The strain was the psychological and physiological effects that the stressor had on the individual. Appraisal was the judgment made by the individual of the effects
that the stressor would have on them. Although an individual’s perception played a role for all three components, researchers argued that it was his judgment based on the perceived resources available to cope with the degree of threat which was paramount (McGrath, 1970; Hansen & Sullivan, 2003).

**Stress in process.** Definitions of stress led to investigations of the process leading to an overstressed state of mind. While looking at this process, Blankenship (2007) added to previous work, stating that the situational consequences of outcomes needed to be important to the individual in order for stress to arise. He described the process of stress using four stages. These stages included (a) a demand, (b) appraisal of the demand, (c) a negative response with various levels of cognitive and somatic anxiety, depression, fear, and anger, and finally (d) the stress response, which affected behavior. Blankenship discussed how all of these stages were equally as important.

**The cycle of stress.** Gmelch and Gates (1982) believed the stress process did not merely exist in steps but had a cyclic form. They developed a concept known as the “cycle of stress” which sought to explain the stress process. This stress cycle had four repeating stages: (a) occurrence of environmental stimuli, (b) perception and cognitive processing of stimuli, (c) reaction to stimuli, and (d) resulting consequences of action. Stress in this model can be understood not only as the product of an individual’s perception, but of a reinforced reaction (Gmelch & Gates, 1982). This concept involved a subject’s perception of stimuli, followed by their reaction to this perception, which results in another stimulus leading to a new reaction. Therefore, a continuous cycle is perpetuated.

**Symptoms of stress.** Symptoms from stress can take on many forms, yet stress symptoms are not always necessarily negative. Psychologist Jean Piaget (1972) used a term called
"equilibration" to describe a subject’s attempt to manage stress. He stated that some stress was “good” because it was during times of stress that one was likely to learn and grow. Put another way, stress challenges humans to develop (Kelehear, 2005). On the other hand, several decades ago Selye (1974) defined stress as “the nonspecific response of the body to any demand” (p. 14). Because these “responses” include endocrinal as well as psychological and physical reactivity to demands, they can, if intense enough or repeated frequently enough, upset the homeostasis of the body. In such cases, the individual is said to have become “hyper-reactive to stress”, which is a condition that has been associated with decreased performance on a range of physical and psychological tasks. Increased illness and disease are also a result of prolonged arousal of the sympathetic nervous system (Sharpley et al.,1996). Since the early 1800’s, stress has been connected with human illness (Hinkle, 1973). Stress is now commonly accepted as an important factor in human wellness (Viner, 1999).

Symptoms from stress can be in the form of somatic and/or mental health issues (Brenner & Bentall, 1984). The results of prolonged high levels of stress are well documented (Black, 2004; Furnham, 1992). The hypothalamus, pituitary, and adrenal glands secrete cortical and other chemicals that raise blood pressure, insulin, metabolism, and cause cardiovascular destruction. Chronic stress destroys brain cells in the hippocampus resulting in short-term memory impairment, rapid weight gain, irritability and other mood problems. Further research and reviews have shown that the intense and/or prolonged activation of the stress response inhibits the competence of the immune system, thus contributing to the incidence, intensity and duration of diseases. Observable results of these effects can be seen in headaches, fatigue, ulcers, insomnia, and nerve disorders. Prolonged stress is also associated with heart disease, hypertensive diseases, gastrointestinal disorders, insomnia, depression and alcoholism (Furnham,
1992). Serious conditions such as depression, and mental illness are common among highly stressed individuals (Brenner & Bentall, 1984).

**Occupational stress.** High stress levels are frequently studied as associated with one’s place of employment. Only in recent years have researchers begun to study stress in the workplace as it has grown into a considerable problem. Due to high occupational stress, significant amounts of research have been generated on the topic (Beehr & Newman, 1978). Disorders from stress decrease work productivity, which includes performance, illness/absenteeism, and retention (Sethi & Schuler, 1984; Ganster & Schaubroeck, 1991; Hansen & Sullivan, 2003). One study used a pre/post test design to investigate the influence of an employee assistance program (EAP) on productivity. Results showed that stress positively related to absenteeism and negatively related to performance. Counseling lowered absenteeism and raised work performance (Ramanathan, 1992). In other studies, similar conditions led to problems at work in productivity, shown in low performance (Sethi & Schuler, 1984; Ganster & Schaubroeck, 1991), and high absenteeism/attrition (Lachmant & Diamant, 1987; Black 2004).

**Low productivity seen in work performance.** Other studies have also shown that high levels of prolonged stress lead to poor work performance (Sharpley et al.,1996; Murray, 1996; Quick, Quick, Nelson, & Harnell, 1997). Considering performance on various tasks, an inverted-U relationship was established between arousal and performance by Yerkes and Dodson (1908). That is, low and very high states of arousal predict poor performance, while moderate arousal predicts maximum performance. Thus, the likelihood of persons working to their potential is decreased if they are in a state of prolonged or extreme arousal through stress (Murray, 1996).

**Low productivity seen in absenteeism/turnover.** High levels of prolonged stress lead to high absenteeism/turnover (Quick et al., 1997). One study examined how job stress increased
health problems, and thus, absenteeism. Researchers collected data via survey questionnaires from 1,925 staff at Monash University campuses (Sharpley et al., 1996). Results indicated a significant positive relationship between job stress and health problems, the latter suggesting that self-reported stress at work was associated with absence from work, and frequency of illnesses. Further research and reviews have shown that the intense and/or prolonged activation of the stress response inhibits the competence of the immune system, thus contributing to the incidence, intensity and duration of diseases (Bachkirova, 2005). Long term work related stress can eventually lead to high turnover from burnout, which is defined as physical, emotional and mental exhaustion from chronic occupational stress (Dworkin, 2001; Golembiewski, Munzenrider, & Carter, 1983; Blasé, 1982). Symptoms can be in the form of somatic and/or mental health issues (Brenner & Bentall, 1984).

_Burnout._ According to Maslach (1982), elements of burnout were thought to include exhaustion, depersonalization (alienation), and self-depreciation (lack of self-esteem) (Maslach, 1982; Friedman, 1995a). Taking the concepts of perceptions and reactions as a base of stress, Friedman examined elements leading to, and connecting with, burnout. In one of his studies, a random sample of 571 Israeli principals, were sent The Principal’s Work Questionnaire. The results showed components of burnout to develop from stress in specific situations. From these components, he observed stimuli perceptions (internal experiences) and resulting reactions (external perceptions). This data helped establish basic elements of burnout, similar to Maslach’s (1982). These included: (a) exhaustion, (b) self-dissatisfaction, (c) depersonalization (isolation from others), and (d) depreciation (lack of self-esteem). The first two elements were thought to constitute the core of burnout, while the latter elements were considered defense mechanisms or reactions. Understanding the components of burnout helps explain how stress contributes to
burnout. Burnout is listed as the main cause of attrition (Lachmant & Diamant, 1987). Research shows that turnover can cost an organization from 5 to 25 times an employee's monthly salary when recruitment and training costs are considered, as well as court costs from employees blaming illness on work related stress (Bachkirova, 2005). Further, burnout can be linked to specific occupational turnover (Beehr & Newman, 1978; Murray, 1996; Quick, et al., 1997; Hansen & Sullivan, 2003).

Teachers’ Stress

This section concentrates on teacher stress and includes a comparison of the stress level of a career in education to other occupations, as well as a look at the severity of this problem at the international level. Next, the job demands and resources related to education are broken down into physical, social and organizational categories. All of these concepts relate to teacher stress.

Occupational comparisons. Linkage of stress to specific occupational settings led to comparisons of the stress levels in various professions. When studies where conducted on the stress levels of different occupations, education ranked among the highest (Travers & Cooper, 1993; Orgus, 2007). The American Institute of Stress revealed that two of the ten most stressful jobs in the modern workplace are associated with education and specifically identified inner-city secondary school teachers and administrators as the two positions (Sharpley et al., 1996). Smith, Brice, Collins, Matthews and McNamara (2000) found much higher levels of stress among teachers when they compared 415 teachers and other professionals. Results showed teachers to have a 31% higher stress level than nurses, 29% higher than health related managerial staff, and 27% higher than other professional management positions. Orgus’ (2007) study also examined factors contributing to stress and burnout among various professionals, though his sample was
much larger. His sample consisted of 1209 participants from three population groups: 594 full-time teachers across all grade levels, 317 physicians from all specialties, 229 hotel managers, 55 insurance company managers, and 14 health care managers, as well as an additional 236 pilot participants (118 teachers, 59 managers, and 59 physicians), all from a large Canadian metropolitan area. Measured variables included (a) work stress, (b) coping (c) social support, and (d) effects of the profession. Work outcome variables included burnout, absenteeism, and intention to quit, as well as negative psychological affects. Work stress was significantly related to all measured outcome variables. Results stated that educators’ jobs were higher in stress than physicians and managers; teachers experienced more significantly negative work outcomes than the other professions (Orgus, 2007).

*International stress problems.* Not surprisingly, teachers’ stress is an international problem. Negative teacher stress is defined as an unpleasant, negative emotion such as anger, anxiety, tension, frustration or depression resulting from an aspect in the workplace (Kyriacou, 2001). Borg (1990) stated that approximately one third of all teachers will find their occupation extremely stressful. These high levels of stress lead to low production, seen in poor performance, high absenteeism, and finally attrition. Researchers in one study examined these issues by investigating occupational stress and its effects on 500 secondary and elementary school teachers. They found that the occupational stress of a career in education was considerable and affected teachers’ productivity seen in work performance, health/absenteeism, and eventually, turnover (Pei & Guoli, 2007). Due to recent increased stress levels, teachers rate high in absenteeism. They are also leaving the field of education at alarming rates (Young & McLeod, 2001). This public school teacher shortage is rated moderate to extreme by many superintendents, which is evident in the decreasing pool and frequent turnover of teachers.
(Metzger, 2003). Norton (2002) states that the turnover has reached a crisis proportion of 50% in some states. Attrition has become a concern in education due to rates of 40-50% in the first seven years in some states (New Mexico Department of Education, 2005). Specifically, Washington State lists its attrition rate as 20% per year due to multiple factors (Office of Superintendent of Public Schools, 2009). This problem has far reaching consequences (OSPI, 2008). These results raise serious concerns for school districts when they consider the need for increased student achievement and overall school improvement. Districts find it difficult to balance costs of improvements on one hand and lower productivity, seen in lack of performance, health care fees, absenteeism and rehiring/retraining costs, on the other (Sharpley, et al., 1996).

*Teachers’ environmental job demands.* Due to school district costs related to stress, researchers have sought for ways to combat stress levels in educators. Hackman and Oldham (1980), Bakkar, Demerouti, and Yerbeke (2004), state that imbalances between resources and demands in the workplace can be linked to high levels of stress. Demerouti et al., (2001) defined the concepts of job demands and job resources. Job demands were explained as physical, social, or organizational aspects of a job that required sustained physical or mental effort and were therefore associated with certain physiological and psychological costs. Hockey’s (1993) theory named specifics in these areas of job demands. Physical demands included long hours and shiftwork, social demands were manifested in recipient contact, and an example of organizational demands included management issues. Such stressors were thought to lead to exhaustion, depersonalization, and self depreciation, components of burnout as defined by Maslach (1982). Resources referred to physiological, psychological, social, or organizational aspects of a job that supported an employee physiologically or psychologically. Hackman and Oldham’s theory (1980) included examples of physical supports such as leisure activities (participation in a team
Examples of social resources included peer support, while organizational resources were seen as the ability to make decisions in one’s work environment. These studies concentrated on the unique contributions of job demands and job resources in explaining occupational stress (Karasek, 1998). Researchers theorized that certain combinations of resources and demands could actually lower the effects of stress. Friedman (1995b) researched types of resources as they related to public school administrators and found this to be true, administrators could have similar job demands, but those with more resources had lower occupational stress levels. Certain job resources seemed to buffer occupational stress.

Due to the perceived stress crisis in education, environmental job demands have been researched quite extensively. As mentioned previously, areas of environmental demands which result in physiological and psychological costs to teachers fall into the following categories: (a) physical, (b) social, and (c) organizational. Researchers have built an extensive data base in each area.

**Physical demands.** The demands with physical costs in education are varied, leading to exhaustion. Factors include high workloads, leading to excessive paperwork, time pressure, leading to insufficient time for preparation, and overcrowding (Thomas, 1982; McCormick, 1997). These specific demands are unique to education and may result in teacher fatigue leading to high stress levels.

One study serves as an example of these demands. McCormick (1997; Murphy, 1984; Finch, 2003) and others linked physical demands with lack of job satisfaction and high stress levels. He researched these concepts using 487 teacher subjects from New South Wales. His principal research questions dealt with types of physical demands connected to stress. Questionnaires were returned and 119 teachers volunteered to be interviewed from among 109
New South Wales Department of School Education schools. Qualitative interviews were designed to support the quantitative analysis. Several of the interview questions resulted in statements supporting the need for lighter workloads. When teachers were asked what they considered the main source of their stress, the most common response was "completing work demands in available time" (McCormick, 1997, p. 18). For example, a secondary classroom teacher's response to largest stressor was "Overload”. “The amount of work I'm expected to do would be enough for three people” (McCormick, 1997, p. 18), she commented. Another stated, “You don't teach any more, you are expected to go to meetings, you have to be administrators, you have to (be) mathematicians, you have to collect money, you're not teaching any more, it's so much more.” (McCormick, 1997, p. 18). These differences were also found in the quantitative inventory results. This study showed workload and time as the largest issues contributing to stress (Thomas, 1982; Murphy, 1984; Finch, 2003). In conclusion, it was evident that several environmental demands led to physiological costs of teachers. These costs led to increased stress for educators in these studies.

**Social demands.** Professional stress in educators is often a result of social demands, such as high expectations, which can lead to depersonalization (Coon, 1992; Yu & Ning, 2004). Recent moves in educational policy toward a centralized system have increased teacher accountability. The federal statute No Child Left Behind (NCLB, 2001) mandates literacy and numeracy at specific standard levels by 2014. NCLB’s Annual Yearly Progress (AYP) requirements are labeled as “unrealistic” for public school districts (Mabry & Margolis, 2006). Teachers whose scores have been identified publicly reported this as a source of stress which infringed on their job satisfaction and increased stress levels. In a study by Adams and Karabenick (2007), more than one third of the teachers polled stated that they felt pressure
throughout the year for mandated testing preparation. This pressure increased by grade level and was up to 94% for teachers of the fifth grade. According to a Washington State study (Mabry & Margolis, 2006) high numbers of teachers have left the field because of this stressor. It seems that increased social demands have had a significant effect on teacher related stress.

Organizational demands. Many environmental factors connected to extreme stress levels have been linked to organizational demands. Stress clusters around conflictual issues in organizations. Mainly, conflicts within an organization’s administrative hierarchy seem to raise stress levels in teachers (French, 1987). Several studies have found support from administrators to be a significant stress reducer for educators. Booth (1987; Jackson, Schwab, & Schuler, 1986) found that strong leadership helped to buffer teachers from stress. On the other hand, failing to provide administrative guidelines and failure to involve teachers in decisions were examples of ineffective administrative leadership (Booth, 1987). Other examples provided by Coon were displayed in lack of assistance and training provided to teachers through the organization (Coon, 1992). Consequences resulting from lack of administrative supports were shown by Garland (1981). The purpose of Garland’s research was to explore the relationship between teacher resignations/high stress, and organizational background. The naturalistic inquiry method was used in the urban school system of Boston. Each interviewee completed a 53 item survey, answered demographic data, and open-ended questions. The findings showed a stronger relationship between teachers’ resignations/high stress when they were tied to organizational factors. Poor leadership appeared to be the most significant factor contributing to teacher resignation (Garland, 1981). In results from Underwood’s (1986) study it was shown that when teachers felt the organization was providing them with support to protect them from burnout, they exhibited less stress. Support from many areas can help reduce teacher stress by lessening
depersonalization, a component of burnout (Maslach, 1982). All of these organizational demands are contributory stressors for teachers.

*Teachers’ environmental job resources.* Suggested solutions for dealing with stress in education are seen in data on job resources. Researchers have conducted many studies in search of environmental supports to combat the physiological and psychological costs of job demands. Data from current literature revealed physical, social and organizational supports as significant blocks to stress (Friedman, 1995b; Bakkar, et al., 2005). An extensive amount of knowledge has been compiled in each of these areas over the past few decades.

*Physical resources.* Suggested physiological resources that help teachers deal with the costs of stress have been presented in many studies (Croyle, 1982; Hamann & Gordon, 2000). A meta-analysis study by Montgomery and Rupp (2005) sought to examine several studies offering options of resources for educators. Their study was based on 65 independently written/published studies on teacher stress between 1998 and 2003. They investigated the relationship between environmental resources and stress/burnout. Burnout, they believed, was mediated through various resources which could take the form of physiological strategies. They hypothesized that there was a significant negative relationship between stress and physiological resources. Responses to stress that were mediated by resources were thought to lead to different types and magnitudes of stress and burnout (Montgomery & Rupp, 2005). Thus, how one actively copes with stress through exercise, relaxation, life outside of work, and leisure may moderately determine if one will be exhausted and therefore become burned out (Montgomery & Rupp, 2005). The positive effects of physiological techniques have also been noted by others (Shapiro, Schwartz, & Bonner, 1998; Hamann & Gordon, 2000). Many physiological resources have been
associated with low levels of cortical and high levels of anti-depressant hormones in the blood stream, which combat stress and exhaustion, a component of burnout.

Exercise is supported by many as the number one physiological stress reducer (Croyle, 1982; Hamann & Gordon, 2000), therefore teachers are encouraged to stay fit. Exercise habits vary however, the basic requirements of a minimum exercise program include aerobic movement twenty minutes a day, for at least three days a week (USDHHS, 2008). This may occur as an individual activity such as running, or a team sport such as basketball. Relieving stress through improving physical and mental health is the goal of physiological coping strategies (USDHHS, 2008).

Another type of physiological resource is meditation, such as yoga, Tai Chi, and relaxation exercises. A study by Shapiro et al., (1998) investigated the benefits of meditation as a stress reduction intervention through an intervention group which reported significantly less depression and anxiety than their control group on their post test. The data indicated that participation in a mindfulness-based stress reduction intervention can effectively reduce psychological distress including depression, and state/trait anxiety (Shapiro et al., 1998). Positive effects of other relaxation techniques have also been noted. Yoga, which is defined as physical and mental control over one’s own body (Hamann & Gordon, 2000). Yoga can help one focus and relax, have positive effects on depression, lower levels of stress producing cortical, and release higher levels of anti-depressant hormones in the blood (Hamann & Gordon, 2000). The benefits of these options often result in a peaceful existence and less exhaustion. Another technique is Tai Chi, a martial art that involves learning to control one’s energy by thinking positively so clarity will come (Hamann & Gordon, 2000). Continued use of Tai Chi produces an overall lower level of stress/exhaustion, just as in other relaxation therapies. Other meditation
therapies include full muscle relaxation, balanced breathing and imagery relaxation (Hamann & Gordon, 2000). Many school districts encourage relaxation activities geared at inducing a calm and rested state, thereby increasing one’s chance of dealing with stress (Bailey, 1999).

The final physiological resource is leisure activities. Teachers who develop leisure activities and a life outside of work are reported to be less stressed. Having a life outside the classroom helps one keep a balanced perspective and can be a definite resource for stress reduction (Hamman & Gordon, 2000). Barriele (1984) concentrated his research on resources that reduced teachers’ stress. The investigator conducted an exploratory study of male high school teachers in New Jersey schools. The subjects of the study included seven burned-out teachers and 26 non-burned-out teachers as they were identified on Freudenberger’s Burn-Out Scale and Pines’ Tedium Measure. The 26 non-burned-out teachers avoided stress by being aware of the limitations of their job, and separating work from home. They also learned to participate in outside leisure activities. (Barriele, 1984). It seems that physically related resources can indeed assist in preventing burnout. Those with strategies that helped them to cope with the physical costs of their environment were the least stressed. Ultimately, limiting exhaustion through physiological options may lead to lessening this component of burnout.

**Social resources.** Besides physiological strategies, social mechanisms also appear quite frequently in related literature. Social resources fall into two realms of support: support inside the school system and support outside the school system. Both areas can have a phenomenal impact on teachers’ stress levels, while blocking depersonalization, which is a key component of burnout. Barriele (1984), who collected data from several New Jersey teachers on physiological resources, also gathered information on social resources. According to his results, 26 non-burned-out teachers formed staff-support systems in order to avoid problems with stress
(Barriale, 1984). Montgomery and Rupp’s (2005) research was further reaching. Their meta-analysis study offered a summation on not only physiological resources, which were mentioned earlier, but also on options of social resources for educators who are trying to cope with stress. Their study, based on 65 independently written/published studies on teacher stress between 1998 and 2003, investigated the relationship between resources with stress and burnout. Burnout, they believed, was mediated through various resources in the form of affective strategies (seeking support). They hypothesized that there was a significant negative relationship between stress and social support. Responses to stress that were mediated by resources were thought to lead to different types and magnitudes of burnout (Montgomery & Rupp, 2005). Response variables were moderately correlated with support variables ($r = 0.27; 95\% \text{ CI} = [0.25,0.28]$), indicating that these factors influenced how one responded to a stressful event, which in turn, influenced their degree of burnout. This showed that the perceived quality of the environment and the support structures available to individual teachers, were important for dealing with stress (Montgomery & Rupp, 2005). Thus, how one actively copes with stress through appropriate emotional support may moderately determine if one will be highly stressed, leading to burnout (Montgomery & Rupp, 2005).

One type of support that comes from inside a district includes mentor and peer support programs. Yu and Ning (2004) found that lack of mentor programs, which involved pairing veteran teachers with those who had less experience to help them learn time management and stress-coping skills, resulted in higher rates of stress. Lack of mentor and colleague supports resulted in higher stress levels in teachers in several studies by Schlichte, Yessel, & Merbler, (2005). One of their articles examined attrition rates in reference to stress. They looked at the lack of support from mentors and colleagues that correlated with many teachers leaving the
profession. Using a qualitative study, the authors interviewed five teachers about their first year experiences to determine whether there were reoccurring factors that might reverse attrition. The purpose in this study was to examine the extent of collegial support and related stress factors perceived by teachers. Insights were documented from interviews of first-year teachers in hopes of reducing teacher stress levels. A common theme in these teachers’ stories was the importance of support. Results showed mentoring as an important element in successful teaching, which means that the development of mentor support may be critical for educator success (Schlichte, Cichon & Koff, 1978).

Peer supports include collaborative groups between teachers, and the one-on-one team systems. Yu and Ning (2004) found that lack of collaborative groups with peers increased stress rates. They recommended peer support as a stress reducer. This study was conducted in the Seventh-day Adventist secondary schools in Hong Kong to find reasons for and levels of, teacher stress. The Teacher Stress Inventory (TSI) was used as a measurement in which participation was voluntary. Out of 132 teachers, a total of 128 responded to the inventory, a 96.90% return. The stress phenomena found in this study were within the moderate zone. However, they were all higher than the means of the TSI norm. The mean of the total score was 2.76, which was higher than the norm of the TSI by .26. These scores indicated that there was a need for teachers to be educated in coping methods and stress management strategies to conquer stress in the teaching workplace. Recommendations were that school systems should introduce a peer-pair teacher scheme, as well as provide teachers with more team building programs to enhance peer support (Yu & Ning, 2004). Benefits from being assigned to a support team to promote socialization were also documented (Schlichte et al., 2005). A network may be critical for
educator success (Schlichte, Cichon & Koff, 1978). All of these inside systems are noted as resulting in less disengagement, leading to lower stress levels.

The other type of support comes from outside, those not professionally attached to a school system. Supports from the community, such as churches, can be included in this category. Studies on faith-based coping strategies have included prayer, meditation, spiritual experiences, beliefs, behaviors, and church involvement (Fawn, 2006). Other studies state that teachers use family and friends as a strategy to cope with stress. To understand the meaning and impact of support, Underwood (1986) sent a questionnaire measuring job stress and social support to 134 teachers employed in an urban public school system. From the survey results, findings emerged which included the effects of social support on job stress. Researchers found that teachers who identified non-work related sources of support, particularly from friends, experienced less job stress. A study by Osseriran and Elmacian (1994) explored this connection on many different levels and examined the relationship between social support and high stress was examined. Social support was defined as a multidimensional concept encompassing the following: number of resource persons available to the individual, source of support (family, friends, neighbors), degree of support available (emotional, instrumental, cognitive), and satisfaction with the support. Results found emotional support negatively related to high teaching stress levels (Osseiran et al., 1994).

Organizational resources. Montgomery and Rupps (2005) offer data on organizational resource options for educators who are fighting the costs of stress. Based on 65 independently written/published studies on teacher stress between 1998 and 2003, they investigated resources they believed that mediated stress and burnout. Their results showed that subject response variables were moderately correlated with environmental structure variables (r = 0.28; 95% CI =
indicating that these factors influenced how one responded to a stressful event, which in turn, influenced their degree of burnout. This showed that the perceived quality of the environment and the organizational structures available to individual teachers were important for dealing with stress (Montgomery & Rupp, 2005). Thus, how one actively copes with stress through organizational resources may moderately determine if one will become highly stressed and/or burned out (Montgomery & Rupp, 2005).

Organizational resources, which can block self-depreciation, often involve a focus on control issues (Pearson & Hall, 1993; Davis & Wilson, 2000). Zembylas and Papanstasious (2004) used another term for control, which was empowerment. This was defined as a teacher’s power to participate in decision making in their organization. Professional training is an organizational resource that seems to increase a teacher’s sense of empowerment. Yet recent moves in educational policy increase teacher accountability, but lack empowerment. For involvement in decision making to be meaningful, two conditions must be met. First, decisions must focus on areas important to teachers and second, they must feel that their participation actually affects the decisions made (Thomas & Velthouse, 1990). The importance of decision making power and professional training were shown in research by Zembylas and Papanstasious (2004) to be linked with less stress in teachers.

Teacher empowerment can be increased by organizational resources. Thomas and Velthouse (1990) investigated the dimensions of decision-making and training that were involved in the empowerment felt among teachers, as did Pearson and Moomaw (2006). Pearson and Moomaw (2006) studied teachers’ power to make decisions, however they used the label “autonomy”. In fact, as Pearson and Moomaw stated, “If teachers are to be empowered and regarded as professionals, then, like other professionals, they must have the freedom to prescribe
the best treatment for their students!” (p. 44). They defined that freedom as *teacher autonomy*. Researchers found that constraints on autonomy, such as perceived lack of control and sense of powerlessness, were related to tension, frustration, and stress among teachers (Pearson & Moomaw, 2006). Both Thomas and Velthouse (1990) and Pearson and Moomaw (2006) researched this perceived power of teachers. Thomas and Velthouse (1990) used 449 elementary and secondary teachers from Cyprus and collected data based on a convenience method of sampling. Pearson and Moomaw (2006) conducted their research in Florida using teachers that worked in neighboring school districts. Of the 300 teachers sampled, completed data from 171 (57%) were obtained. Of the 171 respondents, 37 (21%) were elementary teachers, 88 (52%) were middle school teachers, and 46 (27%) were high school teachers. The Teaching Autonomy Scale, which had the internal consistency reliability of $\alpha = .80$, was used (Pearson & Moomaw, 2006). While Pearson and Moomaw (2006) studied in the United States, Thomas and Velthouse (1990) felt that examining teachers outside the United States system allowed a view of a greater degree of empowerment in a less centralized society. The questionnaire created for the Teacher 2000 project by Dinham and Scott (1996) was used to identify the sources and strength of factors contributing to teachers’ satisfaction/dissatisfaction. The reliability based on Cronbach's alpha was high at 0.94. According to the results, this model was able to explain the variance of the latent variable "empowerment". More than half (51%) of the variance in satisfaction that teachers felt could be explained in relation to their decision making power and amount of professional growth. Findings also indicated that teachers who were satisfied with their professional growth through organizational training were also more likely to feel a high sense of empowerment (ability to influence changes in their school). These results suggested that decision-making and professional training offered through the organization were both variables that significantly
affected the sense of job satisfaction felt by Cypriot teachers. Findings also supported other studies which found that teacher empowerment was related to higher levels of job satisfaction and lower levels of stress. Teachers who were empowered to make professional, organizational, and instructional decisions were satisfied with their jobs to a greater degree (Pearson & Hall, 1993; Davis & Wilson, 2000). Results from Florida studies also showed that teachers who had control over their work environment remained satisfied with their jobs and had less stress (Pearson & Moomaw, 2006; Starnaman & Miller, 1992). Increased empowerment through an organization seems to lead to job satisfaction and lower stress levels and seems crucial to reduce educator stress levels (Zembylas & Papanastasiou, 2004).

Empowerment is increased by professional training, which can encompass increasing tolerance, improving communication skills, and development of self. Increasing tolerance involves learning to confront problems through staged confrontations, incorporating humor, and focusing on life outside of the classroom (Croyle, 1982). Ways of improving communication skills include reducing isolation, active listening skills and conflict resolution strategies. Development of self may involve advice seeking, professional counseling, selective ignoring, self discipline and/or direct action, depending on the level of the situation. Self-growth skills were seen in Schonfeld’s 1990 study. Multiple regression analysis of the responses of 67 veteran New York City teachers was used to investigate how teachers cope with stress. The analysis used five coping scales: advice seeking, positive comparisons, selective ignoring, discipline, and direct action. The results indicated that advice seeking and direct action were most consistently related to lower symptom levels. Direct action was most consistently related to job satisfaction and motivation to continue in the profession. Selective ignoring apparently buffered the impact of an adverse work environment on symptoms. All of these self-development skills were
involved in reducing stress (Schonfeld, 1990). Training in these skills helped in reducing self dissatisfaction and depreciation, resulting in lower levels of stress and/or burnout. Other researchers came to the same conclusions, showing job resources to be negatively correlated with the stress in educational work environments.

**Individual Personality Contributory Factors of Stress**

This section presents various individual personality factors that have been explored in relation to educators’ stress. These include such factors as Type A personality traits, occupational commitment, gender, years and level of service, and locus of control determinants. The following section provides an overview of each of these concepts as they are related to stress.

The relationship between occupational demands/resources and stress levels in teachers has been heavily studied throughout past decades, where as the connection between stress and individual personality factors has only been researched lightly. Argyle (1964) stated that an individual’s interpretation of events attributed to the meaning of potentially stressful events. Travers and Cooper (1996) added that stress is personal and that personality traits could affect stress responses. Parkes (1994) went on to suggest that individual differences played a part in the variation of workplace stress. Although teachers are exposed to many of the same environmental stressors not all respond with high stress levels (Travers & Cooper, 1997). Parkes (1994) pointed out that few personality traits had been researched in relation to stress, and he then investigated individual differences in stress responses to the same environment. Jepson and Forrest (2006) agreed with Parkes and added that although researchers have a strong understanding of the correlation existing between environmental job demands and stress, people seem to experience these differently. Therefore, researchers now need to attend to concepts relevant to the individual
personality contributory factors of stress. One study measured test stress in 388 United States and United Kingdom university students. Results showed that stress was largely related to personality traits (Chamorro-Premuzic, Ahmetoglu, Furnham, & Adrian, 2008). Another study sought to investigate the association between high stress levels and personality characteristics in primary school teachers from Cyprus (Thomas & Velthouse, 1990). A representative sample of 447 primary school teachers participated in the study. Results showed that personality was associated with high stress levels and that teachers’ individual characteristics do indeed contribute to high levels of stress. Kokkinos (2007) also researched the transactional model which holds that interactions between personality traits and the environment contribute to high stress levels. Regression showed that high stress levels were predicted by personality traits. More work is needed to determine which of the individual contributory factors explain or share the largest and unique percentage of variance with stress. Individual traits that have been investigated separately in relation to teachers’ stress include Type A Personality traits, achievement striving, occupational commitment, gender, years/type of service and locus of control. An explanation of each is included below.

**Type A personality.** Type A personality factors are listed as impatience, aggression, and achievement striving. The development of a Type A Personality starts with goals that are continually increased, and finally extend beyond one’s potential. These individuals are preoccupied with goal setting and striving. Unable to negotiate these excessive goals, they move into a state of emergency to produce peak performance. This results in a routine high level of functioning. This continual need to devote energy to goals leaves little time for social interaction. Thus, Type A’s are positively correlated with loneliness, anxiety and depression (Cassel & Cassel, 2001). Further, this personality type has been shown to exhibit significant physiological
and emotional reactivity when faced with job demands (Ganster & Schaubroeck, 1987). Therefore, when Type A Personality traits have been studied in relation to occupational stress, a positive correlation has been revealed in some results (Jex, Admas, Elacqua & Bachrach, 2002). Also, achievement striving, which is defined by Friedman and Ulmer (1984) as a continuous struggle to achieve and considered to be a component of Type A Personality traits (Friedman & Rosenman, 1959), has been linked positively to high stress levels (Ward & Eiler, 1987). Jepson and Forrest (2006) studied the possibility of the existence of a correlation between stress and individual contributory personality factors specifically in teachers. They obtained results from 95 teachers chosen through snowball sampling on several instruments. These instruments included the Perceived Stress Scale (PSS) (Cohen, 1992), Bortner’s Scale (Type A Personality traits), and the Teacher Achievement Striving Scale (TASS) (Jepson & Forrest, 2006). All scales were found to have acceptable levels of reliable statistics. The results were presented in descriptive, Pearson correlation and multiple regression formats. Descriptive results showed that 75% of the subjects scored high on the TASS, 73% on the Bortner’s (Type A), and 50% where highly stressed according to the PSS. Pearson’s correlation results presented an r of .317 (9%; p<.01) for Type A Personality, while achievement striving had an r of .264 (4%; p<.01). Multiple regression analysis resulted in an R squared of .536, meaning 53% of the variation was explained in the data. A weak link was seen between stress and achievement striving with a standard B coefficient of .312 (p<.001), while .265 was obtained for Type A (p<.001). These findings were consistent with literature presented by Jex et al. (2002). Discussion of these results included rejection of the null hypothesis because correlations between some individual contributory personality factors and stress did exist, in accordance with past literature (Parkes, 1994; Ward, 1987). Further, explanations for the results of Type A Personalities, which included the
component of achievement striving, were due to the personality type’s known tendency to over react to affective situations (Ganster & Schaubroeck, 1991). Results on the trait achievement striving were in agreement with literature produced by Jex et al. (2002) who stated that ambitious people perceive obstacles to their goals as stressful. Due to the small significance however, retesting these individual factors of Type A Personality traits/achievement striving may be of no consequence. Further, conclusions from other studies on Type A personality also showed non significant results in specific relation to teachers (Bachkirova, 2005).

**Occupational commitment.** A negative correlation has been shown between stress and occupational commitment (Burns & Bluen, 1992; Jepson & Forrest, 2006). This means that high stress levels have a correlation with low occupational commitment. Increased levels of stress have been widely indicated as an antecedent to decreased job satisfaction and occupational commitment for those not in the teaching profession (Maslach, 1982; Pines, 1982; Miller et al., 1990). The causal model developed by Starnaman and Miller (1992), also supported the concept that teachers’ role stressors influenced perceptions of job satisfaction and occupational commitment. Their study was based on research from Farrugia (1994) who stated: “While the sources of satisfaction or frustration are the same for all teachers, the intrinsic satisfiers sustain the resolution of the highly committed teachers to the extent that they are able to overcome the frustrating factors” (p. 27). In the case of low-commitment teachers, the satisfiers do not compensate sufficiently for the frustration derived from stressors. Farrugia’s study on Maltese teachers supported the hypothesis that, for the majority, the intrinsic rewards derived from pedagogical interaction sustain their occupational commitment in spite of the frustrations and disappointment. This was also upheld by Bachkirova (2005) who investigated the perceptions of individual teacher’s personal values and stress. One personality trait that proved not to be prone
to stress was one’s commitment to succeed in a profession. Attached to this commitment was a high sensitivity threshold. These committed teachers were not easily upset. According to Kobasa (1982) and Antonovsky, (1979), those who had a greater commitment to a profession coped with stress more easily because they intrinsically valued their occupation. It would appear that low occupational commitment is an example of a personality trait that contributes to stress.

In Jepson’s and Forrest’s (2006) recent study of the correlation between stress and individual contributory personality factors of teachers, results were presented in descriptive, Pearson correlation, and multiple regression formats. Descriptive results showed 70% of the teachers were highly committed to their profession while only 50% were highly stressed. Pearson’s correlation results presented a strong negative correlation between stress and occupational commitment (r= -.44, p<.01) suggesting 16% of shared variance. Multiple regression results obtained an R squared of .53, meaning 53% of the variation was explained. A strong standard B coefficient of -0.589 (p<.001) was discovered between stress and occupational commitment, which was consistent with data in literature presented by Jaml (1990). Discussion of these results included rejection of the null hypothesis because correlations between some individual contributory personality factors and stress did exist, in accordance with past literature (Parkes, 1994; Ward, 1987). As an explanation for the strong negative correlation between occupational commitment and stress, it was suggested that occupational commitment is negatively related to stress due to the occupation’s high value to the individual (Anonovsky, 1979; Kobasa, 1982). Siu and Cooper (1998) also substantiated these earlier findings. They identified that occupational commitment may be a buffer to work stressors. These highly significant results call for future research on this factor to verify its importance.
Gender and years/level of service. Gender differences (Gardiner & Tiggerman, 1999), along with years/level of service (Male & May, 1998), have been studied in relation to stress. Results from these studies found females to rate at a higher level of stress than males (Ushasree, Seshu-Reddy, & Vinolya, 1995; Sharpley et al., 1996; Gardiner & Tiggermann, 1999; Antiniou, Polychroni, & Walters, 2000) though international studies have produced mixed results. For example, based on the measuring instruments used by scholars in China and abroad, the occupational stress of 500 secondary and elementary school teachers in Xinjiang was found to reveal significant gender differences in the occupational stress among teachers (Pei & Guoli, 2007). In another example, Jepson and Forrest (2006) conducted a study to determine the existence of a correlation between stress and individual contributory personality factors of teachers in the United Kingdom. Descriptive results showed 50% where highly stressed, though no significant results were found between stress and gender. Kesici and Şahin (2008) recently found female teachers to lack confidence and be more concerned with survival of self and their ability to impact their students, than their male counterparts. Also, job satisfaction differs significantly between males and females in elementary school teachers (Pui, 2004). One study found that women were also more likely than men to report emotional exhaustion, which closely relates to past findings (Lau, Yuen, & Chan, 2005; Kokkinos, 2007) based on the theoretical underpinnings of the female role in society (Byrne, 1991; Lau et al., 2005; Kokkinos, 2007). One interpretation states that many women are still responsible for both emotional and physical needs of their family, and female teachers may feel required to express emotional investment through a “double dose” of caring both in the school and in the home, leading to extensive emotional exhaustion (Byrne, 1991). The possibility for this gender social role remains a concern when dealing with stress. Further research studies with a focus on gender are needed (Grayson, 2007).
Another study by McCormick (1997) also looked at stress differences according to gender, but included years/level of service. When gender and years of teaching were compared, there was a high mean of stress for females with less than 11 years of service, and a relatively low mean for females with greater than 15 years of service. It may be that females' lifestyles adjust as they age, so that they move into a stage of life when there are fewer demands, and more time to accommodate work demands (McCormick, 1997; Kokkinos, 2007). Infant/primary teachers reported significantly less stress in the time demands domain than secondary teachers. This may reflect the capacity of the former to control their work environment, in the sense that they are largely responsible for, and have autonomy over, the instruction of a single class (McCormick, 1997). Two secondary teachers communicated their perceptions that secondary teachers were likely to experience more stress in terms of having more take-home work. One secondary classroom teacher's view was, "Things that are most stressful are the take-home work, the marking and the follow-up of the range of subjects that you are teaching at a more in-depth level" (McCormick, 1997, p. 18). Although another result was that infant/primary teachers reported greater stress in managing behavior, which maybe explained in terms of the frustration generated by failure to manage the behavior of young children compared to dealing with adolescents (McCormick, 1997). In a study by Male and May (1998), those with longer years of service and lower levels of service were found to rate lower in their overall stress level. On the other hand, Jepson and Forrest (2006) found that primary teachers reported higher perceived stress. However, their results were weak and could not be considered representative across the sample, suggesting the need for a larger scale study. Due to the mixed literature in this area, further testing of links between stress and gender/years of service may be of value. Level of
service, however, may involve so many variables that studies in this realm may need to focus on individual details in different settings to produce useful results.

*Locus of control and stress.* Locus of control is another individual personality trait that has been shown to correlate with occupational stress. Zembylas and Papanastasiou (2004; Pearson & Hall, 1995; Pearson & Moomaw, 2006) explored the extent of one’s perceived control over life’s outcomes in relation to stress. Rotter (1966) began this search decades earlier. He defined locus of control as the degree to which an individual believed a reward followed from his/her behavior or from forces outside him/herself. Internal locus of control involved perceiving an event as dependent on one’s own efforts. External locus of control subjects believed that others had power over their fate. Others added to these definitions. Individuals with high locus of control in their work and in their personal lives typically displayed positive results. Internals were more satisfied with their work, had less role stress, perceived more self-control and exhibited less job attrition (O’Brien, 1983). When compared to individuals with external locus of control, internals were found to be more active socially, and viewed as more independent and responsible, while also being more stable and judicious (Kesici & Sahin, 2008). Persons with external locus of control had low self esteem, despair, loneliness, were aggressive, and did not trust self or others (Yesilyaprak, 2004). These traits served as examples of personalities with high (internal control) and low (external control).

These definitions grew out of Social Learning Theory, which is based on the belief that a behavior will be reinforced by the perceived connection with its outcome (Rotter, 1966). When one believes that they have personal control over success, reinforcements will result in repeated actions, whereas results believed to be outside one’s control are less likely to result in repeated behaviors (Rotter, 1966). Locus of control is also related to locus of causality, a construct within
Attribution Theory (Weiner, 1985). When one attributes results of actions to their own behavior, they have internal locus of causality, however, in locus of control it is a consistent individual difference (Rotter, 1966). In attribution theory, locus of causality is situation specific and varies within individuals. These theories formed the basis for later research. Rotter created a scale measuring locus of control. Phares (1976) noted that this scale was a rough measure, and indicated a need for a domain-specific instrument. In response to this perceived need, the Work Locus of Control Scale (WLOCS) was developed by Spector (1982). Variable relationships of work were expected to give forth more specific results.

One noteworthy study brought together the results of many studies on the observed relationship between locus of control and stress (Ng, Sorensen & Eby, 2006). Researchers conducting this meta-analysis categorized outcomes from other studies according to a high-order construct called core self-evaluation. Core self-evaluation refers to an individual’s fundamental assessment about him or her self and includes notions of self-worth. Those who believe that they are the masters of their fate (i.e., high locus of control) should have more favorable core self-evaluations and therefore less stress. This categorization process was based on previous findings that internal locus of control was related to job satisfaction. They believed that perceptions of lack of control resulted in experiences of greater stress and lower self-worth, which correlated with self-dissatisfaction/depreciation in employment settings, a component of burnout (Judge & Bono, 2001; Langer, 1983). Methods for the meta-analysis involved choosing articles that spanned numerous years. 35% of the studies were published before 1990, 28% were published between 1990 and 2000, and the remaining 37% were published between 2000 and 2005. They reviewed articles published in the last 20 years in the following journals: Academy of Management Journal, Journal of Applied Psychology, Journal of Management, Journal of
Further, the Social Sciences Citation Index was used to locate studies citing Rotter’s (1966) and Spector’s (1988) articles from the last 20 years, both seen as the founders of locus of control. This search process yielded a total of 222 relevant articles. Hunter and Schmidt’s (1990) meta-analysis technique was adopted for the analyzing process. The most commonly used measure was Rotter’s (1966) 23-item scale which had an average reliability of 0.70. Another commonly used scale was Spector’s (1988) WLOC scale which had an average reliability of 0.78 (based on 40 samples). In this study, a higher scale score represented a stronger internal locus of control. Results from the numerous studies evaluated showed many significant correlations. An internal locus of control was positively related to global job satisfaction. Further, internal locus of control was negatively related to job stress, overall burnout, and its components including emotional exhaustion, depersonalization, and lack of personal accomplishment. The conclusion on self-evaluation showed a negative relationship between high levels of locus of control and high levels of stress at work.

One study specifically investigated teachers’ stress in relation to locus of control. The perceptions of individual teacher’s personal values and stress were investigated. One factors of personalities not prone to high stress levels included internal locus of control. Even in teachers, a high locus of control leads to lower stress levels. (Bachkirova, 2005).

It may be important for public school districts to pay attention to the locus of control personality variable. Believing that one’s actions will lead to desired outcomes could be a foundation upon which self-efficacy is built (Phillips & Gully, 1994). Motivation to learn may be increased by a sense of empowerment. As suggested by the Theory of Reasoned Action (Ajzen
& Fishbein, 1975), there must be an intention to exert behavioral control preceding one’s behaviors to exert control. The formulation of this intention is largely motivated by the belief that one is the master of one’s own fate and therefore one should maintain active behavioral control. One’s positive or negative assessment of the likelihood of obtaining desired outcomes may also be immediately translated into the intensity of behavioral intent toward self-evaluation and relationship with one’s self-worth (Judge & Bono, 2001; Judge, Erez, Bono, & Thoresen, 2003). Organizational cultures, such as school districts, may affect the perceived evaluation of asserting control in one’s work environment. The Person-Organizational Fit Theory (Judge & Cable, 1997) would suggest that employees with an internal locus may function better when they are working in cultures that emphasize attributes consistent with a high internal locus of control. On the contrary, cultures that are inconsistent with an internal locus may de-motivate or inhibit behavioral need for maintaining control, weakening the relationship between locus of control and outcome. Future research needs to further address these possibilities (Ng, Sorensen, & Eby, 2006). It seems that any future studies in the area of individual personality contributory factors and teacher stress should include investigation of this trait.

Conclusion

A considerable amount of research has been conducted over the past twenty years in the area of stress and its relation to public education. High levels of teacher stress are abundant. This situation leads to poor teacher production manifested in low performance ratings, high absenteeism, and frequent turnover. The resulting consequences of these problems negatively affect student academics.

Extensive research has been conducted in the area of environmental factors of stress related to teaching and yet a large stress problem still exists. Therefore, turning to further
exploration in the area of individual personality contributory factors of stress seems logical. Although a few studies have looked at the connection between stress and these factors, most have not been devoted strictly to educators. To understand why one person responds differently to the same environment than another, individual traits such as occupational commitment, Type A/achievement striving, and locus of control have recently been observed. Because of the strong negative connection of occupational commitment and stress in teachers, this area deserves a closer look. One such study by Jepson and Forest (2006) could be improved upon by focusing specifically on occupational commitment (due to its high negative correlation with stress in past studies) and by obtaining a generalizable sized sample of local teachers, through the use of randomization. Further, there is significant support in related literature that the existence of a significant negative link between locus of control and teacher stress could be worth further investigation. These two personality traits, occupational commitment and locus of control, along with demographic data such as gender and years of service, may lead to a deeper understanding of stress related problems. Understanding why one individual is more vulnerable to stress in the same environmental conditions as another may help school districts in dealing with problems linked to high stress levels and, thus, increase academic success for students in public education.

There are several ways in which information on a teacher’s stress level could be useful to school districts. Districts could use this information to target vulnerable employees for preventive intervention before actual high stress levels exist, which would thereby increase educational productivity as shown in research conducted by Ramanathan (1992). Further, districts could use this data to screen future employees who may have at-risk personality traits, even though they do not show signs of stress yet, as is suggested by Carroll and Gmelch (1992). Both of these uses could lead to increased productivity in school districts, shown in the areas of increased work
performance, and decreased absenteeism/turnover. This could, in turn, allow more concentration on school initiatives to improve student learning.
Teaching is one of the most stressful professions. Given some of the negative consequences of stress, research is needed to determine ways to reduce the stress experienced by educators. In particular, those who study stress argue that some of the variability of stress can be attributed to the personality and/or identity of individuals given differences in their responsibilities, socialization, capabilities, and support. Chapter three provides a discussion of the methodology utilized to investigate these individual contributory factors of teacher stress. The presentation of components of the study’s design is organized around the following topics: sampling and data collection procedures, instrumentation, analysis, limitations, and ethics.

**Sampling and Data Collection Procedures**

Selecting subjects included procedures that involved carrying out a randomized, cross sectional, stratified, and clustered sampling design. Once the sample was selected, the procedures for administering the survey electronically followed Dillman’s Tailored Design Method (2007). The following section presents the decisions and rationale for the number of teachers selected and the procedures used to survey these subjects.

First, an a priori power analysis was conducted to determine the number of subjects to be sampled. There is a general formula used for social science research which guides researchers in generating results that are generalizable: \( n = \frac{NPQ}{(N-1)D+PQ} \) (McNarma, 1994). Table 1 identifies the variables and information used for this study. The number of elementary teachers in Washington State in 2009 as reported by the Office of Superintendent of Public Instruction (OSPI) was 32,584, which represented the population size. The precision for the
survey results is presented in B, which reports the margin of error proposed for this study as being no larger than five percent (Wainer & Robinson, 2003). A generally accepted setting for the confidence coefficient is shown for the value of A, which denotes a 95% confidence interval for reporting the margin of error. P is defined as an estimate of the true proportion of the response of interest in the population. Since there is no reliable presurvey estimate, the standard value of 0.50 is included in the calculation. The other values of C, D, and Q on Table 3 are determined by formula. When the values are entered into the formula, a result of 380 subjects is calculated as the sample size for this particular study.

Table 1

A Priori Power Analysis: \( n = \frac{NPQ}{(N-1)D+PQ} \)

<table>
<thead>
<tr>
<th>N= Population</th>
<th>32,584</th>
</tr>
</thead>
<tbody>
<tr>
<td>n= Sample size</td>
<td>380</td>
</tr>
<tr>
<td>A= Confidence coefficient</td>
<td>3.84</td>
</tr>
<tr>
<td>B= Margin of error</td>
<td>0.05</td>
</tr>
<tr>
<td>C= square of B</td>
<td></td>
</tr>
<tr>
<td>D= C divided by A</td>
<td></td>
</tr>
<tr>
<td>P= Sample proportion</td>
<td>0.50</td>
</tr>
<tr>
<td>Q= 1-P</td>
<td></td>
</tr>
</tbody>
</table>

As stated above, the number of elementary teachers to be sampled was 380 out of the approximate population of 32,000 in Washington State. Most elementary teachers are employed in the 1,077 regular non-alternative elementary schools in the state, which house some configuration of grade levels prekindergarten to sixth grade and include the fourth grade.
Alternative and comprehensive campuses were excluded from this count as well as schools that possessed grade levels seven and above or only enrolled students up to grade or below.

The website maintained by OPSI provided numerous data files on schools in the state which were downloaded and entered into Statistical Package for the Social Sciences (SPSS). The school demographic data for the 2008-09 school year as well as the file that contained the Washington Assessment of Student Learning (WASL) scores for schools were downloaded. These two files were then merged. The resulting file included the following variables: district number, building number, grade levels, total student enrollment, percent of students qualified for free and reduced price meals, percent of students per ethnic category (i.e., Asian, Black, Hispanic, and White), percent of students by program (i.e., bilingual and special education), students per classroom teacher, percent of students passing WASL 4th grade reading, percent of students passing WASL 4th grade mathematics, and percent of students passing WASL 4th grade writing.

The merged files were sorted using the WASL 4th grade reading passing rates to stratify the sample. A student’s performance on the reading WASL provided a valid and reliable score for reading fluency, which has been shown to be a strong predictor of academic performance (Scholhauser, 2005). Schools were then ranked into quartiles using the percent of students passing the 4th grade reading WASL. The intent of such sorting was to develop a representative sample using this variable given its importance as an outcome of teaching. Twenty-five schools from each quartile were then randomly selected to form a sample of 100 schools.

Using the internet, each of the 100 schools selected was searched and the faculty list examined. Washington State has been a leader in the information technology revolution. All schools in the state are provided access to the web and receive funding to defray some of the cost
for website development and maintenance (OSPI, 2009). However, some of the selected schools could not be located on the internet or did not provide teacher email addresses on its site. In this event, the school was replaced with another randomly drawn school. Eleven schools that were initially selected had to be replaced with another due to lack of internet access including blocked email addresses. Once the schools were chosen, a table of random numbers was used to select four teachers at each of the schools, except for five schools in each quartile. In these 20 schools, only three teachers were randomly selected. These 20 schools teachers were also selected by randomization. Thus, 380 teachers from 100 schools were identified and their email address collected. Individual teacher’s emails were entered into an excel document that included the unique identification number for each campus such that it could be merged with the school level data. This matrix was then entered into the Washington State University (WSU) “Skylight” survey system, in which each of the 100 schools had a different respondent pool. Each email from that school was loaded into that specific respondent pool baring its name and specific code, through which the survey would be sent.

The reasons that the WSU survey system was used for this study are many. One was the reputation of WSU which was thought to generate more responses. Also, the fact that the system was user friendly would increase the response rate. Another advantage to using the WSU system was that the researcher was a student and therefore, free technical assistance was available, and there was no cost for the use of the system either. Further, the system had several features that allowed tracking of details and less time in organization and reporting. The system allowed much flexibility in creation of respondent pools and only required that the email addresses be loaded once, even though letters were sent out several times to each respondent. Individual url codes were also created automatically for each email. Lastly, the system reported which individual
emails responded so that multiple emails would not be unnecessarily repeated and duplicate surveys could be avoided.

Through the use of email, the 380 teachers were first sent a pre-letter (Appendix A1) through hotmail, which made it more likely for people to read, due to the familiarity of hotmail compared with the WSU “Skylight” system. This pre-letter notified teachers of their selection for participation in the study and indicated what date to expect receipt of a survey. The letter also addressed ethical concerns such as informed consent, voluntary participation, and assurance of no harm. When specific emails did not go through, calls to the districts associated with these emails were made to ask for a replacement email. If they were no longer employed there another randomly selected email from that same building was chosen to replace it. Three days later they each received a second letter through the matrix system (Appendix A2a) which included a direct link to the survey (Appendix B) on the WSU “Skylight” website. The letter sent by the system also identified the purposes of the study and allowed subjects to enter a drawing for a gift basket incentive through Spokane Teachers’ Credit Union. This incentive was intended to help to increase participation and express the value of their response to the study (McNamara, 1994). The letters satisfied informed consent requirements. Three to five days after the survey went out, the WSU matrix system sent out the survey a second time to all respondents that did not respond the first time (Appendix A2b). Then, in another three to five days after the survey had gone out a second time, a thank you/reminder letter (Appendix A3) was sent out through the survey system again with a link to the survey one last time.

**Instrumentation**

Data collected for this study came from the Office of Superintendent of Public Instruction (OSPI) and teachers. Specifically, data used in this project were downloaded from OPSI’s
School Report Card website. Data on gender and years of service were gathered from each of the 380 randomly selected elementary teachers, along with their scores on the Perceived Stress Survey (PSS), Teacher Occupational Commitment Survey (TOCS), and the Work Locus of Control Survey (WLOC). This section discusses issues of score validity and reliability of the collected data.

Statistical data gathered by the state on its schools are compiled and available on the OSPI website (http://www.k12.wa.us/). The state provides definitions and employs audits to ensure that the data it gathers are accurate and conform to its standards. The total student enrollment for a school is the number of students in attendance on the 10th day of school, which is also known as the October headcount. Schools also collect from parents a statement of income to qualify for free and reduced price meals. Federal and state dollars are provided to schools for offering various services, which encourage school officials to ensure the accuracy of these reports. The percent of students qualified for free and reduced price meals is the number of students whose family income is at or below 130% of the Federal poverty guidelines and at or below 185% of the Federal poverty guidelines respectively, divided by the October headcount. The percent of students per ethnic category (i.e., Asian, Black, Hispanic, and White) is taken from the student registration form and is the number of students as self identified per ethnic category divided by the October headcount. The percent of students by program (i.e., bilingual and special education) are derived from student participation in these programs. Again, these percents are determined by taking the number of students coded as receiving services divided by the total student enrollment. The variable students per classroom teacher is calculated by dividing the total number of certified teachers employed in a building by the total student enrollment. The percent of students passing WASL 4th grade reading, percent of students passing
WASL 4th grade mathematics, and percent of students passing WASL 4th grade writing also follow formula of the number of students who took the specific test and met standard divided by the total number of students who took that assessment. OSPI provides reports on the test construction as reflecting the state’s Essential Academic Learning Requirements (EARLs) for each grade level and their psychometric properties.

Instruments used for measurement in this project included the Perceived Stress Survey (PSS) (Cohen et al., 1983), the Teacher Occupational Commitment Scale (TOCS) created by Jepson and Forrest (2006), and the Work Locus of Control Scale (WLOCS) created by Spector (1988). The PSS is used to obtain a stress level for each teacher. The TOCS provides a teacher’s level of commitment to their profession. The WLOCS purports to measure the strength of one’s perceived internal control over one’s work life. Permission to use each of these instruments in this study was obtained from each of the authors (Appendix B). The psychometric properties of these tests and description of their items is discussed below.

One scale used, the Perceived Stress Scale, is designed to produce an outcome measure of a perceived level of stress. According to Cohen et al., (1983), “The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress” (p. 1). The latest version of this instrument includes 10 items on a Likert scale ranging from 0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, and 4 = Very Often. As an example, one of the questions is, “In the last month, how often have you been upset because of something that happened unexpectedly?” Another example is, “In the last month, how often have you felt nervous and “stressed”?” PSS items also include reversed coded responses to four positively stated items (i.e., items 4, 5, 7 and 8) to protect against and check results for response bias. A cumulative score is generated for the PSS.
In 1983, the survey was created and piloted on three samples, two groups of college students and a third consisting of a more heterogeneous group, totaling 510 subjects. This earlier version of the PSS had 14 items. The mean stress levels for the groups on this version were reported as 23.2 and 23.7 in the student samples and 25.0 in the heterogeneous sample. Standard deviations for the three groups were 7.3, 7.8, and 8.0, with ranges of 60 to 50, and 5 to 44 in the student groups, and 7 to 47 in the heterogeneous group. In 1994, the L. Harris Group Poll reported new means given the new instrument with four fewer items. These samples were based on non-student population of males, females, and different ethnic groups. Results from this administration showed an instrument with much lower means. The means of this administration of the instrument were between 12.1 and 14.7 (SD varying from 5.9 to 7.2), shown in Table 3 (Cohen et al., 1994).

The scores on the PSS have demonstrated adequate internal and test-retest reliability and are correlated in the expected manner with a range of self-report and behavioral criteria (Cohen et al., 1983). Specifically, for the 14 item instrument, coefficient alpha reliability was .84, .85, and .86 in each of the same three sample groups. Cronbach’s alpha was calculated on the data gathered from this administration of the PSS for the 90 Washington State elementary teachers. The scores of the data were internally consistent (i.e., $\alpha = .87$) for this measure of the survey.

Other strengths and weaknesses of the PSS are notable. These strengths include elements of definition, context and response options, which can be used for considering an instrument’s specific evaluation powers. The specific definitions of the questions used in the instrument can be examined by the *cooperativeness principle*, which includes the maxim of quality (no misleading information), maxim of quantity (amount of information), maxim of manner (clarity), and the maxim of relation (Swarz, 1999). The evaluations of the context include the reference
period and or frequency, accessibility of the information desired, and the examinees interest level of the subject matter being explored (Schaffer, 1999). The positive piece of the PSS, according to the *cooperativeness principle*, includes the maxim of quantity, which is reasonable because only ten questions are asked of each respondent. The context of the PSS is favorable as it lists the reference period at the beginning of the survey, and the information asked for should be chronically stable, which is more reliable than temporal information. Also, the respondents’ view of the researcher’s interest in stress should help the respondent in relating to the questions of the study. Response options for this inventory include closed questions with few categories (five), which tends to be less confusing to the subject, along with a bipolar rating scale (negative and positive range), with verbal options. Verbal options have a tendency to push respondents to the middle, unlike numerical options, which result in more positive frequency (Swarz, 1999; Schaffer, 1999).

Table 2

<table>
<thead>
<tr>
<th>Groups/n=sample size</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/926</td>
<td>12.1</td>
<td>5.9</td>
</tr>
<tr>
<td>Female/1406</td>
<td>13.7</td>
<td>6.6</td>
</tr>
<tr>
<td>White/1924</td>
<td>12.8</td>
<td>6.2</td>
</tr>
<tr>
<td>Hispanic/98</td>
<td>14.0</td>
<td>6.9</td>
</tr>
<tr>
<td>Black/176</td>
<td>14.7</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Weaknesses of the instrument are also characterized by relating to the *cooperativeness principle*. In some cases, the quality of the questions is hampered by their wordiness. For
example the question, “In the last month, how often have you found that you could not cope with all the things that you had to do?” shows excessive word usage. Also, the manner is tainted by a vague description of the concept explored (things). The subject’s relation to the theme of the inventory is also troublesome as it focuses on the area of work, but not specifically on teaching, which may cause some confusion for the examinee. Further, the frequency is not absolute which may not produce equivalent answers, and the questions are not of a comparative nature, which may result in less accurate results (Swarz, 1999; Schaffer, 1999). Lastly, the positive and negative questions are listed separately, instead of intermixed together due to the limitations of the survey system used. This may alter the effectiveness of the survey compared to the use of it in the traditional mixed format, though overall standards shine a favorable light on this instrument.

Next, the TOCS was created specifically for a study on individual contributory factors by Jepson and Forrest (2006). The instrument uses a Likert scale on six items with 1 = Strongly Disagree to 5 = Strongly Agree. An example of one of the items, “I am satisfied in my position as a teacher” represents high occupational commitment, as do the other items. In the scale development of this measure, teachers and psychologist were used. During this process, the TOCS creators used exploratory factor analysis and had a variance of 38.45%. The internal consistency with Cronbach’s alpha was a strong .76. The validity of .4 through .84 was quite wide, however still acceptable, according to Jepson and Forrest. For the data gathered from this sample of 90 Washington State elementary teachers, Cronbach’s alpha was .86 providing evidence for high score consistency for this administration of the TOCS.

Other strengths and weakness of this measurement vary. As mentioned earlier, items of the cooperativeness principle (quantity, quality, manner, relation), context (interest, time period,
frequency) and response options help evaluate strengths and weaknesses of an instrument (Swarz, 1999; Schaffer, 1999). Strengths of the TOCS include the use of only six questions with short sentences, which are not misleading. Further, the clear manner of the questions is helpful. The relativity of the questions is significant because all of them are specifically on teaching, while the context of the questions will interest the respondents because of their direct participation in education. The time period is given at the beginning which is also considered a help, and the questions should access chronic information, which is more stable than temporal data. Response options are closed with few categories and a bipolar rating scale, in which verbal answers usually result in a move toward the middle by the respondent, is used (Swarz, 1999; Schaffer, 1999). These factors all add to the strength of this instrument.

Weaknesses include the wording of the last question, which is awkward, “I do not think about leaving the teaching profession often.” The positive format of the question is traditionally listed in the negative. This change is necessary because of the structure of the electronic survey system. Further, because the frequency is not absolute and the questions are not comparative, the answers may not be as accurate (Swarz, 1999; Schaffer, 1999). Overall, these judgments offer a more favorable than negative view of this assessment.

Finally, the Work Locus of Control Scale (WLOC) instrument was created by Spector in 1998, who created a 16-item measure on a Likert scale of generalized control beliefs in work settings with a range of 1 = Disagree Very Much through 6 = Agree Very Much. Items 5, 6, 8, 9, 10, 12, 13, and 16 require reverse scoring. An example of the questions asked on the inventory includes, “On most jobs, people can pretty much accomplish whatever they set out to accomplish.” Criterion-related validity is provided by correlations with other theoretically meaningful variables from six samples. The WLOC has been found to correlate significantly
with job satisfaction, intention of quitting, perceived influence at work, role stress and perceptions of supervisory style (Spector, 1988). The overall mean for all 1165 subjects represented in the construction samples was 38.1 with a standard deviation of 9.6.

Spector’s (1988) reported scores on the WLOCS scale as demonstrating on average 0.78 on assessments of reliability. Cronbach’s alpha was calculated for the scores of the 90 respondents who returned their surveys. The responses from the Washington State elementary teachers were found to be internally consistent ($\alpha = .83$).

Positive and negative attributes of this test are worth discussing. These fall into cooperativeness principles (quantity, quality, manner and relativity), context and response options. Positive strengths include sixteen statements, which is a larger quantity of questions than the other measurements in this study, but still a relatively manageable number. All of the questioned beliefs should be chronically accessible and therefore produce stable results. The response options are closed, with few bipolar categories, which will increase simplicity (Swarz, 1999; Schaffer, 1999). The overall evaluation of this measurement tool is positive.

There are several weaknesses for this instrument, which include sentences that are wordy with vague terms. An example of such problems is seen in the following, “The main difference between people who make a lot of money and people who make a little money is luck.” Since the questions are not specific to teaching the respondent may not identify their relevance and so stop answering the survey. Finally, due to the structural limitations of the electronic survey system, positive and negative questions had to be split into two different parts instead of mixed together. This change from earlier administrations may alter results.
Analysis

The gathered information was stored on the website by code and only accessible to the researcher, who downloaded the information into an SPSS file for analysis. Analysis of the data gathered occurred after a third call for responses was made. As analysis began, several of the respondents were found not to have completed their survey. Missing item scores were replaced with average scores for that item (e.g., mean or median depending on the scale of the item). This procedure is suggested in the SPSS manual (Green & Salkind, 2008). In the highest quartile only one respondent was missing an answer. This was subject number 13 on question 10. In the third quartile however, two respondents were missing answers. Respondent number 22 was missing question 20 and respondent 18 was missing question 24. In the second quartile, subject number 9 was only missing question 27. The last quartile had three subjects that were missing answers. Six was missing question 13, 7 was missing number 27, and respondent number 21 was missing questions numbered 14 and 25.

After scaled scores were calculated for the three inventories (i.e., PSS, TOCS, and WLOCS) the descriptive analysis began with calculations of measures of central tendency and variability. The variables of gender and years of service were included in this analysis. School level data were also analyzed using measures of central tendency and variability to describe the schools on the variables of percent of students qualified for free and reduced price meals, percent of students per ethnic category (i.e., Asian, Black, Hispanic, and White), percent of students by program (i.e., bilingual and special education), students per classroom teacher, percent of students passing WASL 4th grade reading, percent of students passing WASL 4th grade mathematics, and percent of students passing WASL 4th grade writing. Comparisons of state,
sample pool and respondent pool percentages were also calculated. This phase of the analysis addressed the first research purpose of the study.

Next, Pearson Product-Moment Correlation Coefficients were calculated after bivariate scatterplots were generated to ensure that these data conformed to specific assumptions of such analysis. The correlation coefficients show the strength and direction of the shared variance on subjects’ scores for the various variables (Green & Salkind, 2008). Specifically, the nature of the association between stress and occupational commitment, locus of control, as well as years of service were examined thus addressing the second purpose of the study. Stress and gender were not examined using Pearson’s since gender is a dichotomous variable.

The last step in analyzing the data involved multiple regression to address the last research purposes stated in the introduction. In regression, one or more independent variables are used to predict scores on the dependent variable. Each individual case has scores on multiple independent variables. A predicted dependent variable is formed that is a linear combination of the multiple independent variables. The multiple regression coefficient (R) indicates the strength of the relationship but provides no direction. The standardized partial regression coefficients explain the unique contribution (both strength and direction) of each individual independent variable on the dependent variable (Green & Salkind, 2008). In this study, stress was the predicted score and occupational commitment, locus of control, years of service, and gender identify the independent variables or individual contributory factors to be assessed. The variance inflation factor (VIF) was calculated which examines the assumptions of the test as pertaining to the threat of multicollinearity. Further, scatter plots of the residuals by observed scores on the dependent variable were generated to assess the assumptions of normalcy, linearity, and
homogeneity of variance. These aspects of data analysis are easily conducted using the SPSS program.

**Limitations and Strengths**

The design of this study possesses a number of limitations. First, the findings are limited to Washington State elementary teachers. Second, the data gathered is based on self-reported responses. There are particular biases related to the subjective nature of such data. For example, individuals who are particularly stressed may be more likely to respond to the questions. Third, given the cluster sampling technique at the level of the schools, the scores of participants could be considered as lacking independence. These findings are not causal but correlational.

Strengths of this study are also apparent. The use of email and the limited time commitment required to answer the questions hoped to encourage a high rate of response. The study data were gathered efficiently and the findings provided important information about teacher stress and other variables of which school leaders and policy makers are particularly interested such as locus of control and occupational commitment. The methodology for this study also had strengths such as the appropriate sample size and randomly chosen subjects. The use of instruments which have demonstrated acceptable scores (i.e., valid and reliable) along with school level data suggested others would be able to assess and replicate findings. Electronic data gathering increases the chance of accuracy in the data transfer process while the analysis process, which is also electronic, reduces error found in data entry by research assistants.

**Ethics**

The entire process of this study was completed electronically through email, with safeguards followed as suggested by Dillman’s (2007) book on The Tailor Design Method of electronic web surveys. Safeguards included informed consent, the right to withdraw,
confidentiality, and a guarantee of no harm. All were observed and submitted for approval to the Washington State University Institutional Review Board (IRB). Informed consent and the right to withdraw from the study at any time were clearly stated in the three letters sent to each subject from the onset of the study (Appendix A). Participation was increased by providing this information, along with the value of the study, and a gift basket incentive, since all respondents’ participation needed to be completely voluntary (McNarma, 1994). Respondent scores were kept confidential (McNarma, 1994). Lastly, since researchers must not bring harm to participants, professional surveys were used to avoid any discomfort to them (McNarman, 1994). No risks were taken that might cause the participants harm during any part of the research process and data was not gathered prior to IRB approval. This research will benefit the sampled population.

The results of this research provide school districts with several benefits. Data obtained in this study help target current employees who are vulnerable to stress and in need of support. This will allow an intervention to transpire before teachers reach low productivity, which should increase educator performance ratings, while lowering absentee/turnover rates. This situation will result in less health care, legal fees, and recruitment/training costs state wide, while leaving more money free to keep and increase the knowledge of quality teachers. This should also lead to an increase in student academic success.
CHAPTER FOUR
RESULTS

A review of literature revealed that there have been many studies on the environmental factors that contribute to teacher stress, while few have examined the link between stress and individual personality factors. Researchers are hopeful that by investigating the individual personality factors they will develop better explanations as to why one individual or teacher is more susceptible to stress than another given the same environmental conditions. The individual personality factors for which there is some evidence to justify examination included occupational commitment, locus of control, gender, and years of service. The following chapter reports the results of the study conducted in Washington State to address such purpose.

The chapter organizes the reported results into four sections that follow. First, a descriptive analysis of the schools and respondents is offered. This section speaks to the first purpose of the study identified in the beginning chapter of the dissertation. Second, a correlational analysis is presented. This section provides the findings that test the first three hypotheses of the four stated in the first chapter of the dissertation. Third, the results of the regression analysis are reported, which investigated the relationship between the dependent variable of teacher perceived stress and the independent variables of occupational commitment, locus of control, years of service, and gender. The regression analysis sought to address the study’s fourth hypothesis. Finally, a summary is given at the end of the chapter in preparation for the dissertation’s conclusion, which is the next and last chapter.
Descriptive Analysis

Three hundred and eighty elementary teachers in 100 schools in Washington State were invited to participate in the study. A total of 90 teachers responded to the study request including those sent as follow-up messages, which represented a 23.6% response rate. Those who responded were found to teach in 61 of the 100 schools sampled. The analysis of respondents by quartile given student achievement revealed no evidence of bias. Specifically, in the highest quartile, 16 schools had one or more respondents. In the third quartile, 14 schools had one or more respondents. In the second quartile, teachers in 17 schools provided answers to the survey. In the lowest quartile, teachers in 14 of the campuses answered the questionnaires.

Descriptive analysis proceeded by first examining the school level data provided by Office of Superintendent for Public Instruction (OSPI). The purpose of this analysis was to provide a better understanding of the schools where the teachers who responded work. This study also gathered and examined the data on the 1,077 regular non-alternative elementary schools in the state from which the sample was drawn. In addition, since the data were accessible, the scores for the 100 schools sampled were examined to facilitate a clearer picture of possible response bias between respondents and non-respondents given environmental factors associated with school level characteristics. Therefore, the school level data provided by OSPI included measures of central tendency and variability calculated for the 1,077 regular non-alternative elementary schools in the state, the 100 schools sampled, and the 61 schools that had one or more respondents. If a school had more than one respondent, its scores on the school level data were counted only once. Following this description of the schools the descriptive analysis proceeds to report on data gathered through the survey.
School level data. The description of the schools begins with school demographics (i.e., percent of students per ethnic category and percent of students qualified for free and reduced price means). Next, findings on the student enrollment variables (i.e., total student enrollment, students per classroom teacher, percent of students in bilingual education, and percent of students in special education) are presented. The last school level variables examined pertain to student performance (i.e., percent of students passing WASL 4th grade reading, mathematics, and writing).

A summary of the student demographic data for the schools is presented on Table 3. Looking across the averages for the state, sample, and schools of respondents on the table reveals consistency on student demographics measures. The typical school for the state, sample, and schools of respondents possesses a student body that is predominately White (i.e., roughly two-thirds of students) with Hispanic students being the largest minority, followed by Asian, Black, and American Indian. The percentage of students qualified for free and reduced price meals possessed the least variation between groups. Roughly two-fifths of the students on these campuses were reported as coming from homes of low socioeconomic status (LSES). This statistic information also upheld the theory that this sample pool was an accurate representation of the state. Further, there was no response bias between those schools in the sample that responded and those that did not in any of these groupings.

Descriptive statistics on enrollment variables were given on total enrollment, average number of students per classroom, bilingual and special education, along with average number of students per classroom shown on Table 4. Comparisons of the state, sample and respondent pool scores were made. Once again all variables were similar to state, sample and response averages, with the response pool means registering about two percent higher. Most elementary schools in
Washington State have just over 400 students in them, with just under 15% of them receiving special services, while a smaller amount of them are in bilingual programs. Therefore, the response pool seemed to be an accurate representation of the state and the sample pool.

Table 3

*School Demographic Data*

<table>
<thead>
<tr>
<th>Percent of students</th>
<th>State N = 1,077</th>
<th>Sample N = 100</th>
<th>Responded N = 61</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Asian</td>
<td>7.9</td>
<td>7.2</td>
<td>8.3</td>
</tr>
<tr>
<td>American Indian</td>
<td>2.6</td>
<td>1.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Black</td>
<td>5.5</td>
<td>5.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15.3</td>
<td>16.0</td>
<td>19.3</td>
</tr>
<tr>
<td>White</td>
<td>64.8</td>
<td>67.4</td>
<td>22.9</td>
</tr>
<tr>
<td>LSES</td>
<td>40.4</td>
<td>42.2</td>
<td>23.2</td>
</tr>
</tbody>
</table>

Table 4

*School Enrollment Data*

<table>
<thead>
<tr>
<th>Students</th>
<th>State N = 1,077</th>
<th>Sample N = 100</th>
<th>Responded N = 61</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Total enrollment</td>
<td>418</td>
<td>439</td>
<td>140</td>
</tr>
<tr>
<td>Student-teacher ratio</td>
<td>16.4</td>
<td>16.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Percent bilingual</td>
<td>8.2</td>
<td>11.5</td>
<td>13.1</td>
</tr>
<tr>
<td>Percent special education</td>
<td>12.7</td>
<td>13.8</td>
<td>4.8</td>
</tr>
</tbody>
</table>
Descriptive statistics on the three sets of WASL scores are seen in Table 5. Academic scores were similar in state, sample, and respondent campus averages. The student passing rates show that in Washington State student academic performance is stronger for reading in the 4th grade than either math or writing. Almost two-thirds of the students passed their reading exam, while only half passed the state’s math assessment. Once again, the response pool seemed to be an accurate representation of the state and the sample pool.

Table 5

School Achievement Data

<table>
<thead>
<tr>
<th>Percent of students</th>
<th>State N = 1,077</th>
<th>Sample N = 100</th>
<th>Responded N = 61</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Passing reading</td>
<td>73.6</td>
<td>72.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Passing math</td>
<td>52.3</td>
<td>58.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Passing writing</td>
<td>60.4</td>
<td>61.4</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Respondent level data. This section offers a descriptive analysis of the survey responses for the 90 teachers who provided answers to the three instruments and the two demographic questions. Specifically, variables discussed include the gender and years of service of the teachers and their scores on the PSS, TOCS, and WLOCS. The PSS offered a stress score for each individual, while the TOCS reported a level of occupational commitment specifically related to teaching. Finally, the WLOCS produced a score showing each teacher’s internal locus of control. The sum of these scores gives a picture of the teachers in this respondent pool.

Respondents were asked to report on two demographic variables: gender and years of experience. One respondent, of the 90 who returned their surveys, did not provide responses to either of these questions. Seventy six of those who responded self identified female and 13
identified male. Therefore, 85% or a large majority of the study’s subjects were female, which reflects the distribution of gender for elementary teachers. The analysis of subject responses to the second demographic question revealed a mean of 16.6 years of service.

Table 6 presents the descriptive analysis of the data for subject responses to the Perceived Stress Survey. The items for the PSS are listed from highest average score to lowest on the table. Respondents were asked to identify the frequency with which they experienced particular emotions presented in the ten items during the past month. The item receiving the highest score pertained to feeling nervous or stressed, which subjects recorded on average as “sometimes.” On this item a mean of 2.4 (SD=.9) were observed. The second most frequent indicator of stress was being upset because of an unexpected event, which was also rated “sometimes” and possessed a mean of 1.9 (SD=.7). The items that contributed least to their stress scores were those of controlling irritations, and feeling confident to handle problems. The observed average of 16.9 (SD = 5.9) was found for this group of teachers. Typical scores for this instrument, which has a range of 0-40, have been measured at 13.1 (SD = 5.9) as previously stated in chapter three. The total score on the instrument suggests that this sample of teachers was slightly above previous norms but did not report high stress levels.

Jepson and Forrest (2006) observed an average PSS score of 26.3 (SD = 9.2) in their sample of British teachers. Jepson and Forrest used the older version with 14 items rather than the newer 10 item PSS. They found that their subjects self reported moderate levels of stress. Jepson and Forrest’s teachers were less experienced with an average of 12 years in the profession. Further, their sample included teachers at the secondary level. In both samples, the PSS scores for teachers indicate moderate levels of stress, which fall on the direction of being higher than averages observed for samples whose subjects were not teachers.
Table 6

*PSS Item Analysis N= 90*

<table>
<thead>
<tr>
<th>In the last month, how often have you…</th>
<th>Mode</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felt nervous and &quot;stressed&quot;?</td>
<td>Sometimes</td>
<td>2.4</td>
<td>.9</td>
</tr>
<tr>
<td>Been upset because of something unexpected?</td>
<td>Sometimes</td>
<td>1.9</td>
<td>.7</td>
</tr>
<tr>
<td>Been angered by things outside your control?</td>
<td>Sometimes</td>
<td>1.8</td>
<td>.8</td>
</tr>
<tr>
<td>Felt unable to control the important things in your life?</td>
<td>Sometimes</td>
<td>1.8</td>
<td>.7</td>
</tr>
<tr>
<td>Felt could not cope with all the things to do?</td>
<td>Sometimes</td>
<td>1.8</td>
<td>.9</td>
</tr>
<tr>
<td>Felt that you were on top of things?</td>
<td>Sometimes</td>
<td>1.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Felt difficulties were piling up not overcome them?</td>
<td>Sometimes</td>
<td>1.6</td>
<td>.8</td>
</tr>
<tr>
<td>Felt that things were going your way?</td>
<td>Sometimes</td>
<td>1.6</td>
<td>.9</td>
</tr>
<tr>
<td>Been able to control irritations in your life?</td>
<td>Sometimes</td>
<td>1.4</td>
<td>.7</td>
</tr>
<tr>
<td>Felt confident to handle your personal problems?</td>
<td>Very Often</td>
<td>1.3</td>
<td>.7</td>
</tr>
</tbody>
</table>

The Teachers Occupational Commitment Scale (TOCS) was created specifically for a study on individual contributory factors of stress by Jepson and Forrest (2006). The instrument uses a Likert scale on six items with 1= *Strongly Disagree* to 5= *Strongly Agree* to measure occupational commitment. The two questions with the highest mode in this respondent group included, “I would say that I am a conscientious teacher” (strongly agree), and “I am completely committed to my job” (strongly agree), as shown in Table 7. Teacher responses suggest that the questions with the highest mean showed that feeling conscientious and committed to one’s job result in a high level of occupational commitment evident in the average score of 25.7 (SD =4.0). The statement with the lowest mode (i.e., disagree) and mean (i.e., 3.9) was “I often think about
leaving the teaching profession.” The TOCS has a range from 6-30. In Jepson and Forrest’s study an average score of 23.3 (SD= 4.0) was reported for their sample of British educators.

Table 7

*TOCS Item Analysis N=90*

<table>
<thead>
<tr>
<th>Question</th>
<th>Mode</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would say that I am a conscientious teacher.</td>
<td>Strongly Agree</td>
<td>4.7</td>
<td>.5</td>
</tr>
<tr>
<td>I am completely committed to my job.</td>
<td>Strongly Agree</td>
<td>4.5</td>
<td>.7</td>
</tr>
<tr>
<td>I enjoy my job.</td>
<td>Strongly Agree</td>
<td>4.4</td>
<td>.7</td>
</tr>
<tr>
<td>I am satisfied in my position as a teacher.</td>
<td>Strongly Agree</td>
<td>4.3</td>
<td>.8</td>
</tr>
<tr>
<td>I am content with my position as a teacher.</td>
<td>Agree</td>
<td>4.1</td>
<td>.9</td>
</tr>
<tr>
<td>I think about leaving the teaching profession.</td>
<td>Disagree</td>
<td>3.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Finally, the Work Locus of Control Scale (WLOCS) was created by Spector in 1998, who created a 16-item measure on a Likert scale of generalized control beliefs in work settings with a range of 1 = *Disagree Very Much* through 6 = *Agree Very Much*. Items 5, 6, 8, 9, 10, 12, 13, and 16 require reverse scoring. The WLOCS has been found to correlate significantly with job satisfaction, intention of quitting, perceived influence at work, role stress and perceptions of supervisory style (Spector, 1988). The teacher responses from the WLOCS, shown in Table 8, showed the top two responses in this study to be, “A job is what you make of it” (agreed with very much), and “In order to get a really good job, you need to have family members or friends in high places” (disagreed with moderately). These statements represented a strong internal locus of control. The least agreed with item was, “Most employees have more influence on their supervisors than they think they do.” The scores ranged from 16-96, and the mean was 72.6,
with a SD of 11.2 (see Table 8), while the norm sample for this inventory had a mean of 39. This average score is more than two standard deviations above the mean of the norm group.

Table 8

**WLOCS Item Analysis N=90**

<table>
<thead>
<tr>
<th>Question</th>
<th>Mode</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A job is what you make of it</td>
<td>Agree Very Much</td>
<td>5.3</td>
<td>.8</td>
</tr>
<tr>
<td>Good job family members or friends in high places</td>
<td>Disagree Moderately</td>
<td>5.2</td>
<td>3.9</td>
</tr>
<tr>
<td>Most people are capable of doing their jobs</td>
<td>Agree Moderately</td>
<td>5.0</td>
<td>.8</td>
</tr>
<tr>
<td>Luck to be an outstanding employee</td>
<td>Disagree Slightly</td>
<td>4.9</td>
<td>1.1</td>
</tr>
<tr>
<td>People can accomplish whatever they set out</td>
<td>Agree Moderately</td>
<td>4.9</td>
<td>.7</td>
</tr>
<tr>
<td>Luck is the main difference for making money</td>
<td>Disagree Moderately</td>
<td>4.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Who you know is more important than what you know</td>
<td>Disagree Moderately</td>
<td>4.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Promotions are usually a matter of good fortune</td>
<td>Disagree Moderately</td>
<td>4.6</td>
<td>1.0</td>
</tr>
<tr>
<td>You can find a job that gives what you want</td>
<td>Agree Moderately</td>
<td>4.6</td>
<td>.9</td>
</tr>
<tr>
<td>Getting the job you want is mostly a matter of luck</td>
<td>Disagree Slightly</td>
<td>4.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Making money is primarily a matter of good fortune</td>
<td>Disagree Moderately</td>
<td>4.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Promotions are given to employees who perform well</td>
<td>Agree Slightly</td>
<td>4.4</td>
<td>.9</td>
</tr>
<tr>
<td>If employees are unhappy they should do something</td>
<td>Agree Very Much</td>
<td>4.3</td>
<td>.9</td>
</tr>
<tr>
<td>To make a lot of money you have to know people</td>
<td>Disagree Moderately</td>
<td>4.3</td>
<td>1.2</td>
</tr>
<tr>
<td>People who perform well generally get rewarded</td>
<td>Agree Slightly</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Employees influence supervisors more than think</td>
<td>Agree Moderately</td>
<td>3.4</td>
<td>1.1</td>
</tr>
</tbody>
</table>
In summary, the descriptive analysis of data highlighted several findings. The response rate for the 100 schools was adequate at 61%, however only 23.7% of the 380 individuals sampled responded. School level data for the respondents when compared with data from the state and sample schools showed the respondent schools to be a fair representation of those in the State of Washington. Yet, the information gleaned from this study, must be interpreted with caution given the low response rate for teachers. Specifically, the achieved response rate threatens the generalizability of the study’s results as applied to elementary teachers. Analysis of responses to the demographic data provided by the teachers suggested these findings are likely to be most applicable to more experienced elementary teachers. Sixteen was the average for years of experience teaching reported by participants. The gender distribution for the respondents was disproportionately female; something not unexpected given the percentage of female elementary teachers. Scale scores on the totals on the variables of perceived stress, occupational commitment, and locus of control provide insight on the sample and hence population of experienced elementary teachers in Washington State. The stress for this group of teachers indicated an average level, as well as exhibiting both a high level of occupational commitment and internal locus of control.

Correlational Analysis  

The second purpose of the study was to examine the bivariate correlations between the variables identified in the literature which were included in this study. Specifically, four hypotheses were proposed for investigation. Pearson Product-Moment Correlation Coefficients were calculated after bivariate scatterplots were generated to assess the degree to which data conformed to the assumptions of the analysis. Occupational commitment, as assessed by the TOCS, possessed a skewed distribution. Likewise, years of experience was also found to possess
a non-normal distribution. The joint distribution of these variables with the perceived stress scores, however, appeared rather unaffected. The calculated correlation coefficients show the strength and direction of the shared variance on subjects’ scores for the variables (Green & Salkind, 2008). Specifically, the nature of the association between stress and occupational commitment, stress and locus of control, and stress and years of service were examined. Therefore, three null hypotheses were tested, which limited exposure to making an alpha error. Alpha errors increase when large numbers of inferences are made using data from one sample.

The first relationship examined assessed the relationship between stress and occupational commitment or the first hypothesis posited in chapter one. The findings suggest a negative and moderately weak association ($r = -0.44$, $p < .000$). The correlation was squared and multiplied by 100 (i.e., the procedure for calculating the coefficient of determination), which suggested 19.4% of the variance is shared between the two variables of stress and occupational commitment.

The cumulative scores for respondents on the PSS and WLOCS were used to assess the second null hypothesis proposed in chapter one. The cumulative scores for the two instruments were also found to possess a negative and moderate to weak relationship ($r = -0.40$, $p < .000$). As scores on locus of control increased teacher scores on perceived stress were found to decrease. The coefficient of determination was again calculated and revealed a 16.3% variance shared between teacher scores on the two variables.

The third and last bivariate correlation to be tested as specified in chapter one was between stress and years of experience. The result of the analysis demonstrated little relationship between the two. Specifically, the coefficient of 0.06 ($p = .56$) was observed. Therefore, the null hypothesis was not rejected.
There were several other coefficients generated by the analysis which can be reported. They are not being shared for the purpose of making statistical inferences however. Rather, they are being provided for descriptive purposes since they offer insight that is of use for assessing the findings generated from the regression analysis. Specifically, a correlation coefficient of .46 was calculated between scores on occupational commitment (TOCS) and locus of control (WLOCS). This was the largest coefficient observed in the results and was positive. Importantly, as the level of teacher commitment to occupation increased their scores on internal control also increased. A coefficient of .101 was observed to explain the association between years of experience and TOCS and a slightly larger but negative coefficient (i.e., r = -.101) was found between years of experience and WLOCS.

In summary, the findings of the correlational analysis were in the expected direction given previous studies with other populations. Parkes (1994) investigated individual differences in stress responses to the same environment and suggested they played a part in workplace stress (Travers & Cooper, 1997). One of these individual differences, occupational commitment’s relation to stress was studied by Burns and Bluen (1992) who found a negative correlation between the two, just as the current study discovered. Jepson and Forrest (2006) also found that Pearson’s correlation results presented a strong negative correlation between stress and occupational commitment. Locus of control has also shown previous correlations to stress which are upheld in the current results. One study specifically investigated teachers’ stress in relation to locus of control and found that a high locus of control leads to lower stress levels (Bachkirova, 2005). A meta-analysis by Ng, et al., (2006) investigated studies on the subject of locus of control and its relation to stress. Results presented indicated a significant positive connection
between locus of control and life satisfaction and job satisfaction, while a significant negative
connection was found between locus of control and stress.

The lack of association between experience and TOCS or WLOCS as evident by the
correlation coefficients provides an opportunity in the regression analysis to assess the possibility
of an interaction effect for years of experience. In multiple regression the contribution of each
independent variable is held constant to assess the relationship of each with the dependent
variable. When teacher scores for TOCS and WLOCS are held constant, there is the possibility
that years of experience may provide some level of prediction for their PSS scores. If the
variable years of experience fails to enter the regression model, then the lack of relationship
between experience and stress should not necessarily be rejected as a predictor of stress as
suggested in previous research. It may be that the lack of representation of novice or less
experienced teachers in this sample has inhibited the ability of this analysis to detect its
contribution.

*Multiple Regression Analysis*

The procedures of standardized multiple regression analysis were performed to address
the third and final purpose of the study offered in chapter one. Specifically, standardized multiple
regression was used to assess the null hypothesis that “The individual personality factors do not
predict perceived stress level elementary teachers in Washington State.” In standardized multiple
regression analysis, more than one independent variable is used to predict scores on a dependent
variable. A solution is generated that allows researchers to assess the percentage of variance
explained on the dependent variable given the independent variables. This is the function of the
multiple regression coefficient (R). It indicates the strength of the relationship but does not
provide direction. Multiple regression generates partial regression coefficients that explain the
unique contribution (both strength and direction) for each of the individual independent variables on the dependent variable (Green & Salkind, 2008). In this study, stress was the predicted variable and occupational commitment, locus of control, years of service, and gender identified the independent variables or individual contributory factors that were assessed. The variance inflation factor (VIF) was calculated which examined the assumptions of the test as pertaining to the threat of multicollinearity. Further, a scatterplot of the residuals by observed scores on the dependent variable was generated to assess the assumptions of normalcy, linearity, and homogeneity of variance. The scatterplot showed no threat to any of these assumptions.

The results of the regressed variables of occupational commitment, locus of control, years of service, and gender on perceived stress generated a model with R equal to .495 (F = 6.8, p = .000), which was associated with a R² of .25 and a standard error of the estimate at 5.16. In other words, roughly 25% of the perceived stress for the elementary teachers in the sample was accounted for by three of the four independent variables. An adjusted R² of .209 was also observed indicating the model could be generalized. Table 9 presents the specific standardized partial regression coefficients, as well as the associated observed t scores, probabilities, and VIF scores that identify the three independent variables that entered the model. The results offered on the table show that occupational commitment possessed the largest unique contribution. As teacher scores on the PSS increased by one standard deviation they were associated with a decrease of a third of a standard deviation in occupational commitment scores. Both locus of control and gender were smaller in contribution or possessing a fifth of a standard deviation unit change for every unit change one the PSS. Gender was positive suggesting female teachers reported significantly more stress than their male counterparts. The VIF scores reveal no threat posed by multicollinearity. Using the unstandardized partial regression coefficients along with
the constant generated by the model the following equation for predicting a teacher’s perceived stress was found.

\[
\text{Perceived stress} = 31 + (-.47)\text{TOCS} + (-.12)\text{WLOCS} + (3.7)\text{Gender}
\]

Table 9
Predicting PSS Scores Using Individual Personality Factors

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>(\beta)</th>
<th>(t)</th>
<th>(p)</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOCS</td>
<td>-.31</td>
<td>-2.9</td>
<td>.00</td>
<td>1.2</td>
</tr>
<tr>
<td>WLOCS</td>
<td>-.23</td>
<td>-2.2</td>
<td>.03</td>
<td>1.2</td>
</tr>
<tr>
<td>Gender</td>
<td>.22</td>
<td>2.3</td>
<td>.02</td>
<td>1.0</td>
</tr>
<tr>
<td>Years of experience</td>
<td>-.04</td>
<td>-.5</td>
<td>.65</td>
<td>1.0</td>
</tr>
</tbody>
</table>

In summary, three of the four variables (TOCS, WLOCS, and gender) were statistically significant at the .05 level. These results are not surprising given previous findings from past research. Jepson and Forrest’s (2006) recent study of the relationship between stress and individual contributory personality factors of teachers, which employed regression, also found occupational commitment to be a strong and negative predictor of stress. As an explanation for the strong negative correlation between occupational commitment and stress, it was suggested that occupational commitment is negatively related to stress due to the occupation’s high value to the individual (Anonovsky, 1979; Kobasa, 1982). Siu and Cooper (1998) also substantiated these earlier findings. They identified that occupational commitment may be a buffer to work stressors, explaining the predictive power found in current results.

As mentioned earlier, reported results currently and previously, support the connection between low stress and high levels of locus of control. Meta-analysis involving articles published over the last 20 years from numerous studies evaluated showed many significant correlations.
The conclusion revealed a relationship between high levels of locus of control and low levels of stress at work. A study investigated teachers’ stress in relation to locus of control also concluded that one factor of personalities not prone to high stress levels included internal locus of control. Even in teachers, a high locus of control leads to lower stress levels (Bachkirova, 2005).

The results from this study, which also indicate the female gender to be a predictor of stress, are likewise substantiated within previous analysis. Gender differences have been studied by Gardiner and Tiggerman (1999), along with Male and May (1998), in relation to stress. Results from these studies found females to rate higher in levels of stress than males (Gardiner & Tiggermann, 1999) though international studies have been found to have mixed results (Ushasree, Seshu-Reddy, & Vinolya, 1995; Antiniou, Polychroni, & Walters 2000). Those with longer years of service and lower levels of service were also found to rate lower in their stress level, the results in this study did not support this conclusion (Male & May, 1998).

Summary

The descriptive and inferential findings from this study can be summarized identifying its key findings. The teacher response rate per school was an adequate 61%, but the individual response rate was 23.7%. The low teacher response rate is a weakness and brings into question the validity of the results. The analysis of data suggested that the response bias most probably related to the experience, commitment, and locus of control of the responding teachers. Those teachers who responded appeared to be more experienced and committed to their profession than what was expected. Their level of stress was also lower than expected. Indeed, the overall mean of the teachers for stress was within a half of a SD from the mean of the norm sample, meaning that the teachers who participated in the survey were well within the average stress range. The same group of teachers had high levels of occupational commitment (more than two standard
deviations above the norm mean), and an even higher level of locus of control, (registering at three standard deviations above the mean) of the norm groups. The lack of response bias for schools, however, removes a potential threat to the internal validity of the correlation and regression analyses.

The results from the descriptive data were further supported by the correlational results. Pearson’s showed stress and occupational commitment to have a significant negative correlation, as well as a negative correlation between stress and locus of control. There was a significant correlation between occupational commitment and locus of control also, suggesting that occupational commitment has a positive relationship with locus of control in elementary school teachers.

The results of the regression analyses provided information regarding the predictors of stress. Three of the four variables (occupational commitment, locus of control, and gender) were statistically significant at the .05 level (p). The partial correlation between stress with occupational commitment and locus of control was negatively significant, and with gender it was positive. This suggests that high stress can be predicted by low levels of occupational commitment and locus of control in elementary school teachers, as well as the female gender.
Prolonged stress is shown to lead to low productivity, which is one of the leading causes of poor performance, high absenteeism, and excessive turnover of personnel in organizations (Norton, 2002). The field of education is a prime example of low productivity of educators resulting from the experience of prolonged stress (Borg, 1990; Kyriacou, 2001; Smith et al., 2000). Currently, there are many studies on environmental stress factors that lead to teacher stress, while few studies have examined the link between stress and individual personality factors. Even harder to find is data on the connection of stress specific to teachers’ personalities. Several studies have been conducted that call for research on the relationship between stress and such personality factors as occupational commitment, locus of control, gender, and years of service (Rotter, 1966; Langer, 1983; Judge & Bono, 2001; Jepson & Forrest, 2006; Ng et al., 2006). Further research is needed to investigate the nature of the association between these factors and perceived stress as experienced by teachers.

This study was conducted to assess the nature of the relationship between individual personality factors such as occupational commitment, work locus of control, gender, and years of service, with perceived stress. Specifically, a sample of elementary teachers in Washington State were randomly selected and invited to respond to a survey composed of three instruments (i.e., Perceived Stress Scale, Work Locus of Control Scale, and Teacher Occupational Commitment Scale) as well as biographical questions (i.e., gender and years of experience). Chapter five of the dissertation offers an overview of the study’s major findings, which are organized around the three purposes stated in chapter one. Following the summary of research findings the chapter
discusses the limitations and weaknesses. Finally, a section is offered on recommendations for future research and policy implications given the survey of elementary teachers about their experience of stress during this period of reform in public schools in Washington State.

**Elementary Teachers and the Schools in the Study**

Ninety elementary teachers from 60 regular non-alternative elementary schools in Washington State responded to an invitation, sent to their work email addresses, requesting their involvement in a brief survey dealing with teacher stress. The majority (i.e., 85%) of the teachers who responded to the three questionnaires that formed the survey were female. The average years of experience reported by the teachers was 16.6 (SD = 10). The average level of perceived stress teachers reported was 16.9 (SD = 5.9), which indicated a moderate amount of stress. Indeed, teachers on the Perceive Stress Scale (PSS) item that asked specifically about the frequency of feeling stress responded by selecting sometimes as their modal response. This item also received the highest mean score of the 10 items that compose this questionnaire. Further, survey respondents reported being highly committed to their profession (i.e., TOCS mean of 25.7 and standard deviation of 4.0). The TOCS item receiving the highest modal response was the feeling of being a contentious teacher. Most teachers reported that they were not considering leaving the profession of teaching (i.e., they disagreed with the statement that affirmed the notion of leaving teaching). Finally, the teachers reported a high internal locus of control given their average WLOC score of 72.6 (SD = 11.2). The respondents affirmed (i.e., agree very much) that a job is what one makes of it and moderately disagreed with the notion that knowing someone was important to getting a good job.

Given the random sampling procedures followed in the study, the schools of these teachers were found to reflect the 1,077 regular non-alternative elementary schools in
Washington State even though only 60 schools were represented in the sample. In other words, most schools had 1 teacher respond, while less than half had two or three respondents. The schools of teachers in the study enrolled on average 454 students. On average, 68% or a majority of the student in these were classified White and 42% qualified for free and reduced price meals, 11% in bilingual education, and 15% designated as special education. The student per classroom teacher ratio was on average 16 students. The academic performance of students in these schools also mirrored state averages with 72% passing the fourth grade WASL in reading, 51% passing the fourth grade WASL in math, and 61% passing the fourth grade WASL in writing.

*Covariation of Stress and Personality Factors*

Procedures were followed to analyze the covariation of stress with three of the individual personality factors identified in the literature. For two of the three hypothesis tested the null was rejected. The higher the occupational commitment of teachers the lower the stress they reported feeling ($r = -0.44, p <.000$). The percentage of shared variance between the two measures was 19 or a moderately weak association. Teacher commitment to the profession was found to possess the largest amount of explained variance with perceived stress as measured by the PSS. The second null hypothesis that was rejected assessed the nature of covariation between locus of control and stress ($r = -0.40, p < .000$). Again, the negative and moderately weak relationship suggested that as locus of control increased the stress reported by teachers decreased but only marginally. No relationship was found between years of experience and stress. Gender was not analyzed in this stage of the analysis. The relationship between occupational commitment and locus of control was also examined even though it was not offered as a tested hypothesis for the purposes of making inferences from the sample to the larger population of elementary teachers. The analysis of covariance suggested that there is a positive relationship between these two
variables but it was not large ($r = .46$). The correlational analysis provided the background for the standardized multiple regression analysis which extends these findings as it generates a model to predict teacher stress given their scores for the four individual personality factors.

**Predicting Teacher Stress**

The results study revealed that 25% of teacher perceived stress was explained by three of the individual personality factors ($F = 6.8$, $p = .000$). The occupational commitment of teachers provided the largest unique contribution (i.e., 11% of variance explained) in the model followed by locus of control and gender, which each contributed an additional 7% to the model. The proportion of variance explained attributable to years of experience qualified as chance. These findings suggest that male teachers who were most committed to their profession and felt a high degree of internal locus of control experienced on average the lowest levels of stress.

**Limitations and Weaknesses**

The most significant threat to the study findings pertains to the possibility of response bias. Three hundred and eighty teachers were included in the original sample which was sent out via internet mail. Ninety teachers responded or 23.7% of the sample. This low response rate may in part be attributable to the use of email. Messages that bounced back (either due to filters or incorrect addresses) were followed up and participants replaced when appropriate. Yet it is possible that teachers had an address but do not use it. It is also easy to delete messages or procrastinate responding to them. While the Tailored Design Method (Dillman, 2007) was followed, given its recommendations for electronic surveys that have been found to facilitate higher rate of return, it failed to garner more participation. It is clear given the results that respondents committed to their profession responded. Part of this problem may have been the...
cover letter that was couched in terms of professional loyalty. The poor response rate exposes the study to threats concerning the external validity of these findings.

What was encouraging, however, was the distribution by school of teachers who responded. One hundred schools where randomly selected to create the sample given the study’s procedures of stratifying the 1,077 regular non-alternative elementary schools in the state by student performance on the fourth grade reading passing rate for the Washington Assessment of Student Learning. The teachers who responded were employed in 60 of these schools. The school level data for these campuses were compared to state and sampling frame. No pattern was evident to suggest teachers in higher performing schools were more likely to have responded as compared to teachers in lower performing schools or any other measure gathered and reported by the Office of Superintendent of Public Instruction (OSPI) and examined in the study. This suggests that the environmental factors did not influence teacher participation. However, given that most campuses only one teacher responded to the survey a nest model analysis could not be conducted, which would allow these factors to be held constant.

Another weakness pertaining to the sampling concerned the over representation of more experienced teachers. Sixteen was the average number of years teaching (SD = 10), which suggested that either veteran teachers were more drawn to the study’s purposes or were more able for some other reasons to respond than those who possessed less experience. The over representation of seasoned educators potentially distorted the representativeness of the sample in terms of the scores participants reported for stress, commitment, and locus of control. The distortion on this variable given oversampling, either intentional or by accident, may have contributed to its weakness as a predictor variable in the regression model.
Additionally, while the use of the PSS to assess stress appeared to be a good choice at the beginning of the study, as time progressed it became less than satisfactory. This dissatisfaction with the scores of the PSS was not due to issue of reliability, for it was found to demonstrate internal consistency as reported in the observed Cronbach alpha. Rather, it was changes in the instrument from 14 items to 10 that made it difficult to compare participant scores on this survey to scores reported in a comparable study of teachers in Britain that was reported by Jepson and Forrest (2006). Furthermore, the use of self-reported scales has been part of standard practice in stress research. The problem for these scales is they tend to generate findings that are rather weak in their predictive capability. The scales are open to too much error. Respondent attitudes change or fluctuate and these instruments are not able to capture or represent this. The scores provide a gross indicator, which can be manipulated and contain bias. The PSS asked respondents questions that participants would lean away from reporting too negatively.

Therefore, elementary teacher stress in Washington may be higher than these reported scores either because stress tends to increase with the time of year (i.e., more stress right before WASL testing) or teachers did not want to be truthful about their feelings. These problems as described for the PSS are shared by the TOCS and WLOCS as well. Therefore, these findings are limited by the degree to which participants answered accurately about their feelings and the time of year in which the data were collected.

A final note or limitation of this study needs to be discussed. The data gathered and analyzed followed a correlation design. The results cannot be interpreted as causal. It could be that the relationship discussed is one of lower stress levels contributing to higher levels of commitment and enhanced feelings of internal locus of control. Only for the variable gender is the direction not subject to question. However, it is not the case that gender causes stress. Gender
provides a placeholder for social expectations and other norms and values evident in society that can be said to produce the experience of stress. The specification of independent and dependent variables in this study is subject to further study.

*Significance and Recommendations*

Although research has substantiated that teaching is a highly stressful occupation, not all teachers perceive or experience these environmental factors similarly. This study sought to explain the variability in perceived levels of teacher stress. Research was provided by this project on the individual contributory factors associated with stress. The results from this investigation possess theoretical, practical, and substantive significance.

The findings of this study that stand out pertain to the comparable findings evident in the Jepson and Forrest (2006) study that was conducted in Britain. These researchers were able to account for 53.6% variance of teacher stress as measured by the PSS. Their study examined other variables than the four included in this survey of Washington State elementary teachers so differences in the two studies should not be over stated. What is noteworthy, however, is that the personality factor of teacher commitment in both studies was the largest and positive contributor to the regression model that predicted teacher stress. In their study, commitment to the profession accounted for half a standard deviation unit change while in this study it accounted for a third of a unit change. The two studies shared another outcome worth mentioning. The analyses of data provided by both models suggest that experience is unrelated to the stress experienced by teachers. In the Jepson and Forrest study experience was found to share variance with perceived stress (i.e., as assessed using Pearson’s correlation coefficient), but this relationship did not hold in the regression model. Finally, Jepson and Forrest did not find gender as a significant contributor to their prediction of teacher stress. Many studies find gender an important variable.
for explaining stress (Ushasree et al., 1995; Sharpley et al., 1996; Gardiner & Tiggermann, 1999; Antiniou et al., 2000. The contradictory nature of the finding supports the need for continued research.

Theoretically, data produced by these results contribute to existing theory in current literature about the nature of the relationship between stress and individual personality factors. Specifically, the study found significant results in the inverted relevance of occupational commitment and locus of control with teacher stress. Gender also was found associated with stress. These data increase understanding of teacher stress.

Practically speaking, information from this study may be used to improve management practices in Washington State school districts. Hans (2000) states that individual contributory factors can aid districts in flagging current personnel in need of intervention from high stress levels. Districts could use this information to target vulnerable employees for intervention, which would there by increase educational productivity as shown in research conducted by Ramanathan (1992). For example, these data supported the theory that low levels of occupational commitment and locus of control in an employee may serve as an alert to administrators of staff who may not register high stress levels yet, but have a vulnerability to stress. This way, they can intervene before high stress leads to low productivity. Districts could also use these data to screen future employees, as suggested in research by Carroll and Gmelch (1992). For example, applicant scores may alert administrators when they are hiring new employees who do not yet rate high in stress, but would once they entered the field. Further, females may require districts to provide supports as a preventive measure before stress levels soar. If districts can utilize this information to guard against teacher stress, employee productivity maybe protected.
Substantive findings from this research result in a greater body of knowledge related to individual personality contributory factors of stress. The information gathered from this study supports the need for future inquiries in this area. As mentioned earlier, studies should be repeated to support these results due to the low response rate (23.7%). Also, due to the significant correlation discovered between occupational commitment and locus of control, further investigation should focus on the underlying links of this connection. For example, studies on occupational commitment and locus of control could include investigating direct links between these two traits and specific elements of low productivity, such as low performance, and high absenteeism and turnover. Further, research on environments that entice and nurture high levels of these traits could lead to changes in education policies in individual districts. Lastly, training for specifically vulnerable employees may help districts increase productivity in their classrooms.

Conclusion

A considerable amount of research has been conducted over the past twenty years in the area of stress and its relation to public education. High levels of teacher stress are abundant. This situation leads to poor teacher production manifested in low performance ratings, high absenteeism, and frequent turnover. The resulting consequences of these problems negatively affect student academics. The results of this research will provide school districts with several benefits. Data obtained in this study will help target current employees who are vulnerable to stress and in need of support. This will allow an intervention to transpire before teachers reach low productivity, which should increase educator performance ratings, while lowering absentee and turnover rates. The resulting situation will also entail lower health care costs, legal fees, and expenses required for recruitment and basic training costs state wide. The saving of monies in the
area of personnel, the largest area of school budgets, will allow more money to be expended on increasing teacher knowledge and other aspects to improve teacher quality. Subsequently, this should also lead to an increase in student academic success and other measures of student performance, which are the primary purposes of public schools.


Byrne, B. M. (2001). Structural equation modeling with AMOS: Basic concepts, applications


Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job


Friedman, M. & Rosenman, R.H. (1959). Association of specific overt behavior pattern with
blood and cardiovascular findings. *Journal of the American Medical Association, 169,* 1286-1296.


Lau, P., Yuen, M., & Chan, R. (2006). Do demographic characteristics make a difference to
burnout among Hong Kong secondary school teachers? Quality-of-life research in


school system. *Journal of Educational Administration, 35*(1), 18-38.

conceptual formulation for research on stress* (pp. 10-21). New York: Holt, Rinehart &
Winston.

McNamara, J. (1994). *Surveys and experiments in education research*. Lancaster, PA:
Technomic Publishing.

Metzger, C. (2003). Self/inner development of educational administrators: A national
study of urban school district superintendents and college deans. *Urban
Education, 38*, 655-687.


TITLE: ARE YOU FEELING STRESSED!!!

Dear ****** (Personal first name) -

It is a well documented fact that many teachers experience the positive and negative effects of extreme stress. In order to reduce its harm, a study is being conducted to investigate some of the factors associated with stress. You are one of a small number of elementary teachers in Washington State being asked to share your perspective, including the stressors present in your work.

Elementary educators and students will benefit from your participation, which will aid in improving policy and support for teaching and learning. Results of this study will be shared with the Office of Superintendent of Public Instruction (OSPI), Association of Washington School Principals (AWSP), Washington Association of School Administrators (WASA), Washington Education Association (WEA), and Washington State University (WSU). A summary of results can also be forwarded to you, if you request.

Within a week, you will receive an email with a link to WSU's Skylight. Please take a few minutes (about 5 minutes) to enter your responses to the questions. All personal and identifying information will be kept strictly confidential. Interested participants will be entered in a drawing to win a complimentary stress-reducing gift from Spokane Teachers Credit Union.

Thank you for your assistance. I would be happy to answer any questions you might have and can be contacted by email at ejds49@hotmail.com.

Sincerely,

E.J. Dean
#2a. TITLE: SHARE YOUR PERSPECTIVE ON TEACHER STRESS!!!
#2b. TITLE: HELP FOR STRESSED OUT TEACHERS!!!

Dear ****** (Personal first name) -

In the past week, you received an email inviting you to share your perspective on teacher stress. Please take a few minutes to click on the link below in order to complete a quick inventory:

http://skylight.wsu.edu/s/e4b7b220-f02b-45d1-939a-91b81024bfd3.srv (***)

Your response to these questions will help shed light on key aspects of teaching in elementary schools in Washington State. Most importantly, the information gathered will be used to identify critical supports for teachers and propose policies to address the negative effects of stress in teachers' work.

Your identity and responses will be kept strictly confidential. If you are interested you may enter a drawing to win a complimentary stress reducing gift from Spokane Teachers Credit Union. Results of the study will be forwarded to you, upon your request after responses have been summarized. Please feel free to contact me with any questions you might have at ejds49@hotmail.com.

Thank you for your assistance.

Sincerely,

E.J. Dean
School Psychologist

*Individual pool code.
TITLE: THANK YOU FOR SHARING!

Dear ***** (Personal first name) -

In the past week, you received an email inviting you to share your perspective on teacher stress. If you have already responded to the invitation, thank you for your time and participation. If not, then please take a few moments to click on the following link to do so: http://skylight.wsu.edu/s/e4b7b220-f02b-45d1-939a-91b81024bf0d3.srv (***). Your participation is important and will help to identify critical supports for teachers and propose policies to redress the negative effects of stress in elementary teachers' work. Your involvement in the study will be kept strictly confidential. All interested participants will be entered in a drawing to win a complimentary stress reducing gift from Spokane Teachers Credit Union. Results of the study will be forwarded to you, upon your request after responses have been summarized. Please feel free to contact me with any questions you might have at ejds49@hotmail.com.

Once again, thank you for your assistance.
Sincerely,

E.J. Dean

*Individual pool code.
Appendix B

Test survey: Elementary Teachers’ Perspectives on Work and Stress
Your views about working as an elementary teacher are requested. Your responses will be treated confidentially. The estimated time to answer the questions is 5 minutes. Although your response is consent to participate, you are free to withdraw from the study at any point. When you have completed all of the answers, please hit the button at the end of the survey.

Part A
Please respond to the following questions regarding your teaching career; respond by clicking on the appropriate scaled button.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied in my position as a teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am completely committed to my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would say that I am a conscientious teacher.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am content with my position as a teacher</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often think about leaving the teaching profession.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Part B

In the last month at work, how often have you ...

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Fairly Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Been upset because of something that happened unexpectedly?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt that you were unable to control the important things in you life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt nervous and &quot;stressed&quot;?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt confident about your ability to handle your personal problems?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt that things were going your way?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Found that you could not cope with all the things that you had to do?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been able to control irritations in your life?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt that you were on top of things?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been angered because of things that were outside of your control?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Part C
The following questions concern your beliefs about jobs in general. They refer to past and present positions. (You are almost finished with the entire survey!!!)

<table>
<thead>
<tr>
<th>Rating Scale One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree Very Much</td>
</tr>
</tbody>
</table>

A job is what you make of it.

On most jobs, people can pretty much accomplish whatever they set out to accomplish.

If you know what you want out of a job, you can find a job that gives it to you.
| If employees are unhappy with a decision made by their boss, they should do something about it. |   |
| Getting the job you want is mostly a matter of luck. |   |
| Making money is primarily a matter of good fortune. |   |
| Most people are capable of doing their jobs well if they make the effort. |   |
In order to get a really good job, you need to have family members or friends in high places.

Promotions are usually a matter of good fortune.

When it comes to landing a really good job, who you know is more important than what you know.

Promotions are given to employees who perform well on the job.

To make a lot of money you have to know the right people.
It takes a lot of luck to be an outstanding employee on most jobs.

People who perform their jobs well generally get rewarded.

Most employees have more influence on their supervisors than they think they do.

The main difference between people who make a lot of money and people who make a little money is luck.

**Prize**

If you would like to be entered in the prize drawing please enter your email address below.
**Demographics**
Please answer the following questions by clicking on the drop down box.
What grade level do you teach?

Are you male or female?

Please fill in the following response. How long have you been teaching?

**Appreciation**
Your participation in this research process is greatly appreciated!
Appendix C(1)

Date: Sat, 15 Nov 2008 11:11:29 +0000
> From: Emma.Jepson@manchester.ac.uk
> To: ejds49@hotmail.com
> Subject: RE: TOC
>
> Dear Effie,
>
> attached is the questionnaire I used for my dissertation with all the
> questions I used before we edited them down for the journal paper.
> I've also attached the journal paper as table's one and two show the
> questions which were selected for the journal paper.
>
> Hope this helps. What are your actually looking at?
>
> Emma
>
Appendix C(2)

Locus of control inventories

From: Paul Spector (PSY) (spector@shell.cas.usf.edu)
Sent: Thu 9/18/08 2:56 AM
To: Effie Dean-Sitton (ejds49@hotmail.com)

Dear E. J.:

You can find copies of the WLCS and information about it on my website in the Scales section. You have my permission to use it in your research.

Best

Paul E. Spector
Department of Psychology
University of South Florida
Tampa, FL 33620
(813) 974-0357 Voice
(813) 974-4617 Fax
spector@shell.cas.usf.edu
website http://shell.cas.usf.edu/~spector
Appendix C(3)

Perceived Stress Scale
The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.
Name ____________________________________________________________ Date ___________
Age ________ Gender (Circle): M F Other

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly? ................................... 0 1 2 3 4
2. In the last month, how often have you felt that you were unable to control the important things in your life? .................................................... 0 1 2 3 4
3. In the last month, how often have you felt nervous and “stressed”? ..................................................... 0 1 2 3 4
4. In the last month, how often have you felt confident about your ability to handle your personal problems? .......................................................... 0 1 2 3 4
5. In the last month, how often have you felt that things were going your way? .......................................................... 0 1 2 3 4
6. In the last month, how often have you found that you could not cope with all the things that you had to do? .......................................................... 0 1 2 3 4
7. In the last month, how often have you been able to control irritations in your life? .......................................................... 0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things? .......................................................... 0 1 2 3 4
9. In the last month, how often have you been angered because of things that were outside of your control? .......................................................... 0 1 2 3 4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? .......................................................... 0 1 2 3 4

Please feel free to use the Perceived Stress Scale for your research.