TEACHER ENGAGEMENT
IN A NORTHWESTERN BRITISH COLUMBIA SCHOOL DISTRICT

by

Veralynn Munson

M. A., University of Victoria, 1983
P. D. P., Simon Fraser University, 1993

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF EDUCATION
IN
MULTIDISCIPLINARY LEADERSHIP

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

May 2012

© Veralynn Munson, 2012
NOTICE:
The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author’s permission.

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

AVIS:
L’auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l’Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L’auteur conserve la propriété du droit d’auteur et des droits moraux qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

Bien que ces formulaires aient inclus dans la pagination, il n’y aura aucun contenu manquant.
ABSTRACT

Energy, involvement, and efficacy comprise work engagement as measured by the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996) and according to the mediation model (Leiter & Maslach, 2004, 2005). This mixed method cross-sectional research provides an analysis of the relationships among job resources, job demands, coping strategies, and work engagement for 91 teachers. Consistent with the findings of the job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), job resources had positive correlations and job demands had negative correlations with work engagement. Analyses of correlations, multiple regression models, and written comments showed that workload and social support had significant relationships with teacher work engagement. Student support seemed to offset the relationship between workload and energy levels. Professional development with a sustained focus did not predict engagement. The combination of resources and demands seemed to predict engagement levels. The study identified important resources and demands that could guide future research.
TABLE OF CONTENTS

Abstract ii
Table of Contents iii
List of Tables x
List of Figures xi
Acknowledgement xii

Chapter 1 Introduction 1
Rationale 2
Importance of the Study 6
Research Questions 8
Delimitations and Limitations of the Research 9
Definition of Terms 10
Chapter Summary 12

Chapter 2 Literature Review 14
Work Engagement 14
The Mediation Model 15
The Job Demands-Resources Model 21
Mediation Roles of Engagement and Burnout 25
Cross-links between the Two Core Processes 26
Earlier Research Relating to Resources, Demands, and Stress 30
The Demand-Control Model 31
The Demand-Control-Support Model 31
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Conservation of Resources Model</td>
<td>32</td>
</tr>
<tr>
<td>The Model of Compensatory Control</td>
<td>32</td>
</tr>
<tr>
<td>The Transactional Model of Stress</td>
<td>34</td>
</tr>
<tr>
<td>Summary</td>
<td>35</td>
</tr>
<tr>
<td>Coping Strategies</td>
<td>36</td>
</tr>
<tr>
<td>Coping Theories</td>
<td>37</td>
</tr>
<tr>
<td>Lazarus and Folkman</td>
<td>37</td>
</tr>
<tr>
<td>Carver and Scheier</td>
<td>38</td>
</tr>
<tr>
<td>Hockey</td>
<td>40</td>
</tr>
<tr>
<td>Coping Research</td>
<td>41</td>
</tr>
<tr>
<td>Summary</td>
<td>46</td>
</tr>
<tr>
<td>Specific Resources and Demands</td>
<td>46</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>54</td>
</tr>
<tr>
<td>Chapter 3 Methods</td>
<td>58</td>
</tr>
<tr>
<td>Research Design</td>
<td>58</td>
</tr>
<tr>
<td>Design Purpose</td>
<td>59</td>
</tr>
<tr>
<td>Integration of Data</td>
<td>61</td>
</tr>
<tr>
<td>Research Methods</td>
<td>61</td>
</tr>
<tr>
<td>Survey Method</td>
<td>62</td>
</tr>
<tr>
<td>Participants</td>
<td>63</td>
</tr>
<tr>
<td>Questionnaire</td>
<td>64</td>
</tr>
<tr>
<td>Advantages and Disadvantages</td>
<td>66</td>
</tr>
</tbody>
</table>
Levels of the Three Domains of Engagement 163

Engagement Levels Within the Context of the Two Main Models 164

Engagement Levels Within the Canadian and Provincial Contexts 165

Engagement Levels Within Elementary Class Composition 166

Engagement Levels Within Demographic Variables 169

Coping Strategies 169

Summary 170

Recommendations 171

Study Sample 171

Future Research 172

Chapter Summary 173

References 176

Appendix A Resources Identified in the Other Important Resources Category 188

Appendix B Resources Identified in the Other Important Demands Category 189
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Tests of Normality for Engagement Variables</td>
<td>89</td>
</tr>
<tr>
<td>Table 2</td>
<td>Comparison of Study and District Populations</td>
<td>93</td>
</tr>
<tr>
<td>Table 3</td>
<td>Mean Ranks and U Statistics for Type of Elementary Class and Exhaustion</td>
<td>95</td>
</tr>
<tr>
<td>Table 4</td>
<td>Mean Ranks and U Statistics for Type of Elementary Class and Student Support</td>
<td>96</td>
</tr>
<tr>
<td>Table 5</td>
<td>Correlations Between Resources and Engagement Subscales</td>
<td>99</td>
</tr>
<tr>
<td>Table 6</td>
<td>Correlations Between Demands and Engagement Subscales</td>
<td>101</td>
</tr>
<tr>
<td>Table 7</td>
<td>Intercorrelations Between Resources and Demands</td>
<td>102</td>
</tr>
<tr>
<td>Table 8</td>
<td>Summary of Forced Enter Regression Analyses for Variables Predicting Energy, Involvement, and Efficacy (N=72)</td>
<td>103</td>
</tr>
<tr>
<td>Table 9</td>
<td>Frequency of Engagement Items Coded by Theme</td>
<td>112</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1  Histogram of exhaustion scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  88

Figure 2  Stem-and-leaf plot for exhaustion scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  88

Figure 3  Bar chart of cynicism scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  89

Figure 4  Stem-and-leaf plot for cynicism scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  90

Figure 5  Histogram of efficacy scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  90

Figure 6  Stem-and-leaf plot for efficacy scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).  92
ACKNOWLEDGEMENT

I wish to thank my thesis supervisor, Dr. Andrew Kitchenham, University of Northern British Columbia, for constructive feedback and practical knowledge throughout the thesis process. He accepted my pacing and guided my processes.

I would also like to thank committee members, Dr. Colin Chasteauneuf, Ms. Katherine Eades, and Dr. Charles Naylor for their time, interest, and effort in providing feedback on my research.

Thank you to the school district for interest in the research and permission to access teachers. This cooperation permitted efficient invitation to teachers.

I give heartfelt thanks to my husband, Rob, for his patience, understanding, and for creating the time necessary for me to engage in this thesis research. I am grateful to my sons for their interest, support, and encouragement.

Finally, I give sincere thanks to the teachers who participated in the pilot survey and final survey. I appreciate the time they gave to provide personal and instrumental comments. It was a privilege to be entrusted with accounts of your thoughts and experiences.
CHAPTER 1

There is little doubt that students benefit from having teachers who are energetic and involved, and who feel effective. Researchers in organizational psychology call this trilogy of attributes engagement. Parents and students hope for such teachers, school districts want to attract and retain them, and teachers start out with similar aspirations in mind. Yet, no one assumes that teachers will consistently maintain those attributes. In fact, the research literature is full of references to teacher stress and, in the worst-case scenario, teacher burnout. In the course of attending elementary and secondary school students come in contact with teachers with varying degrees of engagement, or lack thereof. Teachers themselves recognize the ebb and flow of their energy levels, sense of dedication, and feelings of effectiveness.

In the last decade, there has been a shift in focus from job burnout to work engagement. Teacher engagement is an occupation-specific example of the broad concept of work engagement. Findings to date indicate that job demands, job resources, and individual factors all play a role in work engagement. There is a long way to go before the research on teacher engagement approaches the mass of research on teacher stress and burnout. If teacher education programs, school districts, and teachers are to foster teacher engagement, then much more knowledge is needed on the subject.

My thesis research investigated factors that were associated with teacher work engagement in a selected northwestern British Columbia school district. In particular, it sought to identify the recent levels of teacher engagement, how manageable teachers perceived their work demands to be, resources teachers perceived were available to them, and the strategies teachers used to manage workload stress. My research looked for statistical
correlations between teacher work engagement and three factors: perceived manageability of workload demands, perceived availability of job-related resources, and coping strategies.

Rationale

Huberman (1989) described the career life cycle of teachers as a process with discernable trends: careers generally begin with initial stages of discovery and adjustment that either lead to deeper involvement and commitment or to self-doubts and disengagement. While some teachers become burned out, others continue to feel engaged with their practices. Traditionally, researchers were interested in understanding burnout. In the past two decades researchers (e.g., Guglielmi & Tatrow, 1998; Hakanen, Bakker, & Schaufeli, 2006; Hargreaves, 1997) viewed teaching as a high-stress occupation. Further, prolonged stress can lead to the negative state of job burnout (Maslach, Schaufeli, & Leiter, 2001). Taken together, prolonged teacher stress could be a concern. In fact, teacher burnout is a well-documented phenomenon (Guglielmi & Tatrow, 1998; Kyriacou, 2001; Pines, 2002; Schaufeli & Enzmann, 1998).

In the last decade, researchers have expanded the professional literature on teacher burnout by investigating the positive effects of work engagement. In an overview of work engagement theory and research, Bakker and Leiter (2010) defined work engagement as “a positive work-related state of well-being or fulfillment characterized by a high level of energy and strong identification with one’s work” (p.182). They also described it as a motivational process marked by a sustained drive to reach demanding goals at work, involving the presence and use of personal energy, intense involvement in problem solving, and absorption characterized by inattention to time and distractions.

Engagement is of interest because it has a positive relationship with organizational commitment and, as the theoretical antipode of teacher burnout, would be expected to be
associated with positive health outcomes, teaching performance, and job-related interpersonal relationships (Hakanen, Bakker, & Schaufeli, 2006). Understanding the dynamics of engagement potentially guides efforts to encourage and sustain it. My concern was that province-wide intensification of teaching could increase the number of teachers who succumb to strain or decrease the number of teachers who feel engaged: I believe it is important to support teacher engagement so that it can be sustained in individuals to the greatest extent possible. My post-thesis goal is to channel my efforts into promoting teacher engagement. Through this research, I identified work-related factors and personal coping strategies that were associated with teacher engagement in a northwestern British Columbia context in order to further explore those areas.

Research related to work engagement and burnout has largely studied organizational and individual factors. Within that research, there are two main theoretical models pertaining to work engagement. Both models have focused mainly on organizational factors believed to influence work engagement and job burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Maslach & Leiter, 1997). The first model, Maslach and Leiter's (1997) mediation model viewed work engagement as the antithesis of job burnout. While burnout was seen as the negative outcome of a mismatch between the needs of the individual and the demands of the organization, engagement was seen as the positive outcome of a good fit between the employee and the job. Maslach and Leiter asserted that the organization plays a greater role than the individual in the outcome of the person-job fit. Six organizational factors believed to influence work engagement and job burnout comprised their mediation model (Leiter & Maslach, 2005).
The second model that focused on work engagement was the job demands-resources model of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The model focused on two types of organizational factors: demands and resources. It postulated that demands and resources predict burnout and engagement respectively, via two different processes. I used the demands and resources dichotomy to organize the job-related characteristics studied for two reasons. First, there is growing empirical evidence supporting the two-factor premise of the model (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001; Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, González-Roma & Bakker, 2002). Second, the same research concluded that resources either correlated with, or predicted, engagement.

The mediation model and job demands-resources model have made important advances in the field, but the results from testing both models were sometimes weak and mixed. Continued refinement seems likely as newer results yield further understanding (Bakker & Leiter, 2010). My research contributed to understanding the dynamics of engagement by confirming, contradicting, and adding new findings the extant research. I investigated the correlations between and among resources, demands, and engagement and compared my findings to those of the two leading models. My findings added to the growing study of work engagement in general, and of teacher engagement in particular. In addition, my findings provided a reference point and informed future research of teacher engagement in the school district under study or in a similar context.

The particular job resources and demands that were included in my study had, in the literature, significant relationships with work engagement and job burnout or were identified as important factors in research relating to teacher stress. The literature review outlined the research findings related to the specific resources and demands. The specific job resources
that were included in this research were: student support, professional development, rewards, social support and values congruency. The specific job demands that were included in this study were: workload, time pressure, and difficult student behaviour. There was opportunity to include objective measures of workload related to class size and student special educational needs for intermediate and secondary teachers because consultation meetings, dubbed Bill 33 meetings after the legislation that originally mandated them, were required when classes exceeded certain thresholds.

Although the two leading models of work engagement have focused on job-related characteristics, other researchers supported the study of a combination of the two types of factors. For example, Kompier and Cooper (1999) asserted that stress prevention should include individual and organizational components. Guglielmi and Tatrow (1998) posited that the interaction of individual and situational factors is of prime importance in studying teacher stress. My research incorporated a broad selection (demands and resources) of the organizational characteristics that Maslach and Leiter (1997) supported and a narrow set (coping strategies) of the individual characteristics Kompier and Cooper, and Guglielmi and Tatrow encouraged.

The individual factors investigated in this study were limited to demographic information and coping resources. The demographic information included gender, teaching assignment, years of experience, and assignment stability. I narrowed the remainder of my scope of individual characteristics to coping strategies for four reasons. First, coping strategies fit the job demands-resources model’s definition of resources because they can be used to reduce demands. Therefore, they can be considered in the resource-demand relationship of either of the engagement models. Second, as self-selected actions or behaviors, coping strategies could be identified and reported by respondents more easily than
many other personality traits. Third, some consideration of individual characteristics was warranted because empirical studies have shown that significant variance in levels of burnout and engagement has occurred at the individual level (Griffith, Steptoe, & Cropley, 1999; Langelaan, Bakker, van Doornen, & Schaufeli, 2005; Lee & Ashforth, 1996; Leiter, 1991; McCarthy, Lambert, O'Donnell, & Melendres, 2009; Montgomery & Rupp, 2005). Four, the breadth of individual characteristics relating to burnout is vast; studying an extensive array of individual characteristics was beyond my capacity as a novice researcher.

The coping strategies that were studied were categorized as problem-focused coping and emotion-focused coping. These two types of coping were derived from a synthesis of Lazarus and Folkman’s (1984) transactional model of stress and later research and theories predicated on their work. The literature review in this thesis presented existing research findings related to coping strategies.

Findings from my research were compared to the existing literature and were consistent in a number of aspects. The qualitative data on coping strategies, viewed in the context of engagement levels, provided insight into the quantitative data. Results suggested that further investigation of the role of coping in relation to engagement is warranted. In addition, data collected on the perceived level of resources and demands provided a reference point, should further study be pursued in this school district.

Importance of the Study

The empirical study of work engagement coincides with the emergence of a trend toward studying optimal functioning instead of dysfunction. Seligman and Csikszentmihalyi (2000) presented a framework for the science of positive psychology. They argued for a greater focus on prevention and predicted the development of greater understanding of the dynamics contributing to positive mental health. For the past ten years, positive psychology
has studied the factors that contribute to positive outcomes of human experiences in an effort to focus on prevention of physical, mental, and emotional ill health. By extension, the study of teacher stress and burnout could benefit from broadening to include the study of teacher engagement. Retaining concern for teacher burnout, it is important to simultaneously advance the study of positive work experiences in education because understanding engagement may lead to interventions that will foster it. Maintaining a positive state is preferable to trying to recover it once it is gone.

Grimmett, Dagenais, D'Amico, Jacquet, and Ilieva (2008) found that Vancouver teachers had perceptions of having to do more with less. Such perceptions could reflect an increase in demands and a decrease in resources, conditions that Schaufeli, Bakker, and van Rhenen (2009) found to be predictive of later burnout. If the perceptions of Vancouver teachers were accurate and can be generalized to the teachers in the rest of the province, then teacher burnout could increase and engagement could decrease in British Columbia. Assessing the perceived levels of job resources and demands in the selected district allowed a comparison to the above findings and provided available information for the educators in the district.

The first set of goals of my research was to determine levels of teacher engagement and burnout, how manageable the teachers perceived their work demands to be, the resources the teachers perceived were available to them, and the strategies teachers used to manage workload stress in a northwestern British Columbia school district. Discovering the low to moderate levels of teacher engagement invites teachers and the school district to respond according to the results. Efforts to promote teacher engagement may be indicated. The perceived manageability of job demands and availability of job resources identified potentially important constraints and provisions within the district. Identifying the strategies
teachers used to manage workload stress in specific contexts informed teachers and the
district of the scope of strategies that were in use.

The second set of goals of my research was to examine possible statistical
correlations between and among teacher work engagement, perceived manageability of job-
related demands, perceived availability of workplace resources, and self-reported individual
coping strategies in this population. For the sake of brevity, the terms job demands, job
resources, and coping strategies referred to the latter three factors. While a correlation does
not equate to causation, there was a need to identify factors that correlated with teacher
engagement in order to prepare for research designed to identify causal factors that sustain
teacher engagement. Schaufeli, Bakker, and van Rhenen, (2009) initiated this work and have
refined a model of employee engagement.

My study added to findings in the research literature. The results are specific to
northwestern British Columbia. Two recent studies examined teachers’ workplace
experiences in the province. First, Grimmett, Dagenais, D’Amico, Jacquet, and Ilieva (2008)
explored the relationship among policy, working conditions, and practice for Vancouver
public school teachers. Second, a British Columbia Teachers’ Federation (2010) study
examined working and learning conditions in British Columbia public schools. The latter
study included teachers from the district in my study in the provincial sample, but the report
did not separately report on northwestern teachers or on engagement. This study of teacher
engagement in northwestern British Columbia provided discrete information not previously
gathered.

Research Questions

My research thesis investigated factors that were associated with teacher work
engagement. In particular it sought to identify the recent levels of teacher engagement and
burnout, how manageable teachers perceived their work demands to be, and resources teachers perceived were available to them. In addition, I solicited teacher reflections of their thoughts in specific job-stress situations and the subsequent coping strategies they used to manage the stress. I looked for statistical correlations between teacher work engagement and two factors: perceived manageability of job-related demands and perceived availability of job-related resources. Further, my research thesis sought to determine if there was a statistically significant difference of coping strategies between teachers who reported high levels of engagement and teachers who did not.

I tested hypotheses regarding the relationships among the key constructs in my thesis research based on the job demands-resources model's two-factor parallel processes theory and findings (Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Consistent with the job demands-resources model I tested the following hypotheses:

H1: Job resources will be positively related to work engagement and negatively related to burnout.

H2: Job demands will be negatively related to engagement and positively related to burnout.

Two further research questions were examined. First, which specific resources and demands had the strongest correlations with engagement? Second, did themes emerge from the reflective data on stress situations and coping strategies? Findings informed future considerations of the work context under study.

Delimitations and Limitations of the Research

A limitation of the study was the willingness of teachers to participate in the study. The participation rate of teachers in the selected school district determined the
representativeness of the findings for the district. A further limitation was that the researcher was a colleague and former local union president of many of the respondents. These facts may have attracted the participation of some participants and discouraged others. In addition, some teachers might not have completed the questionnaire because they thought it was too time consuming or quit before finishing if the questions were uncomfortable to answer.

A delimitation of the study was the sampling of teachers in one district. The geographic specificity of the district comprised a small proportion of the teaching population in the province, so the ability to generalize to the rest of the province was limited. Additional research in other areas of the province would be required to test the potential for generalization (Leiter, Jackson, & Schaunessy, 2009). A further delimitation was the timing of the survey. It took place when teachers were in a phase of job action in which teachers were eliminating some aspects of their jobs. They were not receiving email from administrators, and may not have been reading workplace email or memos. They may have chosen not to give the extra time to complete the questionnaire, just as they were ceasing other non-essential tasks. The online mode of the questionnaire may have discouraged some participants if they were inexperienced with using the internet.

Definition of Terms

The terms used for the five constructs that were studied provided the framework for the questionnaire and required operational definitions. I adopted definitions from the two main models of work engagement and the transactional model of stress (Lazarus & Folkman, 1984) for two reasons. First, the models influenced my selection of constructs because they have asserted the importance of the respective constructs in their theories and have supported the same with related research. Second, using the established definitions facilitated the comparison of my findings to their existing theory and research.
Burnout: “a prolonged response to chronic emotional and interpersonal stressors on the job, ... defined by the three dimensions of exhaustion, cynicism, and inefficacy” (Maslach, Schaufeli, & Leiter, 2001, para. 1).

Coping strategies: efforts to manage demands that exceed resources and to deal with stress responses as stress is experienced (Hockey, 1993, 1997; Lazarus & Folkman, 1984) or subsequently managed (Carver & Scheier, 1998; Lazarus & Folkman, 1984; Lee & Ashforth, 1996).

Cynicism: indifference toward or emotional or cognitive distancing from one’s work (Maslach, Schaufeli, & Leiter, 2001).

Engagement: “a state of high energy ... strong involvement ... and a sense of efficacy” relating to one’s work (Leiter & Maslach, 2004, p. 94).

Exhaustion: feelings of fatigue, strain, and depleted emotional resources. (Gonzalez-Roma, Schaufeli, Bakker, Lloret, 2006; Hakanen, Bakker, & Schaufeli, 2006).

Inefficacy: reduced professional efficacy or sense of effectiveness in one’s work (Maslach, Schaufeli, & Leiter, 2001).

Job demands: job characteristics that “require sustained physical and psychological or mental effort, and are therefore associated with certain physiological and psychological costs (e.g., exhaustion)” (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, J D-R Model of Burnout Section, para. 2).

Job resources: job characteristics that may: “(a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development.” (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, J D-R Model of Burnout Section, para. 3).
Chapter Summary

Teacher engagement is an important area of study. Engaged teachers feel energetic, involved, and effective, and teacher engagement is expected to lead to positive outcomes. Teacher stress has been documented well and has dominated the research literature. However, the focus on teacher or employee stress and burnout is giving way to a focus on engagement. Positive psychology (Seligman & Csikszentmihalyi, 2000) has focused on the prevention burnout through the study of its antipode, engagement.

Two main theories of work engagement have been put forward. The mediation model (Maslach & Leiter, 1997) proposed that engagement results from a good fit between the employee and the job. The job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) proposed that two processes, one involving resources and the other involving demands, predicted engagement. In addition to the two main theories of engagement, some researches have focused on individual factors that contribute to burnout and engagement. Demographic factors and coping strategies are two types of individual factors that have been examined.

My research studied specific resources and demands, and coping strategies that were used by teachers in one school district in northwestern British Columbia. It collected data on perceived levels of job resources, demands, and engagement, and provided statistical correlations among the factors. It also compared self-reported use of coping strategies for teachers with high and low levels of engagement. My research is important because it added to earlier studies of work engagement and teachers’ experiences in the provincial context and took place during a time of possible intensification of teaching. It explored teachers’ perceptions of factors that foster their work engagement and combined quantitative and qualitative data to provide a complimentary picture of engagement.
This study was limited by the willingness of teachers to participate in an online survey. The length of the survey and the identity of the researcher could have influenced participation. A delimiter of the research could have been the collection of data during teacher job action in the province: the survey invitation may not have reached some teachers or may have influenced participation.

This thesis continues with five further chapters. Chapter 2 reviews the theory and research pertaining to work engagement, job resources, job demands, and coping strategies. The literature review outlines the two main theories of work engagement. It also reports theory and research relating to coping strategies. Chapter 3 describes the research methods that were used in this research and the reasons for choosing each method. The results of this thesis research are reported in Chapter 4. Chapter 5 discusses the findings of this research with possible interpretations. Finally, Chapter 6 closes with conclusions and suggestions for further study.
CHAPTER 2: LITERATURE REVIEW

In Chapter 1, the rationale of this study described the shift in focus from the study of job stress and burnout to the study of engagement. It discussed the importance of engagement and identified the two main models found in the literature. The first chapter also identified the central research questions that asked about relationships between job resources and demands and engagement. A further question sought to identify emergent themes in the coping strategies reported by teachers in the study. The chapter closed with key definitions used in the thesis.

This chapter reviews the literature relating to work engagement. It begins with literature related to engagement theory and research found in the fields of organizational and occupational psychology and in education. It then examines the two leading models of engagement: the mediation model and the job demands-resources model. Next, research related to job demands and job resources, variables central to my research, is reviewed because demands and resources are constructs fundamental to work engagement theory. Further, I present research supporting my choice of the specific demands and resources studied. Finally, I review literature on work-related coping strategies to support the inclusion of specific coping strategies in my research.

Work Engagement

The study of work engagement as an operationally-defined and quantitatively measured construct grew out of studies of job burnout (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Researchers (Maslach & Leiter, 1997; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002) initially saw engagement as the absence or antipode of burnout. The two predominant models that define and measure engagement maintain a dual focus on engagement and burnout. One model is Leiter and Maslach’s (2004, 2010) mediation model.
The other model is the job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Both structural models defined and measured engagement, presented a theory of the dynamics of engagement and burnout, and measured factors believed to predict engagement. The models share similarities, but also have distinct differences. I will discuss the two models presenting their definitions of engagement, the instruments they use to measure engagement, and the results of model-testing.

The Mediation Model

Leiter and Maslach (2004) defined engagement as “a state of high energy ... strong involvement ... and a sense of efficacy” relating to one’s work (p. 94). They identified energy, involvement, and efficacy as the three dimensions of engagement and positioned them directly opposite to the corresponding three dimensions burnout: exhaustion, cynicism, and ineffectiveness. They saw each dimension as a continuum with a positive and a negative pole that together constituted a larger engagement–continuum. The three interrelated dimensions of the continuum were identified as exhaustion–energy, cynicism–involvement, and ineffectivity–efficacy (Leiter & Maslach, 2005).

Maslach and Leiter (1997) and Leiter and Maslach (2004) asserted that the Maslach Burnout Instrument (Maslach, Jackson, & Leiter, 1996) measures engagement when individuals score at the positive end of the three-dimensions that traditionally measured burnout. The Maslach Burnout Inventory was widely used to measure burnout (Schaufeli & Enzmann, 1998). Lee and Ashforth (1996) illustrated its wide use when they based their meta-analysis of burnout on 77 sources that used the Maslach Burnout Inventory.

Leiter and Maslach (2010) expanded earlier models of job–person fit by broadening the concept of job to refer to a wider organizational context rather than to specific tasks, and the concept of person to refer to emotions, motivations, or stress responses rather than to
personality or understanding of the job. In general, models of job–person fit have posited that a misfit or imbalance between the work environment and the individual worker would lead to job stress or burnout. Leiter and Maslach (2004) asserted that the likelihood of engagement increases with increased person–job fit. Building on previous organizational psychology research and theory, Leiter and Maslach (2010) identified six areas of worklife believed to predict engagement or burnout: workload, control, reward, community, fairness, and values. In turn, engagement or burnout mediates the relationship between the areas of worklife and employee evaluation of the quality of change within the organization.

The mediation model is a structural model that proposes distinct roles for each of the six areas of worklife in predicting engagement and burnout. Leiter and Maslach (2010) theorized that work overload leads to physical, emotional, and cognitive exhaustion. Exhaustion then hampers the degree of involvement a person experiences with work. As two dimensions of burnout, exhaustion and involvement are considered part of an energy process within the model. Differing from the job demands-resources model, to be discussed later, resources are viewed as part of the energy process because they counterbalance job demands. If job demands are great and ample resources are available, an employee would not necessarily experience exhaustion. Insufficient resources to meet demands are posited to foster exhaustion.

A second process in the mediation model proffers that values congruency, between those of the employee and those of the organization, mediates all three dimensions of engagement. Leiter and Maslach (2010) acknowledged that values congruency is a product of the perceptions of employees. In particular, employees bring their personal and professional values to the job and compare them to the explicit and implied values of the organization with the expectation that there will be consistency between them. A perception of values
congruency will positively influence the three dimensions of the engagement–burnout
continuum, resulting in energy, involvement, and efficacy.

Leiter and Maslach (2004) used cross-sectional and longitudinal data to test the
mediation model. They collected cross-sectional data from 17 settings in four countries
involving 8,339 employees mainly from hospital, university, postal, and other public service
employees and obtained longitudinal data from support and administrative staff at an
American university. Participants completed a series of surveys in each of three consecutive
calendar years. Data from 207 participants were available for Time 1 to Time 2 and from 206
different participants from Time 2 to Time 3.

Three instruments were used to gather data. The first instrument, the *Areas of
Worklife Scale* (Leiter & Maslach, 2000), measured the six areas of worklife. Second, the
*Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996)
measured burnout and engagement. The third measure used an 11-item scale (Leiter &
Harvie, 1998) that assessed employee evaluation of organizational change.

In accordance with their mediation model, Leiter and Maslach (2004) hypothesized
that control would relate to workload, reward, fairness, and community. They projected the
variable of values would mediate the relationships of control, reward, community, and
fairness with the three dimensions of burnout–engagement. In addition, a direct path from
workload to exhaustion was expected. Exhaustion, as measured by the *Maslach Burnout
Inventory – General Survey*, would predict cynicism, which, in turn, would negatively
predict efficacy. Finally, Leiter and Maslach expected the three dimensions of the burnout-
engagement continuum to mediate the six areas of worklife and worker evaluation of
organizational change.
Using the first three indicators of each latent variable in each of the survey instruments, structural equation modeling analyses showed a good fit of the mediation model to the cross-sectional data and of a longitudinal mediation model to the longitudinal data. Analysis of an exploratory lag model, the Areas of Worklife Lag Model, showed three statistically significant Time 1 to Time 2 pathways: from workload to exhaustion, from fairness to cynicism, and from values to efficacy. Analysis of Time 2 to Time 3 data showed only the workload to exhaustion path was significant. Analysis of a revised Areas of Worklife Lag Model that featured three pathways from workload at Time 1 to exhaustion, cynicism, and efficacy at Time 2 provided good fit that was a significant increase in goodness of fit over the hypothesized longitudinal mediation model. The longitudinal data did not suggest a predictive relationship between the other five areas of worklife and the three dimensions of engagement.

Leiter and Maslach (2004) claimed some support for their model, specifically that three areas of worklife, workload, fairness, and values, predicted burnout and engagement. Control had strong pathways to workload, reward, community, and fairness; the latter three areas in turn predicted values. The values area was a critical predictor of the three dimensions of burnout and engagement. The three dimensions of burnout mediated the relationship between the six areas of worklife and employee evaluation of change. Leiter and Maslach concluded that their findings point to consistent patterns of relationship among the six areas of worklife.

Leiter and Maslach (2005) analyzed data from university (N = 602) and hospital (N = 2,009) employee groups collected in their earlier research (Leiter & Maslach, 2004) and found that each sample had comparative fit indices (CFI) greater than 0.91 and Bentler-Bonnet non-normed fit indices (NNFI) greater than 0.90, reflecting their aggregate findings.
of good fit of the models to the data. In addition, statistically-significant paths between factors within the model for the samples were consistent with paths for the aggregate data. One difference observed between samples was a stronger direct path from values to exhaustion for the university sample (-0.33) compared to the hospital sample (-0.09).

Maslach and Leiter (2008) examined possible early predictors of burnout and engagement using relevant subsets of longitudinal data from earlier research (Leiter & Maslach, 2000). They hypothesized that employees with inconsistent patterns of burnout or engagement at Time 1 would move toward consistent patterns at Time 2, as measured by the Maslach Burnout Inventory - General Survey. They defined an inconsistency, or inconsistent patterns of burnout, as having exhaustion and cynicism scores on opposite sides of the median score, while they deemed consistency to be scores on the same side of the median. Employees at Time 1 with inconsistency (n=146) were more likely than those with consistency (n=294) to change their level of burnout at Time 2. A Fisher exact test showed no bias in the direction of change according to the type of inconsistency. However, paired t-tests of the inconsistency group data for employees who changed to consistency in burnout at Time 2 showed that an increase of incongruency in community and values was associated with increased cynicism in the presence of exhaustion, and an increase of incongruency in workload, control, and values was associated with increased exhaustion in the presence of cynicism. Employees who changed to consistency in engagement at Time 2 (n=40) showed only the expected decreases in exhaustion or cynicism, and no significant increases in congruency in any of the areas of worklife. Perception of fairness significantly determined the direction of change in the group that changed from inconsistency at Time 1 to consistency at Time 2. Congruency in the area of fairness at Time 1 predicted a change to engagement at Time 2 while incongruency predicted a change to burnout in the same interval. The results of
Maslach and Leiter's study suggested an important role for fairness congruency in the prediction of engagement.

A study of 667 Canadian nurses in the Atlantic provinces supported most pathways in the mediation model using turnover intention (Leiter & Maslach, 2009) instead of evaluation of change for the work outcome (Leiter & Maslach, 2004, 2005). In contrast to the earlier studies, structural equation modeling analyses found that the community and reward pathways to values, and the exhaustion and efficacy pathways to turnover intention were not significant. Only the cynicism burnout dimension had a significant path to turnover intention, whereas earlier studies showed significant pathways from all three burnout dimensions to the evaluation of change work outcome. Another difference between this study and the evaluation of change outcome studies was that adding direct paths from reward to fairness and from reward to cynicism in a modified mediation model improved the model to data fit. Consistent with the 2004 and 2005 findings, control had direct or indirect affects on all other factors and values congruence predicted all three burnout dimensions.

Results from Leiter and Maslach's (2004, 2005, 2009) research indicated overall support for their mediation model. Recent discussion of the mediation model (Leiter & Maslach, 2010) reflected the core findings (Leiter & Maslach, 2004, 2005, 2009; Maslach & Leiter, 2008) that flowed from research on the earlier model (Leiter & Maslach, 2004). The mediation model will benefit from development through continued research for a few reasons. First, the studies cited above only partially supported the model and indicated modifications that improved the fit. Research has not yet consistently reproduced findings. Second, although the aggregate number of subjects was large, subjects in each of four studies overlapped (Leiter & Maslach, 2000, 2004, 2005; Maslach & Leiter, 2008); new samples might support broader application of the model. Third, the model based some primary
findings of prediction on cross-sectional data and structural equation modeling analyses.

Fourth, although derived from longitudinal data, the model based the early predictors of burnout on a small sample size (n=146) in a single organization (Maslach & Leiter, 2008): Similar findings in another organization or occupation would add strength to the theory.

The mediation model was relevant to my research because it identified factors in the workplace that contribute to work engagement. In spite of the need for further research, the initial support for the mediation model offered direction for selecting variables for my research on teacher engagement that have the potential to predict, and therefore correlate with, work engagement. The model made the unique contribution that values congruency may play an important role in predicting and mediating the purported three dimensions of work engagement. Leiter and Maslach’s (2000) areas of worklife have incorporated many factors studied in organizational psychology and have provided an integrated and parsimonious structure to study of burnout and engagement (Leiter & Maslach, 2004, 2005, 2009; Maslach & Leiter, 2008). I included aspects of workload, control, values, fairness, reward, and community in my research as potential correlates of work engagement within the specific context of one school district.

The Job Demands-Resources Model

In this section I provide an overview of the job demands-resources model that includes definitions for the two groups of job characteristics and for the core dimensions of engagement and burnout. Then, I outline the two-factor paradigm and review support for the main tenets of the model. Finally, the cross-links between the two core processes are identified.

The job demands-resources model of burnout and engagement is a structural model that proposes a dynamic relationship between five variables: job resources, job demands,
work engagement, job burnout, and work outcomes (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004). Engagement and burnout are not considered opposite poles of a single underlying construct as in the mediation model (González-Roma, Schaufeli, Bakker, & Lloret, 2006), nor are they deemed to be completely separate constructs, rather, they are moderately negatively related factors (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). Resources and engagement are purported to be primarily part of one process, while demands and burnout are mainly part of another process; both processes are discussed later in this section. The main premise of the model is that job strain, and potentially burnout, occurs when job demands are high and job resources are lacking. An additional and tentative assumption is that work engagement occurs irrespective of levels of demands if job resources are sufficient (Bakker & Demerouti, 2007).

Job characteristics can be assigned to one of two categories: resources or demands (Schaufeli & Bakker, 2004). The job demands-resources model has offered operational definitions wherein both categories pertain to physical, psychological, social, and organizational aspects of the job (Hakanen, Bakker, & Schaufeli, 2006). In addition, *job resources* may: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development.” (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, J D-R Model of Burnout Section, para. 3). In contrast, *job demands* “require sustained physical and psychological or mental effort, and are therefore associated with certain physiological and psychological costs (e.g., exhaustion)” (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001, J D-R Model of Burnout Section, para. 2). The definitions can be applied to a large number of workplace characteristics found in research literature because the model design encompasses a broad range rather than specific predictor variables (Bakker & Demerouti, 2007).
The core dimensions of engagement and burnout in the job demands-resources model share similarities with those of the mediation model, but vary in number and designation. *Work engagement* refers to a positive, fulfilling, work-related state of mind (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). The number of dimensions purported to constitute engagement and used in its measurement has fluctuated over time; general acceptance of the number does not appear to be established. Hakanen, Bakker, and Schaufeli (2006) and Schaufeli, Bakker, and Salanova (2006) measured vigour, dedication, and absorption. Using structural equation modeling the former study found theoretical support for including the mediation model’s professional efficacy as a fourth dimension. However, González-Roma, Schaufeli, Bakker, and Lloret (2006) claimed their research suggested that vigour and dedication constitute the core dimensions of engagement. Schaufeli, Bakker, and van Rhenen (2009) measured only vigour and dedication, yet in a discussion of work engagement measurement Schaufeli and Bakker (2010) supported the inclusion of absorption. Bakker and Leiter (2010) and Hakanen, Bakker, and Schaufeli described *vigour, dedication,* and *absorption*. Abundant energy, mental resilience, persistence in difficult situations, and investing effort in one’s work characterize vigour. Keen involvement and a sense of importance, inspiration, pride, challenge, and enthusiasm in work denote dedication. Absorption is distinguished by being happily immersed in job tasks, time passing quickly, and finding it is hard to stop working. *Professional efficacy* refers to feelings of competence, achievement, and accomplishment both in the job and the organization (Hakanen, Bakker, & Schaufeli). Together, the definitions of the three dimensions expand Schaufeli, Salanova, Gonzalez-Roma, and Bakker’s (2002) initial definition of engagement as a positive, fulfilling, work-related state of mind.
The job demands-resources model proposed two core burnout dimensions, *exhaustion* and *cynicism*, excluding the third dimension, reverse-scored professional efficacy, applied in the mediation model. The two core burnout dimensions were included consistently over time (Schaufeli, Bakker, & van Rhenen, 2009). Exhaustion is characterized principally by chronic fatigue as well as by feelings of strain and depleted emotional resources. Cynicism refers to a general lack of interest in and a callous attitude towards work, distancing from people in the workplace, and a sense that work has lost meaning (Gonzalez-Roma, Schaufeli, Bakker, Lloret, 2006; Hakanen, Bakker, & Schaufeli, 2006).

Two independent studies supported the separation of resources from demands and engagement from burnout in the two-factor job demands-resources model. Schaufeli and Bakker (2004) studied 1,698 workers from four occupations and Hakanen, Bakker, and Schaufeli, (2006) studied 2,038 Finnish teachers. Both studies used structural equation modeling analyses of self-reported cross-sectional data. The studies compared a single-factor model consistent with a burnout–engagement continuum to a two-factor model and found that a single-factor model showed a poorer fit on all measures. The two-factor model featured four core engagement dimensions, vigour, dedication, absorption, and professional efficacy, and two core burnout dimensions, exhaustion and cynicism. In both studies the absolute goodness of fit was acceptable with a root mean square error of approximation (RMSEA) = 0.08. In Schaufeli and Bakker’s analyses the model showed acceptable relative goodness of fit indices, specifically a normed fit index (NFI) = 0.91, NNFI = 0.84, and CFI = 0.91, while in Hakanen, Bakker, and Schaufeli’s analyses the indices approached criterion levels of 0.90 with NFI = 0.88 and CFI = 0.89 in the first group of a split-half sample and NFI = 0.89 and CFI = 0.91 in the second group. When Schaufeli and Bakker tested a re-specified model allowing correlation of error terms among engagement dimensions, the fit in all indices
improved, but only reached acceptable levels for two indices. The descriptive statistics showed weaker correlations between the debated third burnout dimension, professional efficacy, to exhaustion and cynicism, -0.20 and -0.16, and stronger correlations to the engagement dimensions vigour, dedication, and absorption, 0.59, 0.63, and 0.47 respectively (Shaufeli & Bakker). While the combined results show stronger support for the two-factor model than the single-factor model, the weak results indicate further study and perhaps further revision of the model is needed.

Mediation Roles of Engagement and Burnout

Two core processes within the job demands-resources model are considered to be primarily in parallel operation, with some cross-links between them (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). Engagement and burnout are each thought to be central to one of two processes and to have the main effect of mediating the relationships between predictor variables and work outcomes. Job resources and engagement are part of a motivational process while job demands and exhaustion are part of a health impairment/energetic process (Bakker & Demerouti). On the whole, engagement and burnout have different predictors and different work-related outcomes than each other (Bakker & Demerouti; Schaufeli & Bakker) and the energetic process is stronger than the motivational process (Hakanen, Bakker & Schaufeli, 2006).

In the first process, job resources generate motivation leading to high energy and involvement in achieving work-related goals, which in turn predicts positive work outcomes. There are feedback loops from work engagement and work outcomes back to job resources (Bakker & Demerouti, 2007). In the second process chronic job demands such as work overload deplete energy (cognitive, emotional, and physical resources) leading to exhaustion and related health impairment (Bakker & Demerouti).
Hakanen, Bakker, and Schaufeli (2006) reported support for the theory of two parallel processes using structural equation analyses in the previously discussed study involving Finnish teachers. Relative goodness of fit indices approaching acceptable levels for the two-factor model provided weak support that burnout mediates the relationship between demands and the ill health work outcome, and that engagement mediates the relationship between resources and the organizational commitment work outcome. However, a model with direct paths from the predictor variables to the job outcomes without the mediation of burnout or engagement, and another partial mediation model that included the direct paths as well as mediation paths, each generated a slightly worse fit of the data compared to the original two-factor model. The better fit of the two-factor structure over the one-factor structure, and the better fit of the mediation models compared to the non-mediation model suggested that further exploration of the two-process theory is warranted.

Schaufeli and Bakker (2004) also found marginal support for the dual processes in the model. Using structural equation modeling, they compared a re-specified model that allowed correlation of error terms of vigour and absorption, and dedication and absorption, to a re-specified model with direct paths from resources to intention to quit, and from job demands to ill health. The fit of the former model to the data was significantly better when compared to the latter direct path model. In addition, parameter estimates of the direct effects demonstrated a substantial relationship for only one of the seven added paths. Taken together, the results indicated some support for the mediation roles of engagement and burnout in the job demands-resources model.

*Cross-links between the Two Core Processes*

The job demands-resources model posited that in addition to the main effects within each process, cross-links exist between the motivational process and the energetic process
(Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). In their study of four occupational groups Schaufeli and Bakker found that the cross-linked relationships were weaker than the relationships within the parallel processes.

Job resources are mainly positively related to engagement in the motivational process (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007), but Lee and Ashforth (1996) reported them as also negatively related to burnout in their meta-analysis as did Schaufeli and Enzmann (1998) in their overview of burnout. Schaufeli and Bakker (2004) reported resources were weakly negatively related to burnout compared with the relationships of resources to engagement or demands to burnout. They also reported positive relationships between burnout and turnover intentions, an outcome they used to measure the motivational process. Similarly, while the primary role of job demands is in the energetic process where they predict job burnout, demands also plays a secondary role mediating the relationship between resources and work engagement in the motivational process (Bakker & Leiter, 2010).

Schaufeli and Bakker (2004) found that resources and demands were negatively related, but only two of four samples had significant associations for the -.08 to -.38 range. Their mixed findings straddled two opposing views. On one hand, earlier job demands-resources theory posited unique roles for resources and demands for predicting each burnout dimension (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and for initiating independent processes (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001). On the other hand, Karasek's (1979) demand-control model posited interaction effects between demands and job control when predicting mental strain.

The assertion that individual demands and resources have the potential to interact with one another in unique ways, moderating the main effects of the two core processes
(Bakker & Demerouti, 2007; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007) expanded the earlier model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Bakker, Hakanen, Demerouti, and Xanthopoulou studied the interaction effects of six job resources and one job demand (pupil misbehaviour) in relation to three dimensions of work engagement. They reported a good fit of all interaction models to the data collected from 805 Norwegian teachers using moderated structural equation modeling. While the Goodness of Fit Index used does not have critical values available (Schaufeli & Bakker, 2004), the report of .97 seems strong. In all, 14 out of 18 interaction terms had a significant and unique effect on engagement. A comparison of models with and without paths from the latent interaction variables to the dimensions of engagement further supported interaction effects; the former model demonstrated a significantly better fit.

The job demands-resources model proffers that when job demands are high the effect of job resources within the motivational process is particularly important (Bakker & Demerouti, 2007; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Bakker, Hakanen, Demerouti, and Xanthopoulou showed the direction of interaction effects on graphs by using slope analyses to plot the relationship between job resources and work engagement within high and low student misbehaviour subgroups. The relationships between job resources and work engagement were stronger when pupil misbehaviour was high, and unrelated or weaker when pupil misbehaviour was low.

Using cross-sectional data from 1,012 employees of a post secondary science institute, Bakker, Demerouti and Euwema (2005) used hierarchical regression analyses to test interaction effects after controlling for main effects for all possible combinations of low and high demands and low and high resources. They reported that 18 out of 32 possible interaction terms explained a significant amount of variance in exhaustion and burnout.
When demands were high and resources were low the levels of exhaustion and cynicism were high. In contrast, job demands had a weaker or no relationship with the two dimensions of burnout when job resources were available. Taken together, the findings support the assertion that resources buffer the effects of job demands on burnout and have a stronger effect on engagement in the context of high demands.

Based on research in the last decade, Bakker and Demerouti (2007) asserted that combinations of resources and demands are not simply additive in nature, but interact to offset one another. They predicted four general interaction effects for demands and resources on the motivation and stress processes. The first two predictions involved combinations of opposite levels of resources and demands. First, high resources combined with low demands predict high motivation and low stress, or high levels of engagement. Second, low resources and high demands predict low motivation and high strain or high levels of burnout. The next two predictions involved twin levels of resources and demands. In the third prediction, low resources and low demands result in average (not low) motivation and low strain as demands buffer resources. Fourth, high resources and high demands predict high motivation and average (not high) strain as resources buffer the effects of demands.

Overall, the findings relating to interaction effects suggested that resources and demands both need to be considered when examining either of the two psychological processes. It was not sufficient for my study to consider only the relationship between resources and engagement because some evidence suggested demands and burnout might be related to engagement through interaction effects between the energetic and motivational processes.

Although results of model-testing were not strong, they showed some support for the main effects of the two processes, and for the operation of interaction effects between the
processes. Support for a motivational process in which job resources predicted engagement and for interaction effects in which resources offset high demands (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007) were particularly relevant for my study of factors that were associated with engagement in teachers. Indications that resources play a primary role while demands play a secondary role predicting engagement confirm the need to examine both categories of job characteristics. In addition to engagement, the primary focus of this study, burnout was explored because of its negative relationship with engagement and because of the possible interaction effects between processes.

Earlier Research Relating to Resources, Demands, and Stress

Research into the theory and research that predates the leading models of engagement show how the recent models build on previous research. This section of the literature review reports the earlier research in chronological order. It draws attention to the consistencies among the theories.

Consideration of earlier research relating to resources, demands, and stress shows that the mediation model and the job demands-resources model have integrated the prior research into their current theories. As the research progressed it underscored the important roles of resources, demands, and coping in relation to stress. More complex models that dealt with processes followed the initial simpler models that involved a limited number of demands or resources. Common to all of the models was the principle that resources are used to offset demands, and that the relative effectiveness of the use of resources or of adjustments to demands determines the level of stress an individual will experience. The complex models advanced earlier models by exploring the mechanisms involved in the processes that influence outcomes of resource-demand relationships.
Karasek (1979) developed the demand-control model of mental job strain in the milieu of early burnout research as a stress-management model. The study of job demands, represented by work pressures and work overload, and job control, viewed as a resource, within a single study, uniquely contributed to understanding job strain. A national random sample of 1: 1,000 male Swedish workers with a return rate of 85 percent provided longitudinal data. An American cross-sectional stratified random-sample obtained data from 950 men. The study aimed to investigate the interaction effects of job demands and job control in relation to mental job strain. Job control referred to decision-making latitude, described as an opportunity to exercise intellectual responsibility, use skills, and make decisions about work activities. Regression analysis showed moderate support for an interaction effect and significant regression terms for demands and controls: As demands increased and control decreased, psychological strain (depression and exhaustion) increased. As control increased and demands decreased, symptoms of strain decreased.

The Demand-Control-Support Model

The demand–control–support model (Johnson & Hall, 1988) expanded the demand-control model (Karasek, 1979). Johnson and Hall investigated cardiovascular disease and social support in the context of the earlier model. A random sample of 13,779 Swedish male and female workers generated cross-sectional data. Their study aimed to determine whether the combination of lack of social support and job strain (high job demands and low work control) increased the prevalence of cardiovascular disease. Using a low demand–high control–high work support reference group, they found that the cardiovascular disease prevalence ratios for the high demand–low control group increased as social support decreased. The model did not predict the highest prevalence ratio found in the high demand–
high control–low support group. Johnson and Hall suggested that social support is needed to realize the modifying effect of high work control on high demands in the work demand–cardiovascular disease relationship, but called for further study to test the relationship. An examination of the statistical interaction of the three job characteristics showed that the observed combined risk was fifty percent greater than the expected additive risk.

*The Conservation of Resources Model*

The conservation of resources theory (Hobfoll, 1989) asserted that people strive to obtain and maintain resources. Moreover, Hobfoll purported that avoidance of resource loss is of primary importance. When attempts to gain resources fail, resources are threatened, or resources are diminished, people experience psychological stress. Conversely, well-being is experienced when resources are gained or protected. In the conservation of resources theory, resources are material objects, personal characteristics, social status roles, or energy (time, money, information) that either facilitate the acquisition of further resources or that an individual deems to have value. Hobfoll (2002) placed greater emphasis on material and status resources and their interaction with personal and social resources. In an overview of resource theories Hobfoll (2002) reported that, compared to people with limited resources, those with abundant resources are less likely encounter, better able to deal with, and less negatively psychologically affected by stressful circumstances. They also tend to experience a spiral gain, to regard themselves positively, and others are also apt to regard them positively. Finally, Hobfoll (2002) maintained that resource strength tends to be a lasting situation.

*The Model of Compensatory Control*

The model of compensatory control (Hockey, 1993, 1997) sought to explain the cognitive processes by which employees respond to work demands. In this model,
compensatory control referred to cognitive effort-based strategies that employees use to meet high job demands. Hockey posited that in the face of high demands workers engage in performance protection strategies. In particular, in the course of striving to achieve work-related goals, employees protect their performance by adjusting their cognitive effort. The model contended further that use of high-level regulatory control influences task effectiveness and personal well-being due to the increased cognitive effort required to maintain performance. While primary task performance may be preserved, such protection comes at behavioural, psychological, and physiological costs, and indirect performance degradation was posited to occur. An alternative goal-protection strategy in the regulatory-control path is to adjust goals or strategies to reduce effort or costs. The adjustment may involve assigning lower priority to the goal, downward revision of the goal, or using lower-cost cognitive processes; such adjustments may result in reduced task effectiveness. Hockey (1997) noted that a persistent failure to resolve high demands through increased effort or goal adjustment could result in a chronic state of unresolved stress. Finally, Hockey (1997) suggested that individual differences might influence the choice of control strategy.

Sauer, Hockey, and Wastell (2000) conducted a study to observe the operation of performance protection strategies as theorized in Hockey’s (1993; 1997) model of compensatory control. They randomly assigned seventeen university students, with three or more years of study in sciences relating to the experimental task, to one of two types of training and tested their performance at four levels of problems encountered in task execution. Results demonstrated that participants under stress maintained primary task performance but not secondary tasks performance, suggesting that they redirected resources in favour of the primary task. In addition, participant adapted their information sampling and
changed their problem-solving to use lower-cost cognitive strategies. Sauer, Hockey, and Wastell claimed support for the predictions of the model of compensatory control.

The Transactional Model of Stress

Lazarus and Folkman's (1984) transactional model of stress, is concerned with two cognitive processes, appraisal and coping, that take place when people encounter stress. They posited that stress occurs when an individual appraises the person–environment relationship as demanding or exceeding personal resources and threatening to his or her well-being. As in other models, the relationship between resources and demands is central to the experience of stress. Lazarus and Folkman posited that psychological vulnerability to stress occurs when a lack of resources has the potential to negatively affect matters of personal importance.

Lazarus and Folkman (1984) regarded cognitive appraisal as an ongoing process involving three types of appraisal and focusing on the detection of problems, the selection of solutions, and the revision of appraisals. They asserted resources, demands, as well as other environmental and individual factors precede and influence the appraisal process, which, in turn, influence the choice of coping strategies.

Lazarus and Folkman (1984) identified personal and environmental resources that have a strong influence on the assessment of options. Personal resources included health and energy, positive beliefs, problem-solving skills, and social skills. Environmental resources included social support and material resources. Lazarus and Folkman also identified personal and environmental constraints that inhibit the use of resources. Examples of personal constraints were internal values and beliefs, psychological deficits, and fear of failure. Examples of environmental constraints were competing demands and general environmental responses that work against coping efforts. The consideration of organizational
(environmental) and personal resources, as well as constraints in both areas, offered a comprehensive spectrum of factors that potentially influence the experience of stress and account for individual differences in effective coping.

Summary

Karasek's (1979) demand-control model established the relationships between the resource of job control and the job demands of overload and work pressure in relation to job strain. Previous research had studied each job characteristics separately in relation to job strain (Karasek). Johnson and Hall's (1988) demand–control–support model added a second resource, support, to the earlier model and introduced the theory that multiple resources could generate an interaction effect. Hockey's (1993, 1997) model of compensatory control introduced the concepts of motivational goals and cognitive coping strategies to the theories relating to job resources and demands. Hockey's model went beyond the observations of resource-demand relationships in earlier models when it attempted to explain mechanisms underlying the observations. Whereas Hockey more narrowly considered the cognitive mechanisms of goal-oriented performance protection, Hobfoll's (2002) conservation of resources theory took into account the cognitive and behavioural mechanisms of personal and environmental resource acquisition and protection.

The transactional model of stress (Lazarus & Folkman, 1984) placed resources and demands in a cognitive appraisal process, wherein individuals assess them in the context of the person–environment relationship. Lazarus and Folkman posited that a perception that demands exceed resources results in stress and further appraisal of resources in order to select resource allocation (coping) strategies to manage stress. They also included an individual's attribution of significance to an event as an influential variable in the process of cognitive appraisal, a concept similar to the area of values in the mediation model.
In a review of resource models, Hobfoll (2002) stated that the transactional model of stress (Lazarus & Folkman, 1984) and the conservation of resources model (Hobfoll) tend to support each other but differ in their focus. He contended further that the research community also tends to integrate the two models rather than see them as incompatible. Hobfoll did not include Hockey's (1993, 1997) model of compensatory control. However, Hockey (1997) drew a parallel between his model's *action monitor*, which detects an increase in effort, with the primary appraisal in the transactional model. He also considered increased effort to protect goals to be consistent with the transactional model's use of resources in the application of coping strategies. In addition, according to Lazarus and Folkman's theory, reappraisal could occur throughout this process. The parallels described support the compatibility of Hockey's model with those of Hobfoll and of Lazarus and Folkman.

Over time, theories and research relating to resources, demands, and burnout broadened to include coping constructs. Heuristic interest in the problems associated with stress and strain brought attention to individual and environmental responses. The work of Lazarus and Folkman (1984), Hockey (1993, 1997), Hobfoll (2002) illustrate the connections between factors influencing strain and coping. The next section of this literature review will consider the study of coping strategies.

**Coping Strategies**

Much of the theory and research on coping with stress (Carver & Scheier, 1998; Griffith, Steptoe, & Cropley, 1999; Lee & Ashforth, 1996) is predicated on Lazarus and Folkman's (1984) transactional model of stress, which conceptualized it as a complex process of identifying and responding to stressors. Coping is an individual characteristic with cognitive, emotional, and behavioural aspects. This section of the literature review presents
three theories, each with a different orientation to the coping process. It also reviews research related to coping theories and teacher coping.

_Coping Theories_

_Lazarus and Folkman_

As indicated previously, the transactional model of stress (Lazarus & Folkman, 1984) proposed that individuals appraise the resources-demands relationship and, if stress is perceived, select a coping strategy. Cognitive appraisal referred to the process of evaluating person–environment relationships with a focus on meaning and significance. Lazarus and Folkman (1984) asserted that three types of appraisal occur. _Primary appraisal_ determines whether there is a threat or benefit in a given context. An appraisal results in stress when harm or loss is realized, threat is anticipated, or challenge is perceived. _Secondary appraisal_ attempts to determine whether a coping strategy will be effective and to predict the effects of using a particular strategy. _Reappraisal_ is a change to an appraisal based on new information.

Lazarus and Folkman (1984) purported that _person factors_ and _situation factors_ influence cognitive appraisal. _Commitment_, a person factor, is what is important to people and influences cognitive appraisal by motivating people to go into or away from situations. A second person factor, _beliefs about personal control_, relates to an individual’s perceived ability to control the environment or to control personal responses to the environment. Lazarus and Folkman theorized that three situation factors influence cognitive appraisal: new experiences that require inferences to be made or hold uncertainty, the imminence and expected duration of an event, and the ambiguity inherent in an event.

Lazarus and Folkman (1984) purported that in addition to person and situation factors, personal and environmental resources precede and influence coping, and thereby mediate stress. They also theorized that personal and environmental constraints could
negatively influence the use of resources. Further, cognitive appraisal determines the selection and use of coping strategies.

According to the transactional model of stress (Lazarus & Folkman, 1984), coping is the process of dealing with stressful person–environment relationships. *Problem-focused coping* is to be expected when the appraisal determines changing the environment is possible. It can be aimed at the environment as in problem-solving strategies or can be directed inward, as in problem-focused cognitive reappraisals such as changing goals or learning new skills. *Emotion-focused coping* is likely when the appraisal concludes that change in the environment is not likely, that is, the individual lacks control over the problematic aspect to the situation. It can take such forms as changing the perceived meaning of the situation; selective attention or avoidance; and behavioural strategies such as exercising, venting, seeking support, or using drugs or alcohol. Hockey (1993) interpreted problem-focused coping strategies as involving increased effort in order to maintain task goals, and emotion-focused coping strategies as involving the maintenance of a stable emotional state.

*Carver and Scheier*

Carver and Scheier (1998) considered stress and coping in the context of the self-regulatory process. Working in the field of personality-social psychology, they proposed a systems model of self-regulation of behaviour wherein *self-regulation* referred to the process of guiding one’s behaviour. Carver and Scheier assumed that people are motivated to achieve goals or standards, and that those goals are hierarchically-structured. The model theorized that as an individual assesses perceptions of the environment in the context of self, a comparison is made between the situation and goals, and the individual subsequently responds. The model is centred on short-term feedback processes that continually relay information about the consequences of the behavioural response for self-regulation in the
form of further cognitive processing and decision-making. The course of behaviour only changes when the comparison between new information and goals determines there is a discrepancy between them.

Carver and Scheier (1998) viewed the stress experience as the result of perceiving interference with goal attainment, and coping as the response to the perception of stress, operating within a larger self-regulatory process. They asserted that the main function of problem-solving coping is to facilitate goal attainment while the main function of emotion-focused coping is to counteract distress. In contrast with Lazarus and Folkman (1984) who regarded avoidance coping as a type of emotion-focused coping, Carver and Scheier distinguished it from emotion-focused coping and asserted that it is designed to limit attention given to stressors, similar to disengagement in the self-regulatory process.

Carver and Scheier (1998) referred to problem- and emotion-focused coping as active or passive coping respectively, and suggested either one can be an effective choice, depending on the circumstance. For example, accepting difficult situations over which you have insufficient control may call for passive coping strategies, and expending energy in troublesome situations that can be remedied may be effective problem solving. Carver and Scheier asserted that ceasing to put effort into goals that are unattainable or create too much distress for oneself can be an adaptive or essential behaviour in some circumstances.

The self-regulation of behaviour model (Carver & Scheier, 1998) is mainly compatible with the transactional model of stress (Lazarus & Folkman, 1984) and parallels it in a four ways. First, both models envisioned a continuous process of appraisal, response, and reappraisal. Second, the models asserted that the personal significance of a goal influences appraisal and perception of stress. Third, they placed coping in the context of person-environment relationships. The self-regulation model of behaviour focused on personality-
social influences on goal hierarchy, while the transactional model of stress focused on person and situation factors that influence appraisal. Fourth, they deemed neither of the coping styles inherently positive or negative, rather the situation determines their adaptive value. The difference between the models is that Carver and Scheier focused in greater depth on the hierarchy of goals and feedback from behaviour, while Lazarus and Folkman limited their focus to the stress experience and explicitly considered the role of resources and demands.

Hockey

In Hockey's (1997) cognitive-energetic model of individual response to stress and high workload, individuals protect their performance by using energy resources to complete tasks. His model pertains to cognitive coping in the short-term context of task execution, whereas other models consider cognitive, behavioural, and emotional coping in a long term (Carver & Scheier, 1998) or an ongoing (Lazarus & Folkman, 1984) context. Primary protection of goals through the use of increased effort, the downward revision of goals, and using lower-cost strategies are consistent with problem-focused coping in Lazarus and Folkman's (1984) transactional model of stress.

His model of compensatory control placed the selection of coping strategies under the control of the individual. Nevertheless, Hockey proffered that many workplaces with high performance demands encourage direct coping, or high effort-high strain coping, and that its chronic use without a recovery period could incur psychological costs, including sustained sympathetic activity and affective signs of strain. He postulated that the use of passive coping following periods of demand and prolonged use of direct coping could be associated with seeking a balance between long term demand and well being. He also reasoned that factors such as timing and duration of demands and coping strategies, adjustments to goals, and energy levels might predict changes in coping modes. Hockey called for research
investigating the restorative nature of passive coping following the sustained use of active coping strategies.

*Coping Research*

Study of coping in the workplace offers insight into the relationship between this individual characteristic and resources, demands, engagement and organizational outcomes. This section of the literature review begins with studies relating to the types of coping used to deal with workplace stress. Similarities and differences between the studies are identified and results of individual studies are reported.

Leiter (1991) aimed to determine the relationships between and among coping, resources, demands, burnout, and organizational commitment. Workers in a Canadian psychiatric hospital (N=177) provided cross-sectional data in questionnaires. *Control coping* and *escapist coping* referred respectively to Lazarus and Folkman’s (1984) problem-focused coping and emotion-focused coping. Correlation analysis confirmed that control coping was negatively associated with burnout, while escapist coping was positively associated with burnout. The results were significant for two of the three dimensions of burnout: emotional exhaustion and depersonalization were significantly related to coping strategies, whereas the negative relationship for diminished personal accomplishment was not significant. In addition, control coping was positively associated with resources, and escapist coping was positively associated with demands. Structural analyses of a revised model reflecting the above findings resulted in an improved fit of the model to the data. Leiter concluded that his study supported the theory that burnout is a function of resources, demands, and coping strategy, and further, individual coping requires collegial support. He noted his findings contradicted Lazarus and Folkman’s theory that emotion-focused coping may be adaptive in situations in which an individual lacks control.
Lee and Ashforth (1996) examined research related to control coping as part of a meta-analysis of the correlates of the three dimensions of burnout. They corrected correlations between variables classified as resources, demands, and outcomes and the three dimensions of burnout. Control coping referred to problem-solving coping and was classified as a behavioural outcome of burnout. Lee and Ashforth reported that control coping was weakly negatively associated with exhaustion and depersonalization and suggested the results may have been due to an under-use of the strategy or to the cessation of its use due to ineffectiveness. They also suggested the positive association of control coping with personal accomplishment could be due to mutual reinforcement. They speculated that the use of one type of coping or the other might depend on the levels of exhaustion and personal accomplishment.

Griffith, Steptoe, and Cropley (1999) conducted a cross-sectional study of 704 British primary and secondary school teachers who provided self-reported data. The study aimed to investigate the associations between teacher stress, social support, and psychological coping. Teachers rated the degree of stress they experienced on four subscales: pupil misbehaviour, work pressure, interpersonal relations and resources, and professional recognition. They also rated the frequency of their use of coping responses. Factor analyses of coping strategy items yielded four factors they labeled seeking support, active planning, disengagement, and suppression of competing behaviour. Stepwise multiple regression indicated that cognitive and behavioural disengagement coping, consistent with avoidance coping, predicted teacher stress. The three other coping strategies, that could be considered problem-focused coping strategies, were not negatively associated with teacher stress, were positively related with each other, and were negatively related to disengagement coping. Further analyses using hierarchical multiple regression on modified stress scores that controlled for negative affect
and demographic factors indicated that psychological coping accounted for 1.4% of the variance in teacher stress. Although the result was significant, psychological coping accounted for the least variance of all the factors considered; Griffith, Steptoe, and Cropley suggested that the more important role of this factor is moderating the influence of teacher stress on well-being.

A final regression model showed that disengagement and giving up extra-work activities predicted teacher stress. Griffith, Steptoe, and Cropley (1999) concluded that the two disengagement coping strategies could be maladaptive, and that coping affects the perception of teacher stress at an earlier stage in appraisal than former researchers previously thought.

In a meta-analysis of 65 international studies relating to teacher stress, Montgomery and Rupp (2005) considered the relationship between teacher stress and coping. The meta-analysis aimed to summarize the literature on teacher stress from 1998 through 2003, to estimate average correlational effect sizes for paths in a theoretical-empirical model of construct relationships of teacher stress, and to guide future research. They based their conceptualization of coping primarily on Lazarus and Folkman’s (1984) transactional model of stress and coping (Montgomery & Rupp). However, their classification of coping strategies differed from that of Lazarus and Folkman. Montgomery and Rupp classified coping strategies as active, directly engaged with seeking a solution to the stress, or passive, not seeking a resolution. They divided the former class into cognitive, behavioural, and emotional strategies and did not subdivide passive strategies. Active coping encompassed Lazarus and Folkman’s problem- and some emotion-focused strategies, while passive coping referred only to avoidant emotional strategies (Lazarus & Folkman) such as resignation, use of drugs and alcohol, and wishful thinking. They asserted that once stress is appraised a
person could either use active coping to attempt to alter the problem or passive coping to regulate his or her emotional response to the stress.

The average correlational effect size for active coping and burnout was moderate with a Pearson product-moment value of 0.27 and confidence interval of 95%; an effect size of 0.21 for environmental structure variables such as class size and grade level followed. Passive coping had low average correlational effect sizes with all variables, the highest effect size being a Pearson product-moment value of 0.13 and confidence interval of 95% for background characteristics. Montgomery and Rupp (2005) suggested that active coping moderately predicts burnout.

Montgomery and Rupp (2005) claimed some support for the theory that active coping strategies mediate emotional responses. They concluded further that passive coping is an ineffective strategy for dealing with teacher stress.

McCarthy, Lambert, O'Donnell, and Melendres (2009) conducted a cross-sectional study of 451 elementary teachers in 13 American schools within one geographic region. Teachers completed survey instruments measuring classroom resources and demands, stress, and coping. In part, the study aimed to determine whether specific individual factors associated with burnout. In particular, they examined the perception of levels of resources and demands, preventive coping, and years of teaching experience. Preventive coping referred to personal stress-prevention resources that are used to avoid or prevent stress before it occurs. McCarthy, Lambert, O'Donnell, and Melendres' conceptualization of coping differs from other research in that most other coping research coping refers to efforts to manage demands that exceed resources and deals with responding to stress as it is experienced (Hockey, 1993, 1997; Lazarus & Folkman, 1984) or subsequently managed (Carver & Scheier, 1998; Lazarus & Folkman, 1984; Lee & Ashforth, 1996). However, their
positioning of coping is consistent with Griffith, Steptoe, and Cropley’s (1999) speculation that coping could affect the perception of teacher stress at an earlier stage in the appraisal process than researchers usually acknowledged.

McCarthy, Lambert, O’Donnell, and Melendres (2009) operationalized preventive coping as a composite construct consisting of perceived control or feeling able to handle stress, maintaining perspective, social resourcefulness, self-acceptance, and scanning the environment in order to anticipate and divert problems. Preventive coping has strong similarities to the resources and factors that Lazarus and Folkman purported to influence the perception of stress. For example, perceived control reflects locus of control beliefs, a person factor in Lazarus and Folkman’s (1984) model. Maintaining perspective, self-acceptance, and scanning align with personal resources (Lazarus & Folkman). In addition, social resourcefulness resembles the environmental factor of social support (Lazarus & Folkman).

Hierarchical linear modeling showed that preventive coping was significantly and negatively associated with the three dimensions of burnout. It was a stronger predictor of depersonalization (cynicism) than classroom demands or classroom stress, which also significantly and negatively associated with depersonalization. Based on their findings of greater variance in burnout between teachers than between schools and their findings that teacher perception of the balance between resources and demands predicted burnout, McCarthy, Lambert, O’Donnell, and Melendres (2009) claimed support for Lazarus and Folkman’s (1984) theory that perceptions of an unfavourable resources-demands imbalance predict the stress experience. They also concluded that teacher perception of resources and demands as well as coping resources contribute to burnout.
Summary

Theorists and researchers varied in their orientation to coping. Lazarus and Folkman (1984) classified coping strategies according to perceived degree of control over the environment, while Carver and Scheier (1998) classified coping strategies according to functions of goal pursuit or stress reduction, and Hockey (1997) grouped according to levels of energy used.

The research reviewed supported weak to moderate relationships, whether negative or positive, between coping strategies and burnout (Leiter, 1991; McCarthy, Lambert, O'Donnell, & Melendres, 2009) and between coping strategies and the perception of stress (Griffith, Steptoe, and Cropley, 1999; Montgomery & Rupp, 2005).

While Carver and Scheier’s (1998) theory of self-regulation of behaviour related to positive psychological outcomes, coping theory and research was largely concerned with burnout. Therefore, we can only make inferences about associations between coping and work engagement.

Specific Resources and Demands

A survey of literature relating to work engagement and teaching identified numerous job resources and job demands shown or purported to have significant relationships with engagement and burnout. This section of my literature review begins with a discussion of the role of specific resources and demands studied in the context of the two main models of engagement. Next, it introduces studies of teacher stress that provide insight into the resources and demands important to teachers. This section closes with references to specific job resources and demands found in additional theories and research.

Leiter and Maslach’s (2004) longitudinal study and Leiter and Maslach’s (2009) cross-sectional study of the mediation model, outlined earlier in this literature review, found
support for the importance of the five areas of worklife that can be construed as resources, and the single demand, workload. Structural equation modeling supported a number of relationships. In terms of resources, values congruency was an important predictor of engagement and burnout, and control had strong pathways to three areas of worklife that in turn predicted engagement and burnout. Fairness was a significant determinant of the direction of change in well-being when a mixture of engagement and burnout dimensions evolved into consistency of all three dimensions. Reward predicted engagement and adding direct paths from reward to fairness and cynicism improved the mediation model in the cross-sectional study. Community influenced change to consistency of engagement in the longitudinal study. In terms of demands, workload consistently predicted the three dimensions of burnout in the lag model.

Demerouti, Bakker, Nachreiner, and Schaufeli (2001) studied relationships between variables within the job demands-resources model. They used observer ratings and cross-sectional survey data from 374 employees working in three occupations in northern Germany. Analyses of the self-report data showed significant correlations between individual resources (performance feedback, rewards, job control, participation in decision making, job security, supervisor support) and the two dimensions of burnout studied ranging from .23 through .46, and between demands (physical workload, time pressure, demanding clients, unfavourable shift-work, physical environment), ranging from .20 through .53, and the two burnout dimensions. One resource and one demand had non-significant correlations. Observer-rating data yielded significant correlations between the burnout dimensions and the demands in 9 out of 10 correlations, and the resources in 9 out of 12 correlations. Demerouti, Bakker, Nachreiner, and Schaufeli analyzed the data using structural equation modeling. They found a negative and highly significant coefficient for the path from job resources to
the disengagement dimension of burnout, and a positive and highly significant coefficient path from job demands to exhaustion.

In a study investigating two parallel processes in the job demands-resources model, Hakanen, Bakker, and Schaufeli (2006) conducted a survey of 2,038 teachers in Finland. Analysis of the cross-sectional data from the split-half random sample found weak significant correlations ranging from .16 through .27, and .14 through .29 between resources (job control, supervisory support, information, social climate, innovative climate) and vigour, dedication, and organizational commitment. Further, the resources had negative and weak significant correlations with exhaustion and cynicism ranging from -.12 through -.36, and -.14 through -.32 respectively, for the first and second halves of the sample. The job demands (pupil misbehaviour, workload, physical work environment) had one moderate and five mainly weak significant correlations with exhaustion and cynicism, ranging from .24 through .44 in the first half of the sample, and mainly moderate correlations ranging from .26 through .44 in the second half of the sample. Finally, the demands had weak significant correlations with vigour, dedication, and organizational commitment ranging from -.14 through -.27 in each half of the sample. They analyzed the data using structural equation modeling and concluded that the resources predicted organizational commitment through engagement, and that the demands predicted ill-health through burnout.

Bakker, Hakanen, Demerouti, and Xanthopoulou (2007), in a cross-sectional survey of 805 teachers in Finland, found that five resources, supervisor support, innovativeness, information, appreciation, and organizational climate, buffered the negative impact of pupil misbehaviour on work engagement. These five resources correspond closely to Maslach and Leiter’s (1997) discussion of the community area of worklife.
Xanthopoulou, Bakker, Demerouti, and Schaufeli (2007) examined the role of resources in the context of the job demands-resources model. They collected cross-sectional survey data from 714 electrical engineering and electronics employees. All correlations of the four job resources, autonomy, social support, supervisory coaching, and opportunities for professional development, with exhaustion and with the three dimensions of engagement were significant. They had weak negative correlations with exhaustion, mainly moderate positive correlations with vigour and dedication, and mainly weak positive correlations with absorption. The .52 correlation of opportunities for professional development with dedication was the strongest. Job demands were significantly correlated, workload .36, emotional demands .41, and organizational change .27, with exhaustion. Results of structural equation modeling analyses showed that job resources were positively and significantly related to work engagement and also partially mediated the relationships between personal resources and engagement. While autonomy was the strongest buffer, social support and opportunities for professional development also buffered of the relationship between job demands and burnout.

In a 2-wave longitudinal study of 201 telecom managers, Schaufeli, Bakker, and van Rhenen (2009) tested predictors of work engagement and burnout. Using structural equation modeling analyses they found that increases in job resources, autonomy, social support, learning and growth opportunities, and performance feedback, predicted later increases in work engagement. Job demands, work overload, emotional demands, and work-home interference, predicted burnout. In terms of descriptive statistics, they found only one significant correlation between the job resources and engagement or burnout at Time 1: performance feedback had a -.18 coefficient with cynicism. At Time 2 the four resources had significant correlation coefficients ranging from .17 through .34 with the engagement
dimensions and from -.24 through -.30 with cynicism. A coefficient of -.23 between social support and exhaustion was set apart from the insignificant correlations of other resources with exhaustion at Time 2. The only significant Time 2 correlations between job demands and other variables were weak positive correlations between emotional demands and work-home interference, exhaustion and cynicism, and 3 out of 4 negative correlations between the same demands and vigour and dedication. Notably, work overload did not have significant correlations with the burnout dimensions.

Theorists and researchers of work engagement have asserted that consideration of occupational differences is warranted. Proponents of the job demands-resources model asserted that specific job resources might vary in importance according to occupation (Bakker & Demerouti, 2007; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hakanen, Bakker, & Schaufeli, 2006; Hakanen & Roodt, 2010; Halbesleben, 2010; Schaufeli & Salanova, 2007). Further, Lee and Ashforth (1996) contended that the resources and demands that employees perceive to be most germane for their occupation should be included in stress research. Hobfoll’s (2002) assertion that resources are characteristics that individuals deem to be valuable supported the preceding views. Therefore, I proceed to review literature pertaining to teacher stress. It is important to note that the following research reported on stressors and stress rather than on resources and demands. Lazarus and Folkman (1984) considered stress to be the result of an appraisal that demands exceed resources. In order to use the resources and demands paradigm I suggest ways to view the workplace characteristics in terms of the resource and demand dichotomy.

In Griffith, Steptoe, and Cropley’s (1999) research discussed earlier in this literature review, they studied only one job resource, social support, along with personal coping
resources. They studied these job demands: work pressure (administrative work, pressure from head-teachers and education officers), student misbehaviour, career problems, time pressures, and lack of resources. Teachers rated work pressure and student misbehaviour as the most important sources of teacher stress. Teachers who reported low social support and who reported coping through disengagement, also perceived the greatest stress. However, the correlation coefficients of -.16 between social support and teacher stress, and .17 between coping through disengagement and teacher stress were weak. In addition, a significant coefficient of -.20 showed that social support was negatively associated with negative affect.

Griffith, Steptoe, and Cropley concluded that social support moderated the relationship between demands and well-being and also influenced the appraisal of environmental demands as less demanding. In the job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004) career problems and lack of resources would likely be considered in positive terms as career opportunities and material resources.

The British Columbia Teachers’ Federation (2010) conducted a random sample of 2,502 teachers in the province to examine working and learning conditions in the province’s public schools. Valid responses from 563 teachers provided qualitative and quantitative data. The study identified perceptions of important resources and demands. The average hours of work exceeding a standard workweek and working beyond the in-session school days indicated that time pressure was a significant demand. Perceptions of stress related to meeting the needs of all students constituted work pressure. In particular, teachers raised meeting the needs of students with behaviour challenges, with exceptional needs, and who teachers considered to be at risk of falling behind academically, as weighty stressors. They identified class composition, testing and assessment, class size, government policy, report
cards, paperwork related to special services, and administrative tasks among the ten leading stressors. Orientation to consumer- or collaborative-style professional development, participation in professional learning communities, and interest in being a mentor or mentee signaled the potential for their roles as specific learning and growth resources.

Kyriacou (2001) reviewed research related to teacher stress and coping with the aim to focus further research. His review identified several important demands relating to teacher perception of stress. He concluded that research is needed in the areas of stress relating to educational reforms, excessive demands, coping strategies, and student-teacher interactions.

In a nationwide survey of teachers in the United Kingdom, Travers and Cooper (1996) studied teacher perceptions of stress. They conducted 40 interviews to inform their questionnaire development. From a distribution of 5,000 surveys they received responses from 1,790 randomly selected participants. The study purpose was to identify sources of teacher stress during a time of educational reform and to recommend potential means to alleviate that stress. They identified 10 main sources of teacher stress, eight of which could be relevant to the local context of my study. Four stressors were consistent with demands: pupil-teacher interactions, class size, educational change, and appraisals of teachers. The remaining four stressors can be positively viewed as resources. Specifically, job insecurity, management structure in the school, lack of status and promotion, and ambiguity of the teacher's role, can respectively be framed as job security, participation in decision-making, rewards, and the provision of information.

Carver and Scheier (1998) maintained that people try to give voice to their goals and values in their life experiences. Their assertion is compatible with Maslach and Leiter's (1997) contention that internally held goals and values interface with externally generated goals that are perceived to reflect organizational values. The preceding premise suggests that
values congruency can be classified as a resource because organizational goals and implied values might support existing employee goals and values.

Other theories and research confirm the importance of the specific resources and demands that have been discussed so far. For example, Karasek (1979) and Johnson and Hall (1988) determined that job control was an effective resource for dealing with job demands. Further, Johnson and Hall concluded that social support modifies the effect of high work control on high demands relative to cardiovascular disease. Lee and Ashforth’s (1996) meta-analysis of correlates of burnout found a correlation coefficient of -.32 for social support and exhaustion, while Halbesleben’s (2010) meta-analysis of correlates of engagement found a correlation coefficient of .32 for social support and engagement. The meta-analyses corroborated earlier references to the potential importance of this resource. Additional studies and perspectives supported the relevant role of learning opportunities. Grimmett and D’Amico (2008) asserted the value of collaborative learning for teachers, while Hargreaves (1997) stressed the need for time to learn during educational change. In addition to promoting active learning, Grimmett (1997, 2007) drew attention to the impact of policy changes and restructuring, as well as to the intensification of teaching.

Bakker, Demerouti, and Euwema (2005) distinguished two types of social support, namely the support of colleagues and supervisory support, and found that while they both buffered the effects of workload and unfavourable working conditions, support of colleagues buffered the effects of emotional demands and supervisory support buffered the effects of work-home interference on burnout. Their findings verify those of several studies above that involved one of these two types of support. Bakker, Demerouti, and Euwema also added to the research on workload. They found that the six resources in their study differentially buffered the effects of work overload on exhaustion and cynicism. High levels of work-home
interference, the spill-over of work into home-life, contributed to exhaustion and burnout, but were buffered by autonomy, high-quality relationship with the supervisor, and performance feedback.

Chapter Summary

In this chapter, I reported that there are two main models in work engagement theory and research. The two models shared some theoretical tenets and have some divergent components. Both models had energy and involvement components. They also asserted that a balance between resources and demands was important to engagement. The mediation model regarded engagement and burnout as opposite ends of the same continuum, while the job demands-resources model regarded them as separate constructs.

The mediation model (Leiter & Maslach, 2004) proffered six areas of worklife that are important in the job–person fit between a wide organizational context and a person’s emotions, motivations, and stress responses. The six areas of worklife were workload, control, reward, community, fairness, and values. Cross-sectional and longitudinal studies showed some support for the role of each of the areas of worklife in work engagement using structural equation modeling analyses. Research using the mediation model produced mixed findings. Consistent results with further samples are needed to confirm the initial findings.

The job demands-resources model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Schaufeli & Bakker, 2004) identified two types of job characteristics, resources and demands, purported to predict engagement. The model presented a two-factor paradigm. A motivational process was theorized to involve resources and engagement, while a health impairment/energetic process was asserted to involve demands and burnout. Further, evidence suggested that interaction effects between the two processes needed to be considered. In addition, resources seemed to play an important role
offsetting demands. In the research related to the evolving model, the number of domains in engagement varied. The research showed weak support for the model. Consistent results with a stable model are needed to garner strong support.

Early research relating to resources, demands, and stress laid the foundation for the current models of work engagement. The earlier, simpler models proposed that the combination of resources and demands predicts stress. Karasek's (1979) model focused on control or autonomy, and later Johnson and Hall (1988) studied the role of social support; both models found the respective resources were important for decreasing psychological strain. Hobfoll (1989) broadened the scope of resources and proposed that individuals seek to protect or gain resources, and proposed that individuals with abundant resources experience a spiral of gain. Next, Hockey (1993, 1997) examined the cognitive effort-based strategies used to meet high job demands. Sauer, Hockey, and Wastell (2000) studied and claimed support for Hockey’s theory of performance protection strategies. Lazarus and Folkman (1984) also focused on cognitive processes and put forward a theory involving phases of cognitive appraisals that occur when demands outweigh available resources.

Coping is considered an individual characteristic in contrast with organizational characteristics. Lazarus and Folkman (1984) asserted that individuals engage in primary and secondary appraisals of the demand–resources balance; if they perceive a threat they experience stress and select coping strategies. Lazarus and Folkman classified coping strategies within two broad categories aimed at either problem-solving or emotional regulation. While Carver and Scheier's (1998) model paralleled Lazarus and Folkman’s model, it considered coping within the wider context of self-regulation of behaviour for the purpose of attainment of hierarchically-set goals. In contrast, Hockey (1997) examined short-
term problem-focused workplace coping strategies. He raised questions about the type of strategies used for coping with sustained demands.

Research of workplace coping strategies investigated the relationships between demands, resources, types of coping strategies, and burnout. Leiter (1991) found positive relationships between control coping, engagement, and resources. He also found positive relationships between escapist coping, burnout, and demands. Lee and Ashforth (1996) also considered types of coping in relation to the three dimensions of burnout and found weak results. Studying teachers, Griffith, Steptoe, and Copley (1999) investigated stress, social support, and coping. They concluded that the important role of coping could be buffering the effects of stress on well-being, and that avoidance coping could be maladaptive. Montgomery and Rupp's (2005) meta-analysis used a somewhat different classification of coping strategies and found a moderate average effect size for a small positive correlation between burnout and active coping. McCarthy, Lambert, O'Donnell, and Melendres (2009) applied the concept of preventive coping to their research and found it was negatively associated with burnout. Many of the studies of workplace coping strategies found that passive or avoidant coping were ineffective strategies for coping with stress.

Specific resources and demands that were studied in relation to engagement were identified in this chapter. Leiter and Maslach (2004) found support for the importance of the six areas of worklife in various roles within their mediation model. Researchers investigating the job demands-resources model studied several resources and demands when testing the model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hakanen, Bakker, & Schaufeli, 2006; Schaufeli, Bakker, & van Rhenen, 2009; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). They found that most of the resources and demands had significant relationships with other variables in their studies. While there was overlap for some resources
and demands between studies, some studies had unique variables. In addition, Bakker, Hakanen, Demerouti, and Xanthopoulou (2007) studied resources that closely matched the resources in the mediation model.

A wide variety of resources and demands were found in the teacher stress research. Demands that were identified in more than one study were work pressure, time pressure, and administrative tasks. In addition to the preceding demands, demands specific to teaching that appeared in more than one study were student-teacher interactions (student behaviour), educational reform or change, and class size.

Chapter 1 provided the rationale for this thesis research. It described the importance of studying engagement and identified the central research questions. This chapter detailed the literature related to work engagement and coping with workplace stress. Next, Chapter 3 outlines the research methods and procedures that were followed, and discusses the benefits of the selected methods. Chapter 4 reports the quantitative and qualitative results of this study. Chapter 5 discusses the results of the mixed methods study and offers possible interpretations that are related to the professional literature. Finally, Chapter 6 reports the conclusions of this research and suggests possible directions for further study.
CHAPTER 3: METHODS

Chapter 1 of this thesis provided the rationale for this research and identified the main research hypotheses regarding the relationships among job resources, demands, and engagement, and the further aim to identify the themes in the reported coping strategies. The first chapter also included key definitions used in this study. Chapter 2 provided a review of the extant literature related to work engagement and coping strategies, and demonstrated a clear need for this study. This chapter reports the research design and methods applied in this study. It begins with support for the use of a mixed methods design and a survey method that included a scaled questionnaire and open-ended questions. The chapter discusses the procedures that were followed and the conceptual framework of the survey. Finally, the chapter discusses the treatment of data in preparation for statistical tests and identifies the data analyses that were performed.

Research Design

This section provides the rationale for using a mixed methods research design. It begins with an outline of my study and a definition of mixed methods. It continues with a discussion of the purpose of mixed methods design and the stages of integration of the two methods that I combined.

My mixed methods research used a web-based questionnaire survey with a dominant quantitative component as well as a less-dominant qualitative component in a single study. The collected data were integrated at the interpretation stage of the cross-sectional study. All teachers in the school district were invited to complete the questionnaire after the school district granted permission to use district webmail for contacting teachers.

Tashakorri and Teddlie (1998) referred to the use of a combination of quantitative and qualitative approaches within different phases of the research, where either single or multiple
applications are used within a phase, as *mixed model studies*. They emphasized that such research designs are the product of the *pragmatist paradigm* that values the utility of combining the methods over the exclusive use of either a quantitative or qualitative design. When illustrating the application of mixed methods for case studies, Kitchenham’s (2009) description of mixed methods concurred with that of Tashakkori and Teddlie.

Creswell, Plano Clark, Gutmann, and Hanson (2003) put forward the following as a beginning definition of mixed methods design:

> A *mixed methods study* involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process. (p. 212, original emphasis)

Morse (2003) provided a comparable definition of mixed methods design and argued for combining methods. He posited that the strategies of the less prominent method supplement the major method by providing direction at one or more stages in the study. The survey I used met Creswell, Plano Clark, Gutmann, and Hanson’s definition of mixed methods design as it gave priority to the use of scaled quantitative questions supplemented by open-ended qualitative questions in a single study, the data were concurrently collected, and integration occurred during the analysis and interpretation stages of the study. It also fit Morse’s definition in that the qualitative data were used to broaden the data collected in the core quantitative survey. Finally, my design was consistent with Tashakorri and Teddlie’s conception of a mixed model because it used dual approaches within the design, data collection, analysis, and interpretation phases of the research process.

*Design Purpose*

A mixed methods design is generally thought to provide a more complete picture of the phenomenon under study than either qualitative or quantitative methods solely (Greene,
Caracelli, & Graham, 1989; Kitchenham, 2009; Miller, 1991; Morse, 2003). Kitchenham (2009) explained that mixed methods research yields strong results due to the overlap in methodologies and the combination of inductive and deductive reasoning providing a potentially more complete picture than either methodology alone. Tashakkori and Teddlie (1998) proffered a similar view; they encouraged the use of mixed methods to enhance the internal validity of conclusions.

Using a mixed methods design allowed me to use the qualitative data to provide depth to the quantitative data. Greene, Caracelli, and Graham (1989) referred to this purpose as complementarity because each method measures common as well as different facets of the same phenomenon, producing an enriched understanding of that phenomenon. Consistent with complementarity, my study used a quantitative method to measure perceived levels of job-related resources, demands, and engagement and a qualitative method to raise additional aspects of the same constructs. Rating scale responses were analyzed quantitatively, and the open-ended questions or comments were analyzed qualitatively.

Currall and Towler (2003) urged researchers in management and organizational research to use a dominant/less-dominant design rather than the purely quantitative design previously favoured. One purpose they cited for using mixed methods was to validate nascent theory; they argued that the dominant quantitative method serves to confirm empirical findings, while the less-dominant qualitative method offers the opportunity to discover new aspects of the phenomena under study. I compared my findings to the evolving work engagement theory and research Leiter and Maslach (2000) and Demerouti, Bakker, Nachreiner, and Schaufeli (2001) initiated, with the aim to discover new aspects of work engagement that are particular to the population studied.
In keeping with Greene, Caracelli, and Graham's (1989) recommendations for complimentarity research design, the two methods were similar in form (survey) and paradigm (based on engagement theory). In addition, they were concurrently implemented and interactive in that the comments related to the scaled responses. Finally, one method, the quantitative method, was predominant in a single study.

Integration of Data

In an analysis of empirical mixed methods studies, Greene, Caracelli, and Graham (1989) found that researchers in 18 studies integrated the data at the interpretation stage using qualitative data to explain quantitative findings and support conclusions. Similarly, Miller (1991) identified combined survey and case study as a type of research design that has the central characteristic of using the qualitative data to expand upon the correlations found in the analysis of the survey data. His typography is consistent with Greene, Caracelli, and Graham’s complementarity purpose, but more precisely specifies the use of survey data and case study methods.

My research closely fit the central characteristic of Miller’s (1991) combined survey and case study; while the case-study portion of my survey was more limited than he described, it was used to expand upon the correlation analysis. Greene, Caracelli, and Graham’s (1989), Miller’s, and Tashakkori and Teddlie’s (1998) research designs discussed above support my integration of data at the interpretation stage.

Research Methods

My proposed mixed methods research used the survey method and limited case study method. The survey asked for teachers’ subjective perceptions of their job demands and resources. The combined qualitative and quantitative data provided a limited picture of teachers’ appraisals of their workplace. In keeping with Lazarus and Folkman’s (1984) model
of appraisal and coping, learning how teachers perceive their work environment gave the needed context for examining the coping skills applied to that context. For example, use of coping strategies varied according to the perceived balance of resources and demands. Finally, my research determined whether there were statistically significant correlations among work engagement, perceived manageability of workplace demands, and perceived availability of workplace resources in this population.

Survey Method

I used a quantitative descriptive cross-sectional survey method Miller (1991) described for the dominant method of my study. Consistent with his description, a Likert-type scale was used to identify levels of teacher engagement and burnout and perceptions of job demands and resources. In addition, I sent an e-mail message to the total population of teachers in the school district and invited them to participate in the web-based survey. Finally, I analyzed the collected data to investigate the statistical correlations among and between variables. Sample questions for the job resources scale were "I have adequate support for students with behavioural needs," "I have good personal relationships at work," and "I have ongoing involvement with a specific professional development focus." Sample questions for the job demands scale were "I can keep up with new initiatives," "I have enough time to get things done," and "I can adequately meet the needs of my students."

I also used a scaled survey as my dominant method because it is the method teacher engagement researchers (for example, O'Donnell, Lambert, & McCarthy, 2008; Peiro, Gonzalez-Roma, Tordera, & Manas, 2001; Salanova, Bakker, & Llorens, 2006; Schaufeli & Bakker, 2004; Schaufeli, Bakker, van Rhenen, 2009) most commonly use. Using a scaled survey in my research helped me to compare and contrast my findings to those in the extant literature.
The less-dominant method was a limited form of a qualitative case study of persons. Miller (1991) characterized a case study of persons as a thorough cross-sectional analysis of a phenomenon that looks for common traits among the participants. I consider my case study as limited because the open-ended comments that were embedded in the quantitative survey were a less intensive form of case study than other forms such as diary studies, interviews, and focus groups. In addition to measuring levels of teacher engagement and burnout, and perceptions of job demands and resources in the dominant method, I posed qualitative open-ended questions in order to determine whether respondents' comments supported either existing research or my own interpretation of the quantitative data I obtained. For example, I asked respondents to comment further on job demands and resources and on actions that would increase their level of engagement. Coping strategies were explored using open-ended questions rather than a Likert-type scale. I posed questions such as "When you are faced with mandatory new initiatives or activities what are your thoughts? What strategies do you use to cope?"

The Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996), was used to measure work engagement and burnout. It used a 7-point frequency scale ranging from 0 (Never) to 6 (Every day) using items such as "I feel depressed at work," "In my opinion I am good at my job," and "I doubt the significance of my work" (Schaufeli, Leiter, Maslach, & Jackson, 1996).

Participants

The participants were primary, intermediate, and secondary public school teachers in a northwestern British Columbia school district that employed approximately 300 teachers. Enrolling, non-enrolling, male, and female teachers were included. All teachers in active service were invited to participate through worksite webmail, memos in mailboxes, and
personal visits to schools with reminder notes. Treatment of participants was in accordance with the University of Northern British Columbia Research Ethics Board guidelines and with the school district’s ethics policies. I received permission from the respective ethics committees.

**Questionnaire**

Questionnaires are one of six major methods of data collection Johnson and Turner (2003) identified. The questionnaire in my research was consistent with their *Type 2* because it was a mixture of open- and closed-ended items on one questionnaire. Johnson and Turner asserted that this mixed data collection method compensates for the individual weaknesses each type of questionnaire would have if solely used and can yield convergent and divergent data about the phenomenon under study. They supported the use of mixed data collection for three reasons: (a) to converge or corroborate findings, (b) to minimize alternative explanations when interpreting the research data, and (c) to reveal the divergent aspects of the phenomenon. In addition, they indicated that intra-method mixing in questionnaires allows researchers to discover views that might have been missed and to offset any presumptions of the researchers. By using a *Type 2* questionnaire, I obtained broader information about teachers’ perceptions than I would have if I used only a scaled questionnaire.

The reliability of the questionnaire was reported in terms of the widely-used Cronbach’s coefficient alpha (DeVellis, 1991). DeVellis explained that Cronbach’s alpha represents the proportion of a scale’s total variance that the latent variable can explain. In my research the variables had separate scales. For each scale I determined Cronbach’s alpha, the inter-item correlations, the correlations between each item and the total scale score, and the value of alpha if an item was deleted (Field, 2009). I used the *Maslach Burnout Inventory* –
General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996) to assess engagement and burnout; its reliability has already been established.

Tashakkori and Teddlie (1998) stressed that constructs or latent variables that cannot be observed directly must be defined in clear terms in order to enhance measurement validity. They contended that differences in results between bodies of research could be related to differing definitions of the same construct. In addition, Miller (1991) asserted that determining clear definitions in advance of initiating research reduces the temptation to selectively use evidence. My use of operational definitions from prior research potentially enhanced the measurement validity of my questionnaire.

I examined the validity of the questionnaire by considering content validity, criterion related-validity, and construct validity (DeVellis, 1991). DeVellis described content validity as the degree to which a set of items represents the latent variable. He advised that researchers must rely on experts to identify items relevant to the latent variable. I relied on the breadth and depth of my literature review to guide my content validity. In addition, the comments teachers made provided some indication of relevant items I missed. Morse (2003) asserted that unsolicited comments in the margins of a questionnaire are the sign that the designer did not ask the right questions. Although I included opportunities for comment primarily to gain a more complete understanding of the constructs under study, the inclusion also allowed enhancement of content validity.

DeVellis (1991) explained that criterion-related validity indicates the strength of the association between an item or scale and the criterion under study, but it does not denote a causal relationship. A correlation coefficient is the usual measure of criterion-related validity.

According to DeVellis (1991), construct validity is an indication of how well a measure reflects the expected operation of the construct it is designed to measure. DeVellis
asserted that finding correlation coefficients between constructs, similar to those proffered in theory, could be used to support the construct validity of a scale. Therefore, finding correlations in my study that are similar to those found in theory related to work engagement supported the construct validity of my questionnaire.

I checked for sampling bias because I relied on volunteer participants in a convenience sample. I compared the distributions of gender, years of experience, and full-time or part-time status represented in my sample to the data available from the Ministry of Education teacher statistics reports for the school district.

The questionnaire questions asked teachers to indicate perceived levels of resources, demands, engagement, and burnout on Likert-type scales and to comment on their use of coping strategies. For example, they were asked about demands and resources related to student behaviour. They were also asked to indicate the personal importance of specific job demands and resources because it could not be assumed that factors of significance in the research literature or selected for the survey would be perceived as important to the teachers in my study (Bogdan & Biklen, 2007).

Advantages and Disadvantages

Rea and Parker (1992) identified a number of advantages to using the survey method. First, it enables researchers to generalize from the sample of participants to the population from which they took the sample. Second, the data can be gathered from all participants in a relatively short period of time and so avoids the differential influences that may occur over time. Third, the data can be quantified and subjected to statistical analyses. Fourth, future research can replicate the questionnaire and draw comparisons over time, population, or location.
In terms of mail-out surveys, Rea and Parker (1992) identified a number of additional advantages that were relevant to my research. First, teachers responded at a convenient time and date, and took as much time as they wanted to respond to questions. Second, the survey provided anonymity that would not be possible if I had used focus groups or interviews. Third, questionnaires reduce interviewer-induced biases by using consistent wording for each participant and removing the influence of tone of voice or non-verbal communication.

Dillman (2000) pointed out that e-mail and internet surveys realize the further advantages of reduced costs associated with paper, postage, and manual data entry. They effectively reduce the costs that would otherwise increase with sample size when using mail-out, telephone, and interview techniques. Dillman explained further that web surveys allow for more interaction capabilities (pop-ups and drop-downs) than e-mail surveys, ensure skip patterns are followed precisely, and ensure respondents do not answer an incorrect number of responses. Couper (2008) explained that e-mail surveys are infrequently used for technical and security reasons. He made the distinction between internet surveys that can be executed either on the respondents computer, such as an e-mail or downloadable document, or executed on a website. A final advantage to using a web survey is that I reached all teachers in the school district via workplace webmail within minutes and I easily followed up with a reminder when nearing the end of the response period.

Dillman (2000) raised some disadvantages to using web surveys. First, he noted computer access and capability issues that were not relevant to my research as all district teachers had access to a workplace computer and a district e-mail account. Compatibility issues between the technological sophistication of the web survey and of personal computers were overcome through simplicity of design. I used online survey software to create the type of surveys that have been accessed in the district without compatibility issues. Second,
Dillman pointed out that computer literacy is needed to receive the survey link in e-mail and to respond to the survey. I was aware of teachers who were not yet fluent with the district webmail. However, because administrators were increasingly using district webmail to communicate with staff and it became the mode for sending teachers their payroll information, I expected the numbers to be low. Related technology concerns were that using the district webmail and computers was relatively slow and may have discouraged participation. I suggested forwarding the link to a home computer, and many teachers did so. In addition, teachers were in a phase of job action that precluded reading correspondence from administrators and so email accounts may not have been checked as frequently. I sent a memo with the printed link and drew attention to the webmail link to teachers through union staff representatives at the outset, delivered memos to staffrooms and mailboxes in schools later on, and extended the closing date by two weeks to allow ample time and opportunity to respond. In addition, individuals may not have liked unsolicited mail and therefore deleted the e-mail.

Rea and Parker (1992) identified disadvantages of using a mail-out survey: I noted the disadvantages that could apply to web surveys. First, questionnaires have lower response rates than other methods and may require additional efforts or strategies for obtaining a sufficient sample size. Second, self-selection, or the respondent choosing to participate, introduces sampling bias. Third, there is no opportunity for respondents or the surveyor to ask clarifying questions of each other, as there would be in an interview or focus group.

Framework of Constructs

The two main models of engagement agree that the net effect of resources and demands is to predict levels of engagement and burnout. The job demands-resources model proposed two main effects whereby resources predict engagement and demands predict
burnout, although interactions between the two processes may buffer the main effects (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). In contrast, the mediation model asserted that the sum or combination of demands and resources predicts engagement or burnout (Leiter & Maslach, 2010). I categorized the job characteristics under study as either resources or demands, as in the job demands-resources model, because research indicates that resources may have a unique role for predicting engagement (Bakker & Demerouti; Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker). Further, it was possible that examining resources and demands separately would lead to a better understanding of the role of specific job characteristics in relation to teacher work engagement in the work context under study.

The job demands-resources model’s definitions of resources and demands were used for categorization as they were designed to capture all job characteristics.

Consideration of the personal importance individuals place on resources and demands is supported in theory. First, Lazarus and Folkman (1984) and Carver and Scheier (1998) asserted that the personal significance of goals influences the appraisal and perception of stress. In particular, Lazarus and Folkman maintained that individuals are more vulnerable to stress when a lack of resources is perceived to threaten matters of personal importance. The preceding views are consistent with Hockey’s (1997) contention that tolerance for sustaining higher levels of effort is a function of the personal value of task goals. Finally, Maslach, Schaufeli, and Leiter (2001) allowed for the weighting or importance of each area of worklife, relative to all six areas, to vary according to individuals in the determination of job–person fit. I asked subjects to rate the importance of job characteristics because it could be that the importance attached to specific characteristics somehow alters the strength of the relationships between resources, demands, and engagement.
I used the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996) to measure engagement for two reasons. First, the *Maslach Burnout Inventory – General Survey* was psychometrically tested and has been widely used. Second, Schaufeli, Salanova, Gonzalez-Roma, and Bakker (2002) noted the consistency between its three dimensions, energy, involvement, and professional efficacy, applied in the mediation model and vigour, dedication, and self-efficacy in the job demands-resources model.

Repeated findings (Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002) showed a better fit for a two-dimension model of burnout, exhaustion and cynicism. Using the *Maslach Burnout Inventory – General Survey*, I had the option of excluding the reverse-scored professional efficacy dimension.

**Procedure**

I contacted the school district superintendent and the teachers’ unions to seek permission and support to launch the survey. After receiving school district and university research ethics board approval, I used district webmail and written memos to contact teachers and provided them with a link to the online questionnaire. The e-mail stated a brief description of the research. The introduction to the questionnaire stated the purpose of the research, disclosed potential risks, discussed confidentiality issues, and sought informed consent. Participants completed the questionnaire within a 33-day time frame. A reminder was sent out one week before the survey closed. The questionnaire was hosted on a commercial survey website, Fluid Survey® (2010). The survey data was downloaded to my password-protected personal computer. Data analyses were performed using the Statistical Package for the Social Sciences – version 19 (SPSS 19) and NVivo 9 qualitative software on the university’s server, which was a secure website.
Treatment of Data

Out of 122 surveys that were accessed or started, 91 surveys were completed. I download only completed surveys from the survey web-site to SPSS 19 and to Microsoft Excel 2008. I then deleted all of the Fluid Survey ® (2010) variables that were not needed, such as language, number of saves, completion status, time to complete, and referrers.

Data Transformation

I transformed data in three ways to prepare for analysis. First, I reverse-scored the negatively asked questions for use in the scales. For example, in the student support scale two items were phrased so that strong agreement indicated the availability of that type of student support and the other two items were phrased so that strong agreement indicated a lack of availability of student support. I reverse scored the latter two items so that all items indicated availability of student support. Reverse-scoring was also applied to one item in the rewards scale, two items in the social support scale, two items in the professional development (Pro D) scale, four items in the workload scale, two items in the time pressure scale, and one item in the student behaviour scale.

Second, I created two new variables for elementary and secondary class compositions. I created the new variable, elementary composition, in two stages. Initially, I created four new variables, neither, Bill 33 only, grey area only, and both, because elementary teachers could indicate more than one response for the original question. Then I combined them into a new variable with discrete categories. I also created a new variable, secondary load, in two stages. Initially, I created two new variables, percentage Bill 33 and percentage grey area, that were calculated to determine the proportion of classes in a secondary teachers' assignments meeting the threshold for each condition because they did not teach the same number of classes and an appropriate measure was needed for
comparison. Teachers reported numbers of classes taught and numbers of classes meeting each threshold; simple division yielded the percentages. Next, I used the averaged sum of the two new variables to create secondary load, a variable designed to represent a measure of workload. I deleted data in the original number of classes variable for two teachers who reported more classes meeting the thresholds for the two conditions than the number of classes initially reported. My formula did not assume a weighted difference between the workload associated with grey area students and designated (Bill 33) students.

In the third transformation of data, I inserted system-missing values for the not applicable option for items in the student support scale.

Maslach Burnout Instrument

The Maslach Burnout Instrument was scored according to the scoring guide in the manual (Schaufeli, Leiter, Maslach, & Jackson, 1996). A new variable was computed using the average scores for each subscale, as indicated in the manual. To examine the descriptive statistics, I drew bar graphs and boxplots, and computed the mode, median, range, and skewness for each subscale. The instrument used a 7-point Likert-type scale with anchors 0 = Never and 6 = Everyday to rate frequency of thoughts, feelings, beliefs, and attitudes.

In addition, I computed a new variable for each engagement subscale and categorized low, moderate, and high scores according to the Maslach Burnout Instrument designated levels (Schaufeli, Leiter, Maslach, & Jackson, 1996).

In order to gauge whether I followed procedures accurately, I made comparisons between my results and the data reported in the Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). I compared the reliability coefficients for the subscales, the mean scores, and the correlations between engagement variables.
Sample Representation

I computed frequency charts for the categorical independent variables and compared demographic information to Ministry of Education statistics for the district to assess the representation of my sample.

Nominal and Ordinal Independent Variables

I tested the nominal and ordinal independent variables to determine whether there were significant differences between categories on the outcome variables. In order to select the appropriate tests I considered the types of variable and number of categories. For example, gender had two independent nominal samples, male and female, while years of experience had four independent ordinal categories increasing from under two years to 20 years or more. The dependent variables had interval data, making parametric tests a possibility for between group comparisons.

Variables for the secondary class composition data, percentage grey area, and percentage Bill 33, produced only seven categories due to the limited number of classes taught in one semester. The bar graphs for the variables showed they would not have normal distributions, so I treated them as ordinal categories. The secondary load variable produced 11 values on the frequency chart and histogram. Because the number of teachers for these variables was 28, once divided into categories, numbers were insufficient to warrant further tests.

I computed three tests to determine whether assumptions for parametric tests were met and could therefore be performed for the dependent variables. First, Kolmogorov-Smirnov and Shapiro-Wilk tests of normality were run. The tests showed that for cynicism, all categorical variables had variances for at least one category that were not normally distributed and as such a nonparametric test would be needed for this dependent variable.
This decision concurred with Field’s (2009) advice that for skewed data (cynicism) where the independent group sample sizes are smaller than 30, parametric tests are not indicated.

The normality tests for the percentage grey area variable for secondary class composition had several missing values because all values except the mode had two to five cases. Levene’s test could not be computed. Further use of this variable was abandoned.

With the exception of gender, all variables had at least one category that was not normally distributed for exhaustion in the Kolmogorov-Smirnov and Shapiro-Wilk tests. Therefore, only gender was indicated for parametric tests for exhaustion.

The Kolmogorov-Smirnov and Shapiro-Wilk tests showed that categories within years of experience, assignment type, grade level taught, and elementary class composition had normal distributions for efficacy. Therefore they were indicated for parametric tests.

Next, I ran Levene’s test of homogeneity of variance and hand calculated variance ratios (Field, 2009) for the categorical nominal and ordinal variables that were indicated for parametric tests following the tests of normality. A missing value replaced five cases in the grade level variable because of the low numbers \((n = 2, n = 3)\) in the combined intermediate and secondary and combined primary, intermediate, and secondary categories produced a constant that prevented computing the Levene’s statistic.

Levene’s test showed homogeneous results for the demographic variables that were indicated for parametric tests according to the tests of normality. I therefore computed parametric tests for those variables and nonparametric tests for all others.

I used the Kruskal-Wallis nonparametric test when variables did not have normal distributions. For independent variables that did have normal distributions between groups and met the test for homogeneity of variance between groups I used the independent \(t\)-test for the dichotomous variable and one-way ANOVAs for variables with more than two
categories.

I did not use an independent factorial ANOVA or a mixed factorial ANOVA because all of the variables had independent groups, but each variable had the same participants as the other variables.

**Scale Reliability**

I assessed the internal-consistency reliability of the scales developed for the survey instrument using Cronbach’s coefficient alpha. I aimed for alpha greater than .70 (Nunnally & Bernstein, 1994), inter-item correlations greater than .30 (Field, 2009), and greater than .40 corrected item-total correlations (Gliem & Gliem, 2003; Spector, 1992). I also examined frequency data, boxplots, and bar charts to critically consider the distributions of item scores (Nunnally & Bernstein). Because the number of items in the scales was generally low, I removed items only if it would improve alpha appreciably. All resources and demands variables except one used a 7-point Likert-type scale with anchors 1 = *Strongly disagree* and 7 = *Strongly agree*; professional development (Pro-D) used a frequency scale with anchors 1 = *Never* and 6 = *Always*.

The four items in the student support scale were retained with a reliability of alpha = .76 even though a slight improvement was indicated if one item was removed. The item was initially removed, but alpha deteriorated due to the change in N, which resulted from the listwise deletion of the *not applicable* cases. In addition, the scale already had a small number of items; Nunnally (1970) indicated that keeping more items enhances the reliability of the scale. The corrected item-total correlations ranged from .45 to .64 and were therefore greater than the minimum desired .40 (Gliem & Gliem, 2003; Spector, 1992). The inter-item correlations ranged from .31 to .72 and also surpassed the .30 minimum desired. Each of the
items had a significant \( p < .05 \) positively skewed distribution with a median of 2, which was consistent with the reliability statistics.

The 4-item rewards scale had a reliability of alpha = .47 and reliability did not improve sufficiently (alpha = .56) to be used as a scale when reduced to a 2-item scale. In addition, a 2-item scale would have questionable reliability (Gliem & Gliem, 2003; Nunnally & Bernstein, 1994). Nunnally (1970) explained that the risk of unreliability due to sampling error increases with an insufficient number of items. The scale was not used for computing correlations.

The reliability of the 5-item social support scale was alpha = .74 and removal of items would not improve its reliability. The corrected item-total correlations ranged from .42 to .68 and were therefore greater than the minimum desired. The inter-item correlations ranged from four lower than recommended, .21 to .28, to six above the minimum, .37 to .72, but all items were retained for two reasons. First, Nunnally and Bernstein (1994) identified size of alpha and corrected item-total correlations as more critical than inter-item correlations. They also advised that theory should influence item retention. Second, a greater number of items are preferred due to reasons stated earlier.

The reliability test of the professional development (Pro D) scale in the pilot study suggested that the items captured diverse constructs. The pilot sample size was small (completed surveys \( N = 15 \)) so I did not take the results to be conclusive. However, I re-examined the Pro D items and decided the possibility of three constructs was plausible. I therefore tested reliability for three subscales as well as the Pro-D scale as a whole.

Two 2-item subscales were contemplated, but were not expected to be very reliable due to the small number of items (Nunnally, 1970). The Pro D renew practice and the Pro D resources subscales had reliabilities of alpha = .58 and alpha = .32 respectively and therefore
were not used as separate subscales.

The 5-item *depth of focus* subscale was reduced to a 4-item scale with alpha = .76; one of six inter-item correlations was low at .18, the corrected item-total correlations ranged from .43 to .68, and a slight (.01) improvement in alpha could be attained if one more item was deleted. Due to the small scale and weak results, the full scale as piloted was examined.

The Pro D scale using all nine items was reduced to a 5-item scale to improve its reliability. The final reliability of this scale was alpha = .78 and it contained the final items from the Pro D depth of focus scale plus the *new strategies* item. The corrected item-total correlations ranged from .44 to .69 and were therefore acceptable. One of the 10 inter-item correlations was less than the .30 desired level, .18, but it was retained due to the acceptable levels of the corrected item-total correlations and reliability scale statistics. None of the retained items’ distributions were significantly skewed (*p* < .05), four items had a median of 4 and range of 5, and one item, new strategies, had a median of 5 and a range of 3. This scale was used for the professional development variable instead of the depth of focus scale because it included the four items in the latter scale with the addition of the new strategies items, had a higher Cronbach’s alpha reliability coefficient, and had more items.

The initial workload scale was reduced from eight to five items to achieve the reliability of alpha = .81 with inter-item correlations above .30 and all corrected item-total correlations .43 or greater. The item *too many issues* had a significantly (*p* < .05) negatively skewed distribution and an outlier on its boxplot. The item medians ranged from 3 to 5 and all items had a range of 6.

The 4-item time pressure scale, alpha = .67, had weak reliability. One of six inter-item correlations, .07 between *deadlines* and *long hours*, was very low and the corrected item-total correlations, .33 and .32 respectively, were low for the same items. All items were
significantly negatively skewed. If reduced to two items the reliability of this scale would have an alpha = .70, and would have questionable value as a variable.

I combined the initial workload and time pressure scales into one 12-item scale due to the conceptual similarity of the two constructs, the low number of items in the separate scales, and the weak reliability of the time pressure scale. The combined scale was reduced to an 8-item scale with a final reliability of alpha = .86, four inter-item correlations below the preferred level ranging from .19 to .29, 24 inter-item correlations above the preferred level ranging from .30 and .61, and all corrected item-total correlations above the recommended minimum. The deadlines item was retained in spite of low inter-item correlations because it was conceptually closer to the other items than the other eliminated items that seemed to relate to long term and temporally unpredictable processes such as curriculum and policy changes. This decision was consistent with the advice of Nunnally and Bernstein (1994) that conceptual importance should be considered before eliminating items on the basis of the size of inter-item correlations. This larger and more reliable workload scale was used instead of the separate scales.

The 2-item student behaviour scale had a reliability of alpha = .68, inter-item and item-total correlations of .52, and questionable value as a variable because of its low alpha and limited number of items (Nunnally, 1970). I added the student behaviour items to the workload and initial workload scales to confirm their conceptual differences from the two scales: the student behaviour items had low inter-item correlations and corrected item-total correlations. I used this 2-item scale as an exploratory exercise because it is a variable unique to teaching.

The reliability of the 3-item values scale was alpha = .84 and removal of items would not to improve its reliability. The inter-item correlations, greater than .63, and the corrected
item to total correlations, greater than .69, indicated this was a reliable scale. Although the scale had only three items, due to the strong statistics cited above and the limited amount of previous research on the variable, this scale was used with caution.

**Computing Correlations for Independent and Dependent Variables**

For each scale deemed sufficiently reliable to use in further data analyses, I computed a new variable using the summative average of the retained items. I investigated the new variables in two stages in order to determine the type of correlation coefficients that should be computed based on distributions. First, I examined descriptive statistics including the mode, median, range, and skewness for the new variables. I examined visual data including bar graphs, leaf and stem graphs, and boxplots, P-Plot and Q-Plot graphs. For variables suggesting normal distributions I also calculated the mean, standard deviation, kurtosis and histogram plot of the scale scores.

In the second stage, I produced scatterplots to assess linearity and dispersion (Nunnally, 1970; Nunnally & Bernstein, 1994). Nunnally (1970) and Nunnally and Bernstein (1994) reported that scatterplots from normally distributed variables will be linear and their array dispersions will be homoscedastic and have normal distributions, whereas scatterplots from highly skewed variables will exhibit one or more of curvilinearity, non-normal array dispersion, or array dispersion heteroscedasticity.

I computed one-tailed correlations because the resource and demand variables were expected to correlate in a specific direction based on theory and my hypotheses. Based on my assessment of normality of distributions, I selected the type of correlation statistic to run.

I computed correlations using Pearson's $r$ when variables met three criteria. First, visual and statistical data indicated normal distributions. Second, Nunnally and Bernstein (1994) asserted that, for the purposes of determining Pearson’s $r$, ordinal data could be
considered continuous data if the intervals between ranks are essentially equal, and I deemed my variables to meet this criterion. Third, data were monotonic and error was homoscedastic as observed in scatterplots.

For variables with non-parametric distributions I used Spearman’s rho to calculate correlations. This decision was based on Peers’ (1996) assertion that Spearman’s rank order correlation should be used when the variables do not come from normal distributions or when the relationship between two variables is not linear. The data must also be monotonic (Nunnally & Berstein, 1994). Further, Nunnally and Bernstein (1994) explained that Spearman’s rho is an estimate of what Pearson’s $r$ would be if the data were continuous and normally distributed, and that it tends to underestimate the relationship.

*Other Category for Important Resources and Demands Items*

The items identified by respondents in the *other* category for identifying the most important job resources and demands were analyzed. First, I checked to see if the items fit in one of the categories listed. For example, *internet* was a material resource, and *student motivation* belonged under student behaviour. If the teacher had not already indicated the item in an appropriate category it was recoded to an existing category; if the teacher had reiterated or elaborated on a category already selected, the *other* category remained as it was. I then determined whether *other* items were identified in sufficient numbers to create a new category not contemplated when creating the lists of resources and demands. Finally, I kept the remaining items in the *other* category if they were not transferred in the first two steps. Appendix A and Appendix B itemize the *other* resources and demands that teachers identified.
Multiple Regression Models

In order to further explore the relationships between resources and demands, and the engagement dimensions, I analyzed the data using multiple regression. Field (2009) recommended testing theoretical models using a forced enter model; I did so to add to the correlation results. I wanted to see how well the variables in the models fit the sample data and test the contributions of individual predictors to the model. Each engagement dimension (energy, involvement, and professional efficacy) was analyzed in a regression model that included the five independent variables considered to have reliable scales. Field indicated that five is the maximum number of predictors to use in a model for my sample size.

Qualitative Data Analysis

Open-ended comments were gathered to complement the quantitative data collected in the main method. The purpose of asking teachers to comment on job demands, resources, and engagement was to allow them to elaborate upon the items and voice any thoughts they had as a result of completing the respective sections of the survey. I used Nvivo 9 qualitative software to code the written comments.

I created parent nodes for each of four sets of comments collected. For resources and demands sets, I created child nodes for each variable that was quantitatively surveyed. For professional development and engagement, I read the comments and generated themes for nodes because those comments were not preceded with a list of factors that were ranked. For all four original nodes, I then coded comments into the initial nodes, adding new themes as necessary. Next, I combined theme nodes as appropriate. I cross-coded items in the demands and resources parent nodes. For example, when comments in the demands section contained items pertaining to resources they were coded to the latter at the appropriate child node.
Comments with unclear content were not coded at all or were not coded to their multiple themes. For example, a comment on job demands stated, “provincial exams vs reality of teaching my students.” The placement of the comment in the demands section permitted this comment to be coded to workload because it intimated some difficulty that added to workload, but could not be coded further as it did not indicate which aspects of the exams or students, such as preparation time, covering course content, student behaviour, or student ability were important to the respondent.

Respondents were asked about their thoughts and coping strategies in four job demand situations. It was not possible to quantify this data because individual respondents identified multiple coping strategies and the combinations of strategies varied greatly. In order to explore possible differences in manner of coping between teachers who reported high or low engagement I created parent nodes for the cases in the two groups, and omitted those who reported moderate levels of engagement. I created child nodes for the types of coping strategies and further themes as needed.

Chapter Summary

This thesis research used a mixed methods design that combined quantitative and qualitative approaches in a dominant and less-dominant design. The use of mixed methods research has been supported by many researchers (Greene, Caracelli, & Graham, 1989; Kitchenham, 2009; Miller, 1991; Morse, 2003; Tashakkori and Teddlie, 1988) because it offers complementarity through integration at various stages from design through analyses.

The survey method used in this research had a dominant questionnaire component and a less-dominant open-ended questions component. The framework of the constructs, resources, demands, engagement, and coping strategies, was based on previous theory and research in the field of work engagement. I described the treatment of data to facilitate the
critique of procedures used. The reliability of the survey instrument determined whether or not the data collected was used in the subsequent analyses. In addition, the use of quantitative tests depended on the research hypotheses and data characteristics. Finally, the qualitative comments were coded according to quantitative variables, extant theory, and emergent themes as appropriate.

Chapter 1 offered the rationale for conducting this thesis research. It explained the importance of studying engagement in a northwest school district. The literature review in Chapter 2 demonstrated the relevance of investigating the relationships between and among workplace resources, demands, engagement, and coping strategies, as set in the central research questions. It reported the theory and research that preceded the current study. This chapter provided rationale for the survey method and mixed methods design of this study. It also described the procedures that were followed. Chapter 4 reports the results of the data analyses, while Chapter 5 presents a detailed analysis of those results. Chapter 6 states conclusions and offers direction for future study.
CHAPTER 4: RESULTS

Chapter 1 provided the rationale for studying the central questions in this thesis, specifically, to identify the relationships between workplace characteristics and work engagement and to determine which resources and demands had the strongest relationships with engagement. A further question sought to ascertain the coping strategies used by teachers in the district. Chapter 2 reviewed the literature related to work engagement and coping strategies and established the need to expand upon the previous research. Chapter 3 delineated the research design and methods that were used in this thesis research. It also identified the steps taken in the treatment of data and data analyses.

This chapter reports the results of the quantitative and qualitative data analyses. It begins with a discussion of sampling methods used in this study by comparing this sample to the school district population and to normative data. This chapter then reports the levels of engagement, the distribution of the three engagement variables, and provides graphical representation to illustrate the data. It continues with reports of data for engagement levels within the demographic, categorical, and dependent variables, the latter are classified as either resources or demands. The reliabilities of the scales used in the instrument are reported, as are the correlations of each dependent variable with the engagement variables. The findings of multiple regression models for each of the engagement variables are presented. The perceived relative importance of workplace resources and demands is also reported. The final section of the chapter is a report of the qualitative analysis of resources, demands, engagement, and coping strategies. The engagement constructs were coded into emergent themes. The coping strategies contained self-reported typical responses when faced with particular demands. The coping data were analyzed in two ways, first according to type of thought processes and coping, and then as emergent themes.
Sampling Method

To obtain the sample for this study, I invited all teachers in the district to complete the web-based survey. The invitation was extended via worksite webmail and included a webmail link. In follow-up, staff representatives placed notices in staffroom mailboxes, further reminders were sent by email, and reminder notices were delivered to staffrooms. Completed surveys were used for data analyses and incomplete surveys were not used. To assess the effectiveness of my sampling methods, I compared the scale reliability coefficients, sample means, and correlations coefficients for the engagement subscales of my data to subscale results reported in the normative research for the instrument I used. I also compared frequencies for demographic variables in my study to data available for the school district.

For the first measure of the effectiveness, I compared reliability coefficients for the engagement subscales in my sample to those reported in the Maslach Burnout Inventory manual (Maslach, Jackson, & Leiter, 1996). I used the General Survey, which is a reworded version of the Human Services Survey; references to personal contact with clients in the latter version were replaced with references to one’s relationship with work in the General Survey. Since the manual reported reliability for the Human Services Survey, I could not make a direct comparison. The reliability coefficients for my sample were close to those of the Human Services Survey, which in turn could be expected to be similar to those of the General Survey because the instruments share the same items and three-factor structure. My results were sufficiently similar to suggest I followed procedures accurately.

Next, the sample means for the engagement variables in this study were compared to Canadian sample means provided in the Maslach Burnout Inventory manual (Maslach, Jackson, & Leiter, 1996), both of which used the General Survey version of the instrument.
The Canadian employee groups used, as my research did, the General Survey version and included military, clerical, technologist, nursing, management, and psychiatric worker personnel, but not teachers, so differences might be expected (Maslach, Jackson, & Leiter). My exhaustion sample mean \( (M = 3.34, SD = 1.49) \) was slightly higher than the Canadian sample range (from \( M = 2.05, SD = 1.23 \) for military workers to \( M = 2.98, SD = 1.38 \) for nurses; Maslach, Jackson, & Leiter, 1996). My efficacy sample mean \( (M = 4.67, SD = 0.88) \) was at the high end of the Canadian samples range (from \( M = 4.29, SD = 1.01 \) for psychiatric workers to \( M = 4.73, SD = 0.88 \) for management; Maslach, Jackson, & Leiter, 1996).

Samples means for cynicism could not be directly compared because the cynicism variable in this study had a significant positive skew. The Canadian samples had normal distributions and large sample sizes \( (N = 147 \) to \( N = 1,257; \text{Maslach, Jackson, & Leiter, 1996}) \). Given the mean is close to the median in a normal distribution, if the means were similar to the medians in the Canadian samples, then my sample median \( (1.80) \) would fall within the range for the former samples (from \( M = 1.32, SD = 1.06 \) for management to \( M = 1.92, SD = 1.35 \) for clerical workers; Maslach, Jackson, & Leiter, 1996).

In my sample, exhaustion was positively correlated with cynicism \( (r_s = .68, p < .01) \), which was higher than Lee and Ashforth's meta-correlations (1996) and the correlations reported for Canadian workers in the Maslach Burnout Inventory manual (Maslach, Jackson, & Leiter, 1996). Exhaustion was negatively correlated with efficacy \( (r = -.29, p < .01) \), which was within the range of the Canadian workers and similar to Lee and Ashforth's meta-correlations. In addition, cynicism was negatively correlated with efficacy \( (r_s = -.37, p < .01) \), a result slightly smaller than the Canadian workers sample and larger than Lee and Ashforth's meta-correlation.
Finally, I compared gender, employment status, and years of experience data in this study to those of the British Columbia Ministry of Education. This sample was similar to the district population, and is reported more fully in a later section (see Table 2).

Levels of Engagement

This section of the chapter reports the distributions of the engagement variables and the categorization of levels of engagement for the study sample. Levels of engagement for the three dimensions were measured on a seven-point scale with anchors 0 = Never and 6 = Every day. Scores for each dimension were scored according to the Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).

The exhaustion variable had a normal distribution with a mean score of 3.34 (SD = 1.49). The histogram showed a bimodal peak (see Figure 1), but the stem-and-leaf plot (see Figure 2) showed a normal distribution. Other statistical indicators (see Table 1) also showed a normal distribution. The categorization of scores showed that 11 percent of teachers reported low exhaustion levels, which corresponded to high energy on the engagement–burnout continuum. In addition, 29.7 percent of teachers reported moderate energy levels and the remaining 59.3 percent reported low energy.

The cynicism variable had a significant positive skew, $p < .01$, a median of 1.80, and three modes (see Figure 3). The stem and leaf plot (see Figure 4) and tests of normality (see Table 1) showed a positively skewed distribution. Categorization of scores showed that 23.1 percent reported low cynicism levels, which corresponded to high involvement in engagement terms for the engagement–burnout continuum. In addition, 38.5 percent of teachers reported moderate levels of involvement and a further 38.5 percent of teachers reported low involvement levels.
Figure 1. Histogram of exhaustion scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Stem &amp; Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>0.44888</td>
</tr>
<tr>
<td>13.00</td>
<td>1.000446688888</td>
</tr>
<tr>
<td>18.00</td>
<td>2.00022222244466668</td>
</tr>
<tr>
<td>18.00</td>
<td>3.022222244444488</td>
</tr>
<tr>
<td>21.00</td>
<td>4.00000022244466666688</td>
</tr>
<tr>
<td>13.00</td>
<td>5.0002224466688</td>
</tr>
<tr>
<td>3.00</td>
<td>6.000</td>
</tr>
</tbody>
</table>

Figure 2. Stem-and-leaf plot for exhaustion scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). The stem width is 1.00, and each leaf is one case.
Table 1.

Tests of Normality for Engagement Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>K-S</th>
<th>S-W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaustion</td>
<td>.09</td>
<td>.97</td>
</tr>
<tr>
<td>Cynicism</td>
<td>.14**</td>
<td>.94**</td>
</tr>
<tr>
<td>Efficacy</td>
<td>.09</td>
<td>.97</td>
</tr>
</tbody>
</table>


* Lilliefors Significance Correction
**p < .01.

Figure 3. Bar chart of cynicism scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).
<table>
<thead>
<tr>
<th>Frequency</th>
<th>Stem &amp; Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.00</td>
<td>0.0002244444668888</td>
</tr>
<tr>
<td>31.00</td>
<td>1.000222222244466666666888888888</td>
</tr>
<tr>
<td>17.00</td>
<td>2.0022244668888888</td>
</tr>
<tr>
<td>10.00</td>
<td>3.000022468</td>
</tr>
<tr>
<td>10.00</td>
<td>4.0022444448</td>
</tr>
<tr>
<td>4.00</td>
<td>5.0666</td>
</tr>
<tr>
<td>2.00</td>
<td>Extremes (&gt;=5.8)</td>
</tr>
</tbody>
</table>

*Figure 4.* Stem-and-leaf plot for cynicism scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). The stem width is 1.00, and each leaf is one case.

*Figure 5.* Histogram of efficacy scores on the Maslach Burnout Instrument – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996).
The efficacy variable was not significantly skewed, but it had a median of 4.83, a mode of 6.00, and a histogram ($M = 4.67, SD = .88$) as shown in Figure 5 that suggested a negative skew. However, the leaf plot (see Figure 6) and other visual and statistical indicators (see Table 1) showed a normal distribution. Categorization of scores showed that 40.7 percent of teachers reported high efficacy levels. As well, 37.4 percent of teachers reported moderate efficacy levels and the remaining 22.0 percent reported low levels.

Demographic Variables

Data for six demographic variables were gathered for two reasons. First, sample representation could be compared to the total teaching population. Second, demographic information enabled testing for significant differences within categories of each variable.

The sample representation was assessed by comparing the study sample to the district population of teachers with temporary and continuing contracts. The British Columbia Ministry of Education (2012) reported gender, employment status, and years of experience statistics for the district for the same school year as the sample was taken. Sample representation was similar to the district teacher population on variables reported by the Ministry of Education (see Table 2). In the sample population males were slightly under-represented, as were teachers with fewer than five years of experience, while teachers with 20 or more years of experience were slightly over-represented.

The majority of teachers responding to the survey had continuing contracts (89%); the remaining 11% were evenly divided between teachers with temporary contracts and teachers teaching on call. Enrolling teachers formed the largest assignment type (67%), followed by non-enrolling teachers (18.7%), and teachers with combined enrolling and non-enrolling assignments (14.3%). Teacher representation by grade level was 24.2% primary, 20.0% intermediate, 14.4% combined primary and intermediate, 36.7% secondary, and 5.5%
<table>
<thead>
<tr>
<th>Frequency</th>
<th>Stem &amp; Leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>2.3</td>
</tr>
<tr>
<td>1.00</td>
<td>2.8</td>
</tr>
<tr>
<td>6.00</td>
<td>3.000113</td>
</tr>
<tr>
<td>12.00</td>
<td>3.55566888888888</td>
</tr>
<tr>
<td>11.00</td>
<td>4.0000111333</td>
</tr>
<tr>
<td>23.00</td>
<td>4.55555555566666888888888888</td>
</tr>
<tr>
<td>19.00</td>
<td>5.0000011111111333</td>
</tr>
<tr>
<td>7.00</td>
<td>5.556666</td>
</tr>
<tr>
<td>11.00</td>
<td>6.0000000000</td>
</tr>
</tbody>
</table>

Figure 6. Stem-and-leaf plot for efficacy scores on Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). The stem width is 1.00, and each leaf is one case.

combined elementary and secondary. Official statistics were not available for these variables, so comparisons to the sample could not be made to further assess sample representation.

**Engagement Levels Within Demographic Variables**

I tested for significant engagement level differences between categories within the demographic variables. Three different tests were used, depending on the number of categories in the variable, the type of variable, and tests of normality.

In the first test, the independent t-test result for the dichotomous gender variable and the normally distributed exhaustion variable was not significant (t(89) = .79, p > .05) and represented a small effect size (r = .17).

The second test used was the one-way ANOVA. One-way ANOVAs were computed for the efficacy outcome and years of experience, assignment type, and grade level taught
Table 2

**Comparison of Study and District Populations**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study(^a) Population</th>
<th>District(^b) Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>79.1</td>
<td>69.0</td>
</tr>
<tr>
<td>Male</td>
<td>20.9</td>
<td>31.0</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>84.9</td>
<td>82.1</td>
</tr>
<tr>
<td>Part-time</td>
<td>15.1</td>
<td>17.9</td>
</tr>
<tr>
<td><strong>Years of Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 – under 5</td>
<td>7.7</td>
<td>12.4</td>
</tr>
<tr>
<td>5 – under 10</td>
<td>12.1</td>
<td>14.1</td>
</tr>
<tr>
<td>10 – under 20</td>
<td>34.1</td>
<td>36.2</td>
</tr>
<tr>
<td>20 or more</td>
<td>46.2</td>
<td>37.2</td>
</tr>
</tbody>
</table>


\(^aN=91, \text{includes 5 teachers teaching on call}\)

\(^bN=290, \text{includes temporary and permanent contract teachers only}\)

because the predictor variables had normal distributions within groups and met the test for homogeneity of variance between groups. Significant differences in levels of efficacy were not found between categories within variables for years of experience \((F(3, 87) = .24, ns)\), assignment type \((F(2, 88) = 1.56, ns)\), or grade level taught \((F(5, 85) = .57, ns)\).

The third test, the Kruskal-Wallis nonparametric test, was used to investigate differences in levels of the engagement variables between categories within demographic
variables that did not have normal distributions. Tests for full-time equivalency and employment security showed non-significant differences between categories.

**Engagement Levels Within Class Composition Variables**

I collected data for elementary classes and secondary classes and created two class composition variables, *elementary composition* and *secondary load*, with the intent to assess differences in levels of engagement between categories. It was not possible to test engagement differences within secondary load categories due to the low number of teachers in each category of the variables (11 values for 28 teachers).

Class composition data gathered for elementary classes had sufficient sample sizes to carry out tests. The Kruskal-Wallis nonparametric test was used to investigate differences in levels of the exhaustion and cynicism between categories within the elementary class composition variable because the data in the categories did not have normal distributions. The Kruskal-Wallis test did not show differences between types of elementary composition for cynicism \((H(3) = 3.70, ns)\). Elementary composition had differences between categories for exhaustion with mean ranks shown in Table 3. This finding was followed up with three Mann-Whitney tests that compared each threshold category to the *neither* category \((Md = 1.90)\) in which class composition thresholds were not met (see Table 3). It appeared that exhaustion was not significantly different when the Bill 33 and grey area \((Md = 3.50)\) thresholds were both reached, compared to when neither threshold was reached. However, when the grey area only \((Md = 4.00)\) or Bill 33 only \((Md = 5.20)\) thresholds were met exhaustion was significantly higher than when neither threshold was met.

A one-way ANOVA was computed for efficacy and elementary composition because the categories of the latter had normal distributions and met the test for homogeneity of variance between groups. Significant differences in levels of efficacy were not found
Table 3

*Mean Ranks and U Statistics for Type of Elementary Class and Exhaustion*

<table>
<thead>
<tr>
<th>Type of elementary class</th>
<th>N</th>
<th>K-W Mean Rank</th>
<th>U</th>
<th>z score</th>
<th>Effect size r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither</td>
<td>8</td>
<td>11.44</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Grey area only</td>
<td>15</td>
<td>22.97</td>
<td>26.50*</td>
<td>-2.17*</td>
<td>-.45</td>
</tr>
<tr>
<td>Bill 33 only</td>
<td>9</td>
<td>33.22</td>
<td>5.00**</td>
<td>-3.00**</td>
<td>-.73</td>
</tr>
<tr>
<td>Bill 33 and grey area</td>
<td>12</td>
<td>21.25</td>
<td>24.00</td>
<td>-1.86</td>
<td>-.42</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Dash denotes the category that was the base comparison. K-W = Kruskal-Wallis; U = Mann-Whitney statistic. Kruskal Wallis test \( H(3) = 12.37, p < .01 \). A Bonferroni correction was applied: all effect sizes are at a \(.0167 \) level of significance. *\( p < .05 \); **\( p < .01 \).

between categories within elementary class composition \( (F(3, 40) = .65, ns) \). I tested further to determine whether resources might account for the differences between categories of class composition and exhaustion. The Kruskal-Wallis nonparametric test was used to investigate differences in levels of the student support, social support and Pro D between categories within the elementary class composition variable to determine whether there were any differences. The Kruskal-Wallis test did not show differences between types of elementary composition for social support \( (H(3) = 4.92, ns) \) or Pro D \( (H(3) = 6.63, ns) \). However, elementary composition had differences between categories for student support with mean ranks shown in Table 4. This finding was followed up with three Mann-Whitney tests that compared each threshold category to the neither category in which class composition thresholds were not met (see Table 4). Student support increased with class complexity for classes that met one or more thresholds. In contrast, student support was significantly higher than other categories when neither threshold was met. Only one teacher in the neither category commented on student support, therefore the qualitative data provides very little
Table 4

Mean Ranks and U Statistics for Type of Elementary Class and Student Support

<table>
<thead>
<tr>
<th>Type of elementary class</th>
<th>N</th>
<th>Rank</th>
<th>K-W Mean</th>
<th>U</th>
<th>z score</th>
<th>Effect size r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither</td>
<td>8</td>
<td>32.44</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bill 33 and grey area</td>
<td>10</td>
<td>20.25</td>
<td>12.00*</td>
<td>1.20*</td>
<td>-2.50*</td>
<td>-.40</td>
</tr>
<tr>
<td>Bill 33 only</td>
<td>7</td>
<td>15.64</td>
<td>1.50**</td>
<td>1.00**</td>
<td>-3.08**</td>
<td>-.49</td>
</tr>
<tr>
<td>Grey area only</td>
<td>14</td>
<td>14.89</td>
<td>11.00**</td>
<td>1.00**</td>
<td>-3.09**</td>
<td>-.49</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Dash denotes the category that was the base comparison. K-W = Kruskal-Wallis; U = Mann-Whitney statistic. Kruskal Wallis test $H (3) = 13.53, p < .01$. A Bonferroni correction was applied: all effect sizes are at a .0167 level of significance. *p < .05; **p < .01.

added information for that category. The single comment reported that following an incident with a high need student, support was provided. Half of the teachers in the grey area only category commented, saying student support was not adequate for the articulated student needs.

I tested further to investigate whether workload might show differences between categories of class composition. First, Kolmogorov-Smirnov and Shapiro-Wilk tests of normality showed that for workload, the data were normally distributed so a parametric test could be used. Next, Levene's test showed homogeneous results, permitting the use of a parametric test. The third test used was a one-way ANOVA. It was computed for workload outcome and elementary class composition because the variables had normal distributions within groups and met the test for homogeneity of variance between groups. Significant differences in levels of workload were found ($F(3, 40) = 3.29, p < .05, \omega = .43$). A Tukey
post-hoc test showed a significant difference for the contrast between the group that met neither composition threshold and the group that met both thresholds.

I computed frequency distributions for secondary class characteristics. The results for the number of secondary classes taught showed 75 percent of teachers taught three or four classes and 25 percent taught one or two classes out of four possible classes in a semester system. The distribution of the percentage Bill 33 variable had a median of .50, modes of .00, .25, and 1.00, and the bar graph had a rectangular shape with lower frequencies around the median. The distribution of the percentage grey area variable had a median of .71, a mode 1.00, and low frequencies for all values except the mode.

Secondary load may not have been a representative means of indicating workload associated with class composition because it was based on the average of all classes that a teacher taught and did not separate the types and combinations of individual class compositions meeting Bill 33 and Grey Area thresholds as was done for elementary classes. Further, the elementary and secondary classes reported threshold attainment, not actual numbers of students in the respective categories. More detailed data collection is warranted to obtain a more accurate correlation between workload and class composition. A further consideration is that the sample for the secondary teachers ($n = 28$) was smaller than that of elementary teachers ($n = 44$).

Correlations Between Resources, Demands, and Engagement Variables

In this section of this chapter, I report three types of information related to the correlation statistics. First, I identify the types of correlation tests that were used for the individual variables. Next, I report the scale reliability for each variable and describe its distribution. Finally, the correlations between the independent variables and the three work engagement variables are reported.
Type of Correlation Tests

The type of correlation tests used depended on visual and statistical data for variable distributions: Pearson’s $r$ was used for variables with normal distributions and Spearman’s $r_s$ was used for variables with skewed distributions (Peers, 1996). I calculated correlations using Pearson’s $r$ for pairs of social support, Pro D, workload, exhaustion, or efficacy variables, while I used Spearman’s $r_s$ for pairs of variables in which student support, values, student behaviour, or cynicism was one of the pair. I computed the significance of all correlations at the one-tailed level according to my hypotheses that resources would be positively correlated with engagement and demands would be negatively correlated with the same.

Resources and Engagement Variables

The four-item student support scale had a reliability coefficient of alpha = .76, and the variable distribution had a positive skew ($p < .05$) with a median of 2.50 and modes of 1.00 and 2.50. Visual and statistical indicators showed a positively skewed and nonparametric distribution for the variable. Table 5 shows that student support had significant negative correlations with exhaustion (medium) and cynicism (small).

The four-item rewards scale had a reliability coefficient of alpha = .47 and was not used to compute correlations. Two items were significantly negatively skewed with medians of 6.0 (agree) and two items were significantly ($p < .05$) positively skewed with medians of 3.00 (somewhat disagree). In addition, inter-item correlations and corrected item to total correlations were below the minimum desired for a reliable scale.

The five-item social support scale had a reliability coefficient of alpha = .74 and the variable had a statistically normal distribution ($M = 5.26, SD = 0.99$). The histogram showed
Table 5

Correlations Between Resources and Engagement Subscales

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student^a</td>
<td>-</td>
<td>.42**</td>
<td>-.27*</td>
<td>.09</td>
<td>-.38**</td>
<td>-.27*</td>
<td>.08</td>
</tr>
<tr>
<td>Social^b</td>
<td>-</td>
<td>-.06</td>
<td>.18*</td>
<td>-.39**</td>
<td>-.43**</td>
<td>.42**</td>
<td></td>
</tr>
<tr>
<td>Pro D</td>
<td>-</td>
<td>.07</td>
<td>.01</td>
<td>-.18*</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Values</td>
<td>-</td>
<td>-.37**</td>
<td>-.27**</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaustion</td>
<td>-</td>
<td>.68**</td>
<td>-.29**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cynicism</td>
<td>-</td>
<td>-.37**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 91, except for Student support N = 72. Correlations in regular face are calculated with Spearman's $r'$. Correlations in boldface are calculated with Pearson's $r$.

^aStudent support. ^bSocial support.

*p < .05 (one-tailed), **p < .01 (one-tailed).

The five-item Pro D scale had a reliability coefficient of alpha = .78 and the variable had a statistically normal distribution ($M = 4.13$, $SD = 0.90$); while the variable had two modes at 3.60 and 5.00 and the histogram suggested a bimodal distribution, other visual and statistical indicators showed a normal distribution. The scale item distributions were not skewed and had similar modes. One item, new strategies, had a narrow range of 3 and a median of 5 compared to ranges of 5 and medians of 4 for the other items, and had statistically high kurtosis (2.04, $p < .05$). Pro D had a weak significant negative correlation
with cynicism and did not have significant correlations with exhaustion or efficacy as shown in Table 5.

The three-item values scale had a reliability coefficient of alpha = .84, and the variable had a significant positive skew, \( p < .05 \), a median of 2.33, and a mode of 1.00; the nonparametric distribution was confirmed by other visual and statistical indicators. One item had a rectangular distribution with a median and mode of 3, while the other two items were positively skewed \( (p < .01) \) with medians of 2 and modes of 1 and 2. Values had significant negative correlations with exhaustion (medium) and cynicism (small) and did not have a significant correlation with efficacy (see Table 5).

Demands and Engagement Variables

The eight-item workload scale had a reliability coefficient of alpha = .86 and the variable had a statistically normal distribution \( (M = 5.05, SD = 1.04) \) confirmed by visual and statistical indicators. Five scale item distributions were significantly negatively skewed at the \( p < .01 \) level. One, three, and four items had medians of 4, 5, and 6 respectively, reflecting the skew. Bar graphs for three items showed bimodal distributions with medians of 5, 5, and 6, representing a general perception of high workload. Workload had a large significant positive correlation with exhaustion and medium significant correlations with cynicism and efficacy in the expected directions (see Table 6).

The exploratory two-item student behaviour scale had a reliability coefficient of alpha = .68, and the variable had a statistically significant negative skew, \( p < .01 \), with a median of 6.00; other visual and statistical indicators showed a negatively skewed and nonparametric distribution. Although the scale cannot be considered reliable, the correlations were computed to inform future research considerations. The exploratory variable had small
Table 6

**Correlations Between Demands and Engagement Subscales**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Workload</th>
<th>Behaviour*</th>
<th>Exhaustion</th>
<th>Cynicism</th>
<th>Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workload</td>
<td>-</td>
<td>.19*</td>
<td>.57**</td>
<td>.45**</td>
<td>-.38**</td>
</tr>
<tr>
<td>Behaviour*</td>
<td>-</td>
<td>.23*</td>
<td>.24**</td>
<td>-.09</td>
<td>-</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>-</td>
<td>-</td>
<td>.68**</td>
<td>-</td>
<td>-.29**</td>
</tr>
<tr>
<td>Cynicism</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.37**</td>
<td>-</td>
</tr>
<tr>
<td>Efficacy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. Correlations in regular face are calculated with Spearman's $r'$. Correlations in boldface are calculated with Pearson's $r$.

\*Student behaviour: the 2-item scale reliability was $\alpha = .68$; included for exploration purposes only.

*p < .05 (one-tailed), **p < .01 (one-tailed).

significant positive correlations with exhaustion and cynicism, and did not have a significant correlation with efficacy (see Table 6).

**Resources and Demands Variables**

As shown in Table 7, correlations among the resources and demands variables ranged from no correlation to significant medium correlations. Student support had one medium and three small significant correlations with other independent variables. Workload had three medium negative correlations with the resources variables. Two-tailed significance was used because no prior hypotheses were formed.

**Multiple Regression of Engagement Dimension Models**

I analyzed the data using a forced enter multiple regression model to expand on the correlations results reported above. Each engagement dimension was analyzed in a model that included the five independent variables in this study that were considered to have reliable scales. I reported findings for model fit, the individual contributions of the independent variables, strength of the models, and the underlying assumptions of the test.
### Table 7

**Intercorrelations Between Resources and Demands**

<table>
<thead>
<tr>
<th></th>
<th>Student&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Social&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Pro D</th>
<th>Values</th>
<th>Workload</th>
<th>Behaviour&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-</td>
<td>.42**</td>
<td>-.27*</td>
<td>.09</td>
<td>-.36**</td>
<td>-.27*</td>
</tr>
<tr>
<td>Social&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-.06</td>
<td>.17</td>
<td>-.36**</td>
<td>.00</td>
</tr>
<tr>
<td>Pro D</td>
<td>-</td>
<td>-</td>
<td>.07</td>
<td>.17</td>
<td></td>
<td>.08</td>
</tr>
<tr>
<td>Values</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.40**</td>
<td></td>
<td>-.17</td>
</tr>
<tr>
<td>Workload</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>.19</td>
</tr>
<tr>
<td>Behaviour&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

Note. N = 91, except for Student support N = 72. Correlations in regular face are calculated with Spearman’s $\rho$. Correlations in boldface are calculated with Pearson’s $r$.

<sup>a</sup>Student support.  
<sup>b</sup>Social support.  
<sup>c</sup>Student behaviour: the 2-item scale reliability was $\alpha = .68$; included for exploration purposes only.

*p < .05 (two-tailed).  **p < .01 (two-tailed).

In terms of model fit, three statistics were obtained for each model: the explained variance, the Durbin-Watson statistic, and the analysis of variance. The first model accounted for 46.4 percent of the variability of energy ($R^2 = .46$). The second model ($R^2 = .33$), accounted for 32.8 percent of the variability of involvement, while the third model accounted for 31.5 percent ($R^2 = .32$) of the variability of efficacy. The Durbin-Watson statistics for the energy, involvement, and efficacy models were 2.04, 1.98, and 2.37 respectively, indicating the assumptions of independent errors were met. Significant analysis of variance results ($p < .01$) showed that each model improved the fit of the regression line to the data better than using the means as estimates of the outcomes.

The individual contributions of the independent variables to the models are shown in Table 8. In all of the models, social support and workload made statistically significant contributions to predicting the engagement outcomes. In the involvement model, Pro D also
Table 8

Summary of Forced Enter Regression Analyses for Variables Predicting Energy, Involvement, and Efficacy (N=72)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE_B$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>0.66</td>
<td>0.16</td>
<td>.44**</td>
</tr>
<tr>
<td>Social Support</td>
<td>-0.31</td>
<td>0.15</td>
<td>-.22*</td>
</tr>
<tr>
<td>Pro D</td>
<td>-0.14</td>
<td>0.17</td>
<td>-.08</td>
</tr>
<tr>
<td>Values</td>
<td>-0.18</td>
<td>0.11</td>
<td>-.16</td>
</tr>
<tr>
<td>Student Support</td>
<td>-0.16</td>
<td>0.11</td>
<td>-.15</td>
</tr>
<tr>
<td><strong>Involvement model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>0.52</td>
<td>0.19</td>
<td>.32**</td>
</tr>
<tr>
<td>Social Support</td>
<td>-0.40</td>
<td>0.17</td>
<td>.26*</td>
</tr>
<tr>
<td>Pro D</td>
<td>-0.41</td>
<td>0.20</td>
<td>-.22*</td>
</tr>
<tr>
<td>Values</td>
<td>-1.02</td>
<td>0.13</td>
<td>-.08</td>
</tr>
<tr>
<td>Student Support</td>
<td>-0.13</td>
<td>0.13</td>
<td>-.12</td>
</tr>
<tr>
<td><strong>Efficacy model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td>-0.25</td>
<td>0.11</td>
<td>-.28*</td>
</tr>
<tr>
<td>Social Support</td>
<td>0.40</td>
<td>0.10</td>
<td>.46**</td>
</tr>
<tr>
<td>Pro D</td>
<td>0.18</td>
<td>0.11</td>
<td>.17</td>
</tr>
<tr>
<td>Values</td>
<td>-0.01</td>
<td>0.08</td>
<td>-.02</td>
</tr>
<tr>
<td>Student Support</td>
<td>-0.08</td>
<td>0.07</td>
<td>-.14</td>
</tr>
</tbody>
</table>

*Note. $R^2 = .46$ for energy model, $R^2 = .33$ for involvement model, $R^2 = .32$ for efficacy model.
*p < .05. **p < .01.*
made a statistically significant contribution. Workload had a greater degree of importance than social support in the energy model, while the reverse was indicated in the efficacy model. In the involvement model the descending order of importance was workload, social support and Pro D.

The confidence intervals of the significant unstandardized beta values were fairly wide, indicating these were not strong models (Field, 2009). The approximate range for the energy model was .60, involvement .70, and for efficacy .40. However the models were not so poor that the confidence intervals crossed zero.

Finally, the assumptions of the models were assessed using the guidelines set out by Field (2009). In terms of standardized residuals, this appeared to be a fairly accurate model because the number of cases that had standardized residuals less than -2 or greater than +2 was less than five percent, and one case had a -2.68 standardized residual. The histograms for the frequency of the standardized residuals of the outcome variables formed bell curves with slight irregularities, but would not be considered non-normal. The P-P plots of the regression standardized residuals showed slight deficiencies in each of the models. The scatterplots for the energy model indicated that it met the assumptions of homoscedasticity of the residuals. For the involvement model, the scatterplots of the regression standardized residuals and standardized predicted values, and of the studentized residuals and standardized predicted values tended to form a funnel shape that widened across the graph indicating increasing variance across the residuals. Scatterplots of the regression standardized residuals and standardized predicted values, and of the studentized residuals and standardized predicted values for the efficacy model tended to form a funnel shape that narrowed across the graph indicating decreasing variance across the residuals. Possible violations of the assumptions of
homogeneity of variance for the involvement and efficacy models may mean those models
cannot be generalized beyond this sample.

The Relative Importance of Job Resources and Demands

Individual teachers identified the four most important resources (not ranked within
the four choices) for meeting their job demands and stimulating their personal development.
Teachers identified autonomy (63.7 %) as the leading job resource, followed by intrinsic and
extrinsic rewards (53.8 %). Social support from colleagues and material resources (each 46.2
%) were the next leading resources identified. Teachers also identified professional
development (39.6 %) and organizational climate (38.5 %) as high priorities. These
resources followed, in descending order: job security, student support, social climate, and
mentorship.

Teachers identified the four most challenging job demands, starting with workload at
81.3 percent. They identified expectations of self as the next most important demand (57.1
%), followed by student behaviour (49.5 %) and time pressure (48.4 %). Administrative tasks
were named by 31.9 percent of teachers. In the other category six teachers identified student
needs and, although it is not a demand, seven teachers cited a lack of resources.

Qualitative Analyses

Each section of the survey invited teachers to provide comments on the section topic.
Teachers provided comments on job resources, professional development, job demands, and
work engagement. The comments of each section were coded into emergent themes. The
final section of the survey was purely qualitative: it presented four demand situations and
asked about the thoughts and coping strategies that respondents experienced in those
situations. Their responses were coded in two analyses.
Job Resources Themes

Teachers offered comments on several aspects of workplace resources. Comments were classified into student support, rewards, social support, material resources, organizational climate, and job security themes.

A general theme in teachers' comments was that student support was lacking or insufficient. Teachers reported that untenable class compositions were barriers to meeting a variety of student needs. They also contended that there was a lack of sufficient in-class support and help for students with behavioural issues. Teachers stated that students who needed services did not receive them due to delays in having psycho-educational assessments that generate support. With student designations and the required Individual Education Plans in place, students did not necessarily receive allocated hours for a special services assistant. Beyond general statements about insufficient time allocated for special services assistants, teachers identified problems with the academic ability of some assistants for the level of instruction, the added workload of preparing and planning for assistants, and the disruption of assistants coming and going. In terms of specialist teacher support for students, teachers said there was insufficient learning assistance available for students. Comments favoured the new Learner Support model and raised concerns over its implementation without training.

Teachers mentioned a lack of material resources, and spoke of a need for parental support, in particular with student behaviour, advocacy, and supporting their child's learning at home.

More than half of the teachers who commented about rewards said they felt rewarded. Most comments on rewards pertained to intrinsic rewards. Respondents indicated that intrinsic rewards came from a variety of sources: feeling effective as a teacher, teaching an elective of choice, from students, extracurricular activities, the social climate, personal efforts, and recognizing small successes. Comments pertaining to extrinsic rewards mainly
related to a lack of feeling valued by parents, the district, the government, and the public.

Comments about social support related to three sources of support: district administrators, school administrators, and teachers. Teachers stressed the importance of having supportive colleagues. A few respondents specifically mentioned sharing ideas and resources, understanding the teaching experience, and accessing support outside their school. Some teachers reported that colleagues were not supportive, a few citing workload as a barrier for colleagues. Comments regarding principals were fairly evenly divided between reports of supportive and unsupportive school administrators. Teachers mentioned differences between individual principals. While most comments regarding supportive principals indicated general support, examples of specific support were helping with students and acquiring needed resources. Lack of support included poor leadership, negative attitude, lack of skill, and lack of follow-through. Some teachers reported a lack of support from district level administrators, citing communication with teachers, budget decisions, climate, and educational direction as problematic areas.

Comments gave insight into material resources, identified by 46 percent of teachers in the quantitative analyses, as a vital job resource. Teachers reiterated an insufficiency and described a lack of good quality resources for teachers and students. They stated that a lack of resources leads to a negative work climate and time-consuming and labour-intensive preparation.

In general, teachers commented that an improvement in organizational climate was needed. Specific remarks pertained to the support for a specific teaching practice and then subsequently abandoning it, support focused on the classroom, communication and consultation with teachers, and poor union–management cooperation. Teachers reported that autonomy provides a measure of control over pacing and content choice, within the bounds
of the curriculum, in order to deal with feeling overwhelmed or to respond to the interests of students. They spoke of feeling it was impinged upon.

One of two comments on job security, from a teacher with greater than ten years experience, pertained to the lack of assignment stability and its impact on motivation due to the need to continually develop and locate resources for courses new to the teacher.

*Professional Development Themes*

The majority of comments on professional development related to a lack of available opportunities. While teachers expressed that they valued developing as a professional and that they seek out learning opportunities, they also identified a lack of opportunity to do so locally.

Joining a provincial union committee or specialist association were ways of creating opportunity. Secondary teachers and teachers in specialized assignments reported a lack of opportunities resulting from the rural nature of the district. They felt they had particularly limited professional development options. A few teachers reported that insufficient time was provided for professional development. Teachers also raised the need for more funds to provide more opportunities, to develop a depth of knowledge, and to travel to access specialized teaching areas. Some teachers reported a desire to use their funds for, and satisfy professional development requirements with, activities that do not fall on prescribed days.

Teachers accessed professional development through a variety of sources. Some teachers turned to colleagues for professional development opportunities. Those who had a group with which to collaborate felt they benefited from the collaboration. A few teachers identified coordinating time to meet with busy colleagues and lack of interest at the school level as barriers to overcome.
Teachers who were involved in a small group with an out-of-district mentor (Adrienne Gear) found it beneficial. Other teachers expressed wanting to have a master teacher, such as Adrienne Gear, to mentor their practice, and one teacher felt excluded from the opportunity that took place. A few respondents reported they provided teacher leadership. Mentorship was seen as a helpful experience.

Comments reflected a preference for a sustained focus rather than one-day workshops, and the counter-productive effects of having too many focuses. Some teachers reported being overwhelmed by trying to develop in too many curricular areas at once, and a need to have control over the pace of learning and its application. There was a desire for the teachers' union and the district to coordinate planning early in the school year, and the assertion that teachers were left to do much of the work to plan and access on their own.

*Job Demands Themes*

Comments on job demands reflected the most frequently identified demand, workload. Teachers gave examples of various demands. They focused on the resources that were needed to meet demands or elaborated on various types of demands.

Teachers' comments on job demands were coded into four categories. The main category, with 87 coded items, was *workload*. Other aspects of demands were coded to two categories *lack of resources*, and *response to demands*, that had 16 and 13 coded items, respectively.

Teachers reiterated that workload was a challenging demand. They discussed seven types of workload that follow in descending order of coding frequency. First, *Class composition* contained references to overall composition, the number of special needs and grey area students, and the range of student abilities. It also had remarks about multi-grade and primary-intermediate split classes. Teachers related changing material for individuals,
large class size, and behaviour problems related to class composition. Teachers commented that class composition and class over-size were made worse by a lack of provision of special services assistants. They also said there was a lack of resources and support for students.

The second workload demand was time. Teachers explained they felt time pressures from deadlines and did not have enough time. They reported that they spend long hours doing their job, including working extensively on the weekend or long days through the week. Third, personal standards, such as producing work of good quality and being more effective accounted for some demands. Teachers also wrote about wanting to do extra tasks, keep up with trends, and be involved with a specific content area or activity. Next, respondents explained aspects of preparation that contributed to demands. For some secondary teachers, the semester without a preparation block was difficult. Preparation of adapted materials for students, for new methods, or for multiple curricular areas or courses at the same time added to workload.

Fifth, teachers’ comments that cited paperwork and data collection were coded as administrative tasks. Teachers reported that the elimination of such tasks during job action made a perceptible difference. In the sixth category, comments indicated that challenging student behaviour added to workload and, particularly if severe, could be beyond the scope of the classroom teacher. Finally, the distribution of course load, the semester system, and the timetable were identified as important demands.

The two remaining themes were lack of resources and personal responses to demands. The lack of resources category contained comments that largely stated a lack of resources made the job demands worse. In addition, comments spoke of a lack of resources for students. The personal response to demands category related to emotional responses to the perception of demands. Most signaled strain, while doubting ability and concern for
personal life were slightly different. Teachers commented on their responses to job demands using terms such as depressed, breakdown, struggle, and doubt. A few teachers reported a cost to their personal lives. One comment voiced positive emotion.

Engagement Themes

Teachers commented on aspects of their job that would increase their work engagement. Responses were open-ended and were not preceded by a preset list of variables. The prevalent sentiment in the comments was that there were insufficient resources.

Items in this section of the survey were coded mainly as specific resources, while fewer items were coded to demand categories. Comments in the resources categories primarily dealt with increasing resources to increase engagement, but also communicated a perceived lack of resources. Most resources items were coded to seven categories (see Table 9).

The largest category, organizational climate, was divided into four further categories. Teachers’ comments coded to organizational climate related overall to roles, responsibilities, and relationships. Within organizational climate the employer category contained references to district administration, the district Board of Education, and the Ministry of Education. Comments on employer leadership related to the need for improvements to vision and direction, a sustained focus on a given practice, team building, and the ability or efficacy of leaders. In addition, teachers wrote about a lack of congruency between their own values and those of their employer. They felt student needs were neglected and that budgetary goals were given more importance than educational goals. One contrasting comment stood out: a teacher gave credit for the provision of opportunities that benefited teacher and student performance. Some teachers’ comments that were coded in the employer category related to the employer’s valuing teachers. Teachers wanted their concerns, ideas, and opinions to be
sought. They perceived a strong alliance between district administration, the school board, and government. Lack of resolution for teachers’ educational concerns was equated to a lack of value for their contributions. Layoffs were similarly experienced as a lack of value for teachers.
Comments in the *school administrator* category related to support. Teachers cited the importance of school administrator support in general and called for more support in a facilitative role. Teachers also wrote about the importance of school administrator leadership skills, and identified ability, vision, follow-through, and team-building in particular. Finally, teachers said school administrators’ value of teachers was important. They commented on the need for school administrators to draw on teachers’ work and innovation, and to invite input into school planning and their teaching assignments.

A further category within organizational climate was *system decisions*. The range of topics related to decisions made at all management levels of the education system. Comments related to course prerequisites, student ability grouping, an over-emphasis on assessment, the large number of curricular goals, school calendar breaks, and specific curricular areas.

In the final organizational climate category, teachers indicated dissatisfaction with the performance or attitude of colleagues. They cited lack of teamwork and engagement, and lack of union encouragement of the same, as detracting from their own engagement. Teachers expressed that a positive atmosphere and aspects of teamwork would increase engagement.

Six further resources categories amounted to a total of 129 coded items (see Table 9). In descending order of the frequency of comments, teachers indicated student support, time, professional development, rewards, material resources, and funding were important to their engagement.

Student support comments related to sources of support and were coded in three ways. The first group included comments with examples such as in class support, support services, and behaviour support. The second group of comments specifically identified the importance of special services assistant support. The third group of student support
comments conveyed that parents played an important role in supporting their child’s progress and teachers.

Teachers reported on two types of time they thought would improve engagement. Preparation time was emphasized with a few comments citing that time was needed for adaptation of materials and completing paperwork, was needed each day, and needed for a whole day at a time. Time for collaboration, specifically within the week, for discussion, for school wide focus, and professional development were raised.

Professional development items were coded in three ways. Teachers stressed the importance of collaboration and gave examples such as teamwork, discussions, and shadowing teachers in similar positions. They said having quality learning opportunities was important to engagement. Teachers also said funding for professional development was important.

Comments pertaining to rewards were coded as extrinsic and intrinsic rewards. Extrinsic rewards related to being valued, job security and assignment changes, salary, and feedback. Intrinsic rewards related to sources of job satisfaction such as course content and positive student outcomes.

Teachers wrote about material resources, particularly learning resources. In addition, they named resources for particular curriculum areas, technology, and physical space. Finally, two comments related to the employer’s provision of funding.

The remaining teachers’ comments related to the importance of two demands, student behaviour and time pressure. In terms of student behaviour, teachers wrote about student motivation, challenging behaviour, and positive and negative experiences with students’ attitude. Time pressure related to teachers’ concerns about the impact of job demands on work–life balance.
Coping Themes

Teachers reported their thoughts and coping strategies in response to four job demands: work overload, time pressure, mandatory new initiatives or activities, and chronic difficult student behaviour. Responses for teachers with high engagement were compared to responses for teachers with low engagement. Two analyses were performed with the qualitative data. I coded according to appraisal processes and type of coping in the first analysis. In the second analysis, I coded according to emergent themes. For both analyses, I considered the teachers with high and low degrees of engagement, and did not include the teachers with moderate levels of engagement.

To determine the cases at the ends of the engagement–burnout spectrum, teachers deemed to have very high or very low engagement had respectively high and low levels of all three domains of engagement. Similarly determined, teachers deemed to have high or low engagement had high or low levels in two domains of engagement in the expected direction, and moderate levels in the third domain. Teachers with moderate levels in two or three domains of engagement were not included.

Fewer teachers were in the high categories (very high N = 5, high N = 9) than the low categories (low N = 16, very low N = 10). One teacher in the very high category and one teacher in the low category did not respond to the coping questions, which lowered the number of cases studied. The frequency of types of comments was measured in terms of the number of items recorded and the number of teachers making comments. Due to the small number of teachers in each category and the subjectivity involved in coding, the results were not considered to be statistically significant. However, they provided insight into the quantitative data.
Analysis 1

In the first analysis, I coded according to thought processes and coping strategies described by Lazarus and Folkman (1984). Thoughts were coded first, followed by coping strategies. My themes for coding thought responses were based on Lazarus and Folkman’s theory of stress, appraisal, and coping.

Coding thought processes. Lazarus and Folkman (1984) asserted that primary appraisals (“Is there a threat?”) could result in stress when threats to goals or matters of personal importance are found. Further, when faced with stress, people will make secondary appraisals (“Which coping method should I use?”) and select coping strategies.

When I considered primary appraisals of threats to personal and professional goals, I looked for indicators that threat or stress was perceived. The frequency of primary appraisal of personal goals (threats to family or personal well-being) decreased as engagement increased. For example, a teacher with very low engagement wrote “I worry that my family will suffer as I take more time away from them to complete my work.” Thoughts about stress also decreased as engagement increased. All groups were similar in frequency of primary appraisal thoughts of professional goals (threats to student or teacher performance). For example, “How will the behavior or my response to it affect the other student’s (sic) learning?”

Next, I considered secondary appraisal thoughts and coded them into two groups, options and plan of action. The different groups showed similar frequency of secondary appraisal thoughts to consider options. For example, “Why are they behaving this way?” and “What services can I access?” In contrast, thoughts pertaining to plans of action increased in frequency as engagement increased. I coded the thoughts of action according to type of coping contemplated. Thoughts of behaviour-focused problem-solving aimed at self, such as
working harder or reducing demands, increased as engagement increased. Teachers in the high engagement category were the only ones to record emotion-focused cognitive reappraisal thoughts such as positive thinking.

*Coding coping strategies.* In the final step of the first analysis, I coded the reported use of coping strategies according to type of coping. I used Lazarus and Folkman's (1984) categories, with a few examples of coping from other researchers added to the categories. For example, I included Hockey's *increased effort* in behavioural problem-solving aimed at self. The reported use of coping strategies were either stable across levels of engagement or did not show a discernable trend, considering the low number of teachers or comments in some categories. The exception was behaviour-focused problem-solving aimed at self, which included working harder or longer and setting limits; it was reported more frequently in the low engagement group than in the other three groups. There was a difference between the relative frequency of plan of action thoughts about this coping category (behaviour-focused problem-solving aimed at self), and the relative frequency of its reported use; teachers in the high engagement categories thought about it as much as, but tended to report its use less than, teachers in the low categories.

The sum of emotion-focused coping strategies was stable across engagement levels and the sum of problem-focused coping increased somewhat as engagement increased. Coding the strategies showed little difference between teachers in the high and low categories of engagement. However, there seemed to be recurring themes unique to the categories that were not captured by the first analysis, so I ran a further analysis.

*Analysis 2*

In the second analysis of teachers' thoughts and strategies when facing high demands, I coded thoughts and strategies together in emergent themes and compared teachers with very
high, high, low and very low engagement. The strongest difference was that teachers in the two high engagement categories reported focusing on positives more than teachers in the two low engagement categories. As well, they more frequently said they vent about stress, take a break from work, and expressed more easily letting go of demands. For example, a teacher with very high engagement recorded, "... comfortable with knowing I have done my best to meet the deadlines ... Take a step back, look at what we have, use what is usable and ignore the rest until further directives/ training/ materials arrive." Teachers in the high engagement categories also reported seeking support and breaking their tasks into chunks more often than their counterparts. There was a slight difference between groups with teachers in the high engagement categories increasing their hours of work, and participating in activities that promote physical and mental health more. One teacher with high engagement illustrated seeking support, working longer, and maintaining a positive attitude, stating "I frequently come in on the weekends for a few hours. I learn to laugh at myself and the situation. ... we vent and realize we are all in the same situation – and we laugh."

Teachers in the high engagement categories did not report several strategies reported by teachers in the low engagement categories. The greatest difference between the groups was the absence of negative thoughts for teachers with high engagement and frequent negative thoughts reported by teachers with low engagement. Teachers with high engagement did not report avoidance strategies, whereas teachers with low engagement reported tuning out, thinking about leaving the profession, and wishful thinking. A teacher with low engagement provided an example of cutting back, thinking about leaving the profession, and negative thoughts, "My latest strategy is to not do any more extra-curricular ... I am also starting to investigate other careers and education. I miss the fun ... but this has become just a job to me now."
Teachers in the low engagement categories reported reducing tasks by cutting corners or setting limits and engaging in personal activities (such as hobbies) somewhat more. They reported resisting demands as a means of coping. When dealing with chronic difficult student behaviour, teachers with low engagement reported focusing on the student and eliciting parent support.

Teachers in the high and low engagement categories reported some thoughts and strategies to the same extent. The environment-based similarities included being task oriented, reporting a lack in the system, and evaluating demands and getting more information. In addition, there were emotion-based coping similarities in frequency of expressing feelings, regulating stress and emotions, and spending time with family and friends.

The most-frequently coded environment-focused items were task orientation, lack in the system, and seeking support. The most-frequently coded emotion-focused items were expressing feelings and negative thoughts. Out of these six items, the differences between groups were high engagement teachers reporting more support seeking and low engagement teachers frequently reporting negative thoughts.

Chapter Summary

In this chapter I reported that the sampling methods I used were sound. Exact comparisons of my sample to those found in the literature were not possible due to slight differences between my sampling and instrument and those of the available referent data. Male teachers and those with fewer than five years of experience were under-represented, and teachers of long service were slightly over-represented.

Results for levels of engagement showed that a small portion of teachers (11.0%) had high energy and were highly involved with their work (23.1%) and less than half (40.7%) felt
efficacious on the job. Differences in engagement levels were not found within demographic variables. One difference was found in elementary class composition, a demand-related categorical variable. Secondary class compositions could not be tested due to a question design error. Some variables predicted levels of work engagement. Student support, social support, values, and workload predicted energy levels, while all of the independent variables with reliable scales predicted levels of teacher involvement. Social support and workload predicted efficacy levels.

Hypothesis 1 was supported since job resources were positively related to engagement and negatively related to burnout. Hypothesis 2 was also supported as demands were negatively related to engagement and positively related to burnout. Multiple regression models showed weaker results than the correlation data. They indicated a smaller number of variables, mainly social support and workload, predicted engagement levels. Teachers identified resources and demands that were important influences on their work engagement. I did not have quantitative data for four of the six leading resources and for two of four leading demands.

I collected and analyzed two sets of qualitative data. In the first set, comments relating to each section of the survey were coded into emergent themes. Teachers discussed and gave examples of resources, demands, and factors that contributed to their work engagement. The data reflected and expanded upon the quantitative data.

The second set of qualitative data that was coded and analyzed was coping responses to four demand situations. Two qualitative analyses were conducted. The first analysis compared the coping thought processes and strategies of teachers with high and low levels of engagement. The data on thought processes showed some differences between the groups of teachers. Teachers with high engagement did not appear to make primary appraisal of
personal goals, had more frequent thoughts of plans of action, more problem-focused coping, and reported positive thinking in comparison to teachers with low engagement.

In the second analysis of coping responses, the data showed differences in a number of strategies. The greatest differences, based on frequency of reporting, were that teachers with high engagement reported seeking support more, and teachers with low engagement reported negative thoughts.

Chapter 1 of this thesis stated the rationale for conducting this research and defined the research questions as determining relationships between resources, demands, and engagement, and identifying coping strategies. Chapter 2 discussed the extant literature that provided a foundation for, and supported the pursuit of, the research questions. Chapter 3 delineated the mixed methods that were used in the research design and identified the analyses that were used. This chapter reported the results of the qualitative and quantitative data analyses. Chapter 5 discusses the results and interpretations. Chapter 6 of this thesis proffers conclusions and suggests directions for further research.
CHAPTER 5: DISCUSSION

Chapter 1 introduced the main constructs of this research and provided the rationale for studying the relationships among resources, demands, coping, and work engagement. Chapter 2 reviewed the research related to each of the main constructs and identified the need to examine the proposed thesis questions. Chapter 3 outlined the research methods that were used and described the steps taken during data collection and analysis. Chapter 4 reported the results of the quantitative and qualitative data analyses. It stated the outcomes of quantitative tests and coding of themes in the qualitative data. This chapter discusses the combined quantitative and qualitative results, relates findings to previous research, and offers interpretations. The discussion is organized and presented according to the central research questions.

Sampling Methods

In order to gauge the accuracy of my sampling methods, I made two sets of comparisons. First I compared the results of my statistical analyses to those of normative data and then I compared my sample’s characteristics to school district data.

In the first set of comparisons, I compared normative statistics from the Maslach Burnout Inventory manual (Maslach, Jackson, & Leiter, 1996) to the data in this study on measures of subscale reliability coefficients, sample means, and correlations among the engagement subscales. The wide use of the instrument and its established reliability provided a useful benchmark for comparisons. The similarities between the subscale reliability coefficients for my data and the normative data were strong and attest to the reliability of the Maslach Burnout Inventory instrument and my procedural accuracy. Instrument versions could account for the differences between the two sets of reliability coefficients, as the instrument’s normative data were derived using the original Human Services Survey version.
of the instrument (Maslach & Jackson, 1981, 1996), while my data were obtained using the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996).

Compared with the workers in the Canadian normative sample, the teachers in this sample had higher mean exhaustion, and efficacy levels at the higher end of the Canadian sample range. I inferred similar cynicism medians for the compared samples, as the distribution for my sample had a positive skew and therefore prevented a comparison of means. The differences in occupational groups and work settings between the *Maslach Burnout Inventory – General Survey* normative data (Schaufeli, Leiter, Maslach, & Jackson, 1996) and this study could account for the differences in sample means (Maslach, Jackson, & Leiter, 1996). The similarity in measures of central tendency between my sample and those reported in the manual support my procedural accuracy.

In addition, two of three correlations among the engagement variables fell within the range of Lee and Ashforth’s (1996) meta-correlations and the Canadian workers in the *Maslach Burnout Inventory* manual (Schaufeli, Leiter, Maslach, & Jackson, 1996). The third correlation, between exhaustion and cynicism, was slightly higher than the aforementioned groups.

The second set of comparisons was between the characteristics of my sample and those of the British Columbia Ministry of Education (2012) statistics. The comparison showed that male teachers and those with fewer than five years of experience were slightly under-represented in my sample, while teachers with 20 or more years of experience were slightly over-represented. In addition, the ministry statistics did not include casually employed teachers teaching on call, but they were included in my study. Statistically significant differences between categories in the gender, years of experience, and employment status variables were not found, so this study likely has a representative sample.
My comparative results for engagement subscale reliability coefficients, measures of central tendency, correlations among the engagement subscales, and sample representation were sufficiently similar to normative, school district, and meta-analysis data to suggest I followed procedures accurately. The differences were small enough to consider the results of my research to be valuable. While the possibility of sampling error encourages a measure of caution, overall confidence in my sampling methods is warranted.

Levels of Engagement

This section of the chapter addresses the research question that sought to identify the levels of teacher engagement in this northwestern British Columbia school district. The purpose of determining levels was to relate them to the models of engagement and to establish benchmark levels for potential later research. The three domains of engagement, energy, involvement, and efficacy were measured and then scores were categorized using the Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). I will report sample means and categorization of each subscale, report frequencies that were found at the ends of the engagement–burnout continuum, and discuss the results in the context of the two models of engagement and trends in the Canadian and British Columbia workplace.

Levels of the Three Engagement Domains

The sample means and categorization of subscale scores showed differing levels for each domain of engagement. For the first domain, in addition to having lower mean energy than the normative sample, teachers reported predominantly low levels of energy. The categorization of scores according to the instrument showed that 11 percent of teachers had high energy, while 59.3 percent reported low energy (exhaustion). For the second domain, 23.1 percent of teachers reported high levels of involvement and 38.5 percent reported low
involvement. The mean for the third engagement domain, efficacy, was within the normative data range. As well, 37.4 percent of teachers reported high efficacy, compared to 22 percent who reported low efficacy. A final indicator of levels of engagement was the number of teachers with high levels in all three domains of engagement (5), two high and one moderate level (9), one moderate and two low levels (16), and three domains at low levels (10).

Consistent with the sample distributions and categorizations of scores for the study sample, the numbers of teachers scoring high or low across domains indicates overall low engagement levels for my sample. In sum, my findings represent low levels of energy, low to moderate levels of involvement, moderate to high levels of efficacy, and lower numbers of teachers with high engagement than with low engagement.

**Engagement Levels Within the Context of the Two Main Models**

The energy and involvement level results can be viewed in the context of the two main models of engagement. Both models maintained that resources and demands predict engagement. The qualitative and quantitative data from this study, to be discussed later, indicated high demands and low resources. In the mediation model (Leiter & Maslach, 2004, 2010), high demands and low resources would be expressed through the workload area of worklife as high workload, which was also reported in this study. The model asserted that in workplaces with high workload, low energy could lead to reduced involvement. The combination of low levels of energy, low to moderate levels of involvement, and high workload in my sample fit the mediation model theory.

The energy and involvement level results are also consistent with proponents of the job demands-resources model (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004) that viewed exhaustion as part of a health impairment/energetic process related to demands, and energy and involvement as part of a motivational process related to resources. The model
viewed exhaustion and energy as separate constructs, rather than on the same continuum. The reported high demands fit the low energy and the varied levels of resources fit the low to moderate involvement levels found in this study.

The moderate to high efficacy levels are indicative of engagement. The mediation model proffers that efficacy levels are related to attainment of worklife balance (Maslach & Leiter, 2008). According to Leiter and Maslach (2009) exhaustion predicts cynicism, which, in turn, predicts inefficacy. Leiter (1991) found the following variables predicted efficacy: coworkers, supervisors, skill use, and control (problem-focused) coping strategies. Leiter (1993) revised his model of burnout (engagement) by removing a direct path from exhaustion and cynicism to efficacy in favour of paths from factors in the work environment to efficacy.

My results could be explained by Leiter's (1991, 1993) assertions. The strong social support (coworkers, supervisors) that was reported could contribute to counterbalancing the somewhat heavy workload, low energy, and low to moderate involvement when predicting efficacy. Maslach and Leiter (2008) proposed that the relationship between efficacy and the other domains of engagement can be complex and can vary in degree of dependency. While I can only partially explain the levels of efficacy with theory and previous research, I can conclude the efficacy levels seem indicative of engagement according to the mediation model.

Proponents of the job demands-resources model have produced various results and theories in relation to the role of efficacy. Demerouti, Bakker, de Jonge, Janssen, and Schaufeli (2001) and Schaufeli and Bakker (2004) did not include efficacy in their engagement research and instead used absorption. Hakanen, Bakker, and Schaufeli (2006) used only exhaustion and cynicism, while Schaufeli, Salanova, González-Roma and Bakker (2002) found that an engagement model including efficacy and absorption fit best. Research
involving efficacy has evolved without one model enduring. Therefore, I cannot interpret my results in the context of a single established standard.

A further possible explanation for the moderate to high efficacy is that the respondents were influenced by social desirability bias and over-stated their efficacy; this explanation doesn't seem plausible, as energy and involvement did not indicate social bias.

Engagement Levels Within the Canadian Context

The results could reflect intensification in the Canadian workplace (Duxbury & Higgins, 2003) or of teaching in British Columbia (Grimmett, 2007). Duxbury and Higgins reported that workload and work-life conflict increased at the same time as working conditions worsened over a 10-year period. Grimmett (2007) suggested that policy changes in British Columbia had a negative effect on teaching conditions. The main models of work engagement maintain that adequate resources are needed to offset high demands in order to predict high levels of engagement, even though they propose different processes by which it would occur. The high exhaustion in my results would be related to high demands. Further, the low energy and low to moderate involvement levels would be related to an unfavourable imbalance of resources and demands (mediation model) or to low resource levels (job demands-resources model).

Engagement Levels Within the Provincial Context

Grimmett, Dagenais, D'Amico, Jacquet, and Ilieva (2008) offer possible insight into the low energy and moderate to high efficacy of this group of teachers. They reported two discourses for Greater Vancouver teachers for the period of 2002 to 2007, a period following significant policy reforms. The two discourses were termed political and professional, and reportedly seemed to contradict one another. In the political discourse, teachers reported despair regarding workload, lack of resources and recognition, and the direction of policy
changes. In the professional discourse, Greater Vancouver teachers reported satisfaction with aspects of their job within their control such as intrinsic rewards, autonomy, pedagogy, and relationships with colleagues. Grimmett, Dagenais, D’Amico, Jacquet, and Ilieva speculated that through focusing on the positive aspects of the job that were within their control, the teachers may have counter-balanced the perceived negative effects of policy changes. The teachers in my study may have similarly balanced high workload, lack of resources, and low energy with benefits from social support and the intrinsic rewards of teaching. Such a balance could be manifested in moderate to high levels of efficacy. Grimmett, Dagenais, D’Amico, Jacquet, and Ilieva’s study did not determine levels of engagement, so a direct comparison is not possible.

**Engagement Levels Within Demographic Variables**

The demographic variables that were studied were gender, years of teaching experience, grade levels taught, type of assignment (enrolling, non-enrolling), employment security, and full-time equivalency. While some differences in levels of engagement between categories were found, they were not statistically significant. Results indicate that the demographic variables did not predict engagement and support the theory that resources and demands are the critical factors that predict levels of engagement.

**Engagement Levels Within Class Composition Variables**

Two variables, elementary class composition and secondary class composition, were designed to compare levels of engagement according to type of class composition. For elementary class composition, when the *grey area only* or *Bill 33 only* thresholds were met exhaustion was significantly higher than when neither threshold was met. The results for the two nominal categories reflected teachers’ (British Columbia Teachers’ Federation, 2010; Grimmett, 2007; Grimmett & D’Amico, 2008) claims about the intensification of teaching.
However, when both thresholds were met, the higher exhaustion level was not significant, which seems to contradict the premise that workload increases with class composition complexity. This result draws attention to a possible shortcoming of using threshold criteria for categories rather than obtaining an actual headcount. For example, a class meeting the Bill 33 threshold could have eight students with exceptional need designations while a class meeting the Bill 33 and grey area thresholds could have three students with designations and three flagged due to concerns. The assumption that the first class that met one threshold had a less intense workload than the second class that met two thresholds may not be supported. Theoretically, the difference in number and type of threshold met could be expected to result in differing levels of energy if the thresholds are indicators of workload. This premise seems to be confirmed in this study, since perceived workload was significantly higher for classes that met both thresholds when compared to classes that met neither threshold, and the classes that met only one threshold had higher workload, but not statistically significant differences, than the neither category. However, the lower exhaustion when both thresholds were met, compared to when only one threshold was met, raises questions of how to assign weight to the differing compositions and why the workload and exhaustion results differed.

A further explanation for non-significant results for exhaustion for the group meeting both thresholds could be that resources were allocated to the classes with the highest need, and thereby offset the exhaustion levels of the teachers, while classes meeting only one threshold may not have received resources as readily. Engagement theory and research support this possibility in that resources would offset demands. My results support this explanation, since student support increased with class complexity for classes that met one or more thresholds. However, classes that met neither threshold reported the greatest levels of
student support, a finding that contradicts the theory of student support allocation occurring according to need.

Future research might collect data on the type of student need and the exact numbers of students with exceptional needs, and then test for correlations with engagement and for interaction effects between the independent variables. It could also include measures of the supports that teachers indicated were needed and provided, such as student support and social support. Design flaws, namely failing to obtain more detailed data, could contribute to the seemingly incompatible results.

For secondary class composition, the vast majority of secondary classes were deemed to meet the threshold of three or more students needing more than the usual amount of teacher attention (grey area). The distribution of secondary classes meeting the statutory level for Bill 33 meetings, having three or more students designated with exceptional needs and requiring an individual educational plan, showed disparity among teachers. The highest frequencies for percentage of classes meeting the threshold were found at either end of the spectrum, indicating either a high or low percentage of teachers' classes met the criteria. The lowest frequencies fell in the mid-range. For reasons discussed above, more detailed data collection and a larger sample are needed to obtain accurate data about the relationships between class composition, workload, student support, and engagement.

Summary of Engagement Levels

The low levels of energy, low to moderate levels of involvement, moderate to high levels of efficacy, and lower numbers of teachers with high engagement compared to low engagement found in this thesis research are consistent with the two main models of engagement, findings in a health-related study related to the intensification of the Canadian workplace, and a study of Greater Vancouver teachers. A comparison of engagement levels
for the teachers in this study to teachers in other districts in the province would be needed to
determine whether teachers in this northwestern district experience lower levels of energy
and involvement than their counterparts. As will be explained in the final chapter of this
thesis, a longitudinal study is needed to verify the direction of engagement levels.

Relationships Among Key Engagement Constructs

This section of the chapter addresses the central research questions that sought to
determine the relationships among resources, demands, and engagement, and relates the
findings to engagement theory and research. In addition, this section speaks to the research
question that sought to identify the strongest correlations among the key constructs and
interprets the findings. Finally, this section deals with a further research question that sought
to identify teachers’ perceived levels of available resources and demands and discusses them
in the context of engagement theory and research. Descriptive statistics and qualitative data
were combined to create complementary analyses.

Hypotheses 1 and 2

Correlations between each of resources and demands, and engagement addressed two
of the central research questions. The hypotheses were based on the job demands-resources
model’s two-factor parallel processes theory and findings (Hakanen, Bakker, & Schaufeli,
2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002).
The model purported that job resources predict engagement in a motivational process while
job demands predict exhaustion as part of a health impairment/energetic process (Bakker &
Demerouti, 2007).

Hypothesis 1 expected that job resources would be positively related to work
engagement and negatively related to burnout. The relationships between resources and
engagement were interpreted as having the opposite relationship with burnout, because I used
the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996), which is predicated on an engagement–burnout continuum. My findings of significant positive correlations between each of the resource variables and the engagement variables in 8 out of 12 correlations supported this hypothesis and the job demands-resources model assertion that resources predict engagement. My findings of 3 out of 4 non-significant correlations between efficacy and resources could support the theory there are only two core burnout dimensions, exhaustion and cynicism (González-Roma, Schaufeli, Bakker, and Lloret, 2006). However, the moderate significant result between social support and efficacy seems to contradict the exclusion of efficacy as a domain of engagement.

Hypothesis 2 proposed that job demands would be negatively related to engagement and positively related to burnout. Significant correlations between each of the demand variables and the engagement variables supported this hypothesis. I found five out of six small to large negative correlations. Higher demands predicted lower energy, involvement, and efficacy. My findings support the job demands-resources model assertion that demands predict burnout. However, the significant correlation between efficacy and workload does not support the exclusion of efficacy as a domain of burnout.

**The Strongest Correlations Between Variables and Engagement**

One central research question of this thesis asked which specific resources and demands had the strongest correlations with engagement. This question was answered within the limitations of the research instrument; some resource and demand scales had a limited number of items, which I have recommended expanding in future research. The strength of the correlations contributes to understanding the factors that predict engagement. The stronger correlations are expected to play a larger role in predicting engagement.
The strongest correlations were found between each of social support and workload, and the three domains of engagement: the correlation between workload and energy was large and the other correlations were moderate. A mixed degree of correlation strengths was found between each of values congruency and student support, and the three domains of engagement. The findings indicate that workload, social support, values congruency, and student support have important relationships with engagement. Further development of the latter three scales is needed to increase scale reliability and construct validity. In addition, the demands of difficult student behaviour, as indicated in comments and the results reported by Bakker, Hakanen, Demerouti, and Xanthopoulou (2007), warrant further development of that scale. The apparent dichotomy of intrinsic and extrinsic rewards provides direction for the revision of that scale. The unexpected lack of significant correlation between professional development with a sustained focus and engagement suggests that qualitative study is needed to study the relationship further, and before revising the scale.

The multiple regression models were tested to investigate the strength of the resources and demand variables for predicting the engagement variables. The models were reasonably sound in terms of fit based on explained variance, but the wide confidence intervals indicated that the models were not strong. In addition, while the energy, involvement, and efficacy outcome regression models appear accurate, it is possible that the assumptions of homoscedasticity were violated for the involvement and efficacy models. The latter may mean that the model cannot be generalized to the larger population, but assumption violations could be affected by the small sample size (Field, 2009).

The correlations between resources and demands, and the engagement domains are consistent with the results of the multiple regression models. Both investigations found that workload and social support were the strongest predictors of engagement. My findings align
with research that showed workload (Bakker, Demerouti, & Euwema, 2005; Leiter & Maslach, 2004, 2009; Schaufeli, Bakker, & van Rhenen, 2009; Xanthopoulou, Bakker, Demerouti, & Schaufeli; 2007) and social support (Griffith, Steptoe, & Cropley, 1999; Schaufeli, Bakker, & van Rhenen, 2009) were predictors of burnout and engagement.

Resource Levels and Correlations with Engagement

The levels of resources studied in this research were expressed in terms of mean score values. In addition, the strength and direction of the correlation coefficients were used to discuss their importance. Descriptive statistics and qualitative data were combined to create complementary analyses. Not all teachers commented in the qualitative section of the survey, so the opinions expressed in the qualitative data may not be representative of all teachers in the survey. Nevertheless, the qualitative data offers insight into the quantitative data.

The resources are discussed in the order most frequently selected as important by teachers in the study. It is important to note that while teachers identified autonomy, rewards, and material resources as leading important job resources, the survey instrument did not include scales for autonomy or material resources, and the scale for rewards was not reliable enough to use for statistical examination.

Autonomy

Teachers identified autonomy as the most important job resource. However, the survey instrument did not include a scale or comment section for autonomy. Further information regarding how teachers exercise their autonomy and why it was seen as vital would potentially yield valuable information. Comments offered a place to begin exploring autonomy. Teachers said autonomy provided a measure of control over pacing and content in order to deal with overwhelming aspects of the job and to respond to the interests of students. They felt it was encroached upon. One professional development comment described a need
to have control over the pace of learning and its application. In addition, some coping comments described exercising control over the focus of their efforts and the selection of coping strategies.

In Karasek’s (1979) demand-control model, decision-making latitude referred to the degree of control a worker has when completing tasks. He used decision-making authority and intellectual discretion as indicators of control. Control in Karasek’s model aligns with the examples of autonomy teachers gave in this study. Karasek posited that there are interaction effects between demands and job control when predicting mental strain, which would help explain its importance to teachers, particularly those who report high levels of demands or exhaustion. Leiter and Maslach (2004, 2005, 2009) provided further support for the importance of autonomy; their results found that control had direct or indirect effects on all of the other areas of worklife. In addition, Grimmett, Dagenais, D’Amico, Jacquet, and Ilieva (2008) suggested that teachers in the Greater Vancouver context used autonomy to maintain relationships and complete tasks at work as a means to balance their lack of input in the political arena related to their work. Teachers in this study confirmed the importance of autonomy, as supported in research literature, and thereby provided a more complete picture of engagement.

Rewards

Teachers identified rewards as the second leading job resource, but the scale for rewards was not reliable enough to use for statistical examination. The negatively skewed items, positive student-teacher interaction and teaching is rewarding, and positively skewed items, salary and valued, suggested two aspects of rewards, intrinsic and extrinsic respectively, were expressed rather than a single construct. My interpretation of the opposing directions for items in the scale is consistent with Grimmett, Dagenais, D’Amico, Jacquet,
and Ilieva’s (2008) assertion that Greater Vancouver teachers felt despair related to a lack of social recognition at the same time as feeling rewarded by the curriculum, learning, and relationships in their work. In addition, a British Columbia Teachers’ Federation study (British Columbia Teachers' Federation, 2010), found that teachers in the province experienced job satisfaction related to the nature of their work and job stress related to the attitude of others toward teachers. Similar to the teachers in the aforementioned studies, teachers in my study commented on the lack of feeling valued by their employer and on the rewards of the job. Two separate scales could be developed in future research. These findings speak to the need to further investigate rewards and to revise the scale to increase its reliability.

Material Resources

Teachers identified material resources, tied as the third most important job resource, but the survey instrument did not include a scale for material resources. Comments gave some indication of the issues related to material resources: teachers wrote about the lack of material resources, particularly learning resources, and the resultant negative effects of lack of quality and availability. Technology resources and physical space were also identified. The teachers’ comments were consistent with other teachers in the province (Grimmett, Dagenais, D’Amico, Jacquet, & Ilieva, 2008; British Columbia Teachers' Federation, 2010).

Social Support

Teachers also identified social support as the third most important job resource. The social support scale data ($M = 5.26$, $SD = 0.99$) showed that teachers primarily perceived their working relationships with colleagues and administrators as supportive. Four items in the 5-item scale had significant ($p < .05$) negatively skewed distributions, indicating high values of social support. The fifth item had two modes, 2 (disagree) and 6 (agree); it was not
consistent with the other administrator support item as expected, and may have had ambiguous or difficult wording ("I depend on myself rather than ask my administrator for help"); teachers may have interpreted the question more as relating to independence than to perceiving administrators as willing or able to help. Separate scales for administrator support and colleague support could be considered in future because there was a difference between medians and ranges for questions pertaining to the two groups. There were also stronger correlations among items pertaining to administrators and among items pertaining to colleagues, and weaker correlations between items across the two groups. Comments seemed to support making this distinction, as respondents usually referred specifically to district administrators, school administrators, or to colleagues. The separation of social support into support from colleagues and support from administrators would be consistent with Bakker, Demerouti, and Euwema's (2005) treatment of the variable. They studied the two types of social support and found that while they both buffered the effects of unfavourable working conditions on exhaustion and cynicism, support of colleagues buffered the effects of emotional demands and supervisory support buffered the effects of work-home interference.

The negative correlations between social support and each of exhaustion and cynicism, and positive correlations with efficacy, support Hypothesis 1 and reflect that, in engagement terms, higher levels of social support correlated moderately with higher levels of energy, involvement, and efficacy. The correlations between social support and the three domains of engagement concur with the findings of others (e.g., Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Halbesleben, 2010; Lee & Ashforth, 1996).

The multiple regression models corroborate the correlations as they showed that social support was a fairly important predictor of the engagement outcomes. Social support
had less importance than workload in the energy and involvement models, and greater
importance in the efficacy model.

Comments regarding social support from colleagues were mainly positive in nature,
and spoke about relating to the teaching experience, sharing resources, and outside of work
activities. Teacher comments about positive social support from school administrators were
general in nature, whereas critical comments were specific and seemed to expand into
administrators' role performance. Comments related to social support from district
administrators emphasized perceived shortcomings. The comments pertaining to social
support promote the separation of social support according to workplace roles in an effort to
better understand the factors influencing teacher engagement. They also suggest care is
needed in separating social support from student support in the scales and in the coding of
comments, as some teachers commented on school administrators' supportiveness in terms of
accessing resources. The moderate correlation between social support and student support ($r$
$= .42$) further encourages making distinctions between the two and exploring their
relationships.

**Student Support**

The positive skew of the student support distribution showed that most teachers
perceived they had insufficient levels of this resource. The two modes of the scale
distribution, as well as the statistically significant positive skews and asymmetrical bimodal
distributions of all items in the scale, could reflect two overlapping groups of teachers (Field,
2009). The moderate internal consistency of the scale ($\alpha = .76$) does not mean the scale is
unidimensional (Nunnally & Bernstein, 1994).

The negative correlations between student support and each of exhaustion and
cynicism support Hypothesis 1, that resources are positively correlated with engagement and
negatively correlated with burnout. The medium negative correlations reflect that higher levels of student support correlate with higher levels of energy and involvement for teachers. This finding supports the job demands-resources model's assertion that resources have a positive relationship with work engagement. The lack of a significant correlation with efficacy indicates that student support does not predict efficacy. The results could support the exclusion of efficacy from the job demands-resources model. However, it could be that some resources predict efficacy while others do not, a possibility that could be explained by Leiter's finding that resources other than student support predicted efficacy (Leiter, 1991) and that direct paths from factors in the work environment to efficacy produced a better model fit than indirect paths via energy and involvement (Leiter, 1993).

The allocation of student support may need to be studied. Bearing in mind methods issues related to determining complexity, findings showed that exhaustion was higher for moderately complex classes, and student support was highest for the least complex classes and otherwise increased as complexity increased. The lack of comments about student support from teachers with less complex classes may reflect the sufficiency indicated by quantitative data, and a resultant lack of priority for such comments. Teachers with classes in the grey area only category commented that student support did not meet student need. Comments in general spoke of a lack of multiple types of resources needed to meet student need. The combined quantitative and qualitative findings suggest there were insufficient student support resources available, and indicate the allocation of those resources needs to be taken into account when studying relationships between resources, demands, and teacher engagement.

Student support did not appear to be an important predictor of engagement in the multiple regression models. In light of the need for further refinement of the student support
scale; the medium positive correlations with energy, involvement, and social support; small
and medium significant correlations with 4 of the 5 other resource and demand variables; and
the comments related to student support, further study is needed to confirm or refute the
regression models.

Student support was identified as less important than several other resources, which
supports the findings of the multiple regression models, yet student support had the second
largest category of comments on improving engagement. The apparent contradiction verifies
the need to more clearly understand the role of student support.

The student support variable is unique to this research and is not a resource found in
engagement research; specific comparisons are not available. This study provides sufficient
indication that student support is a resource that warrants further study.

*Professional Development*

The normal distribution of the professional development (Pro D) scale ($M = 4.13$, $SD = 0.90$) showed that most teachers were involved, to a moderate degree, in professional
development with a sustained focus. The lack of a significant relationship between Pro D and
the engagement domains does not support Hypothesis 1.

Several explanations should be considered. First, the scale may lack validity (Spector,
1992). Its focus may be too narrow or ill-defined. A more comprehensive scale, perhaps
developing the incomplete subscales, may be needed to explore other aspects of professional
development. Second, sustained professional development may require a relatively short-
term investment of time and energy that, initially, is experienced more as a demand due to
the time and effort given to it. It is perhaps more suited to longitudinal study that can
determine whether the initial investment results in greater engagement. Third, an important
aspect of the Pro D variable is having a specific focus that may be worthwhile in terms of
student achievement or other aspects of the job, but may need to match and alleviate a particular demand, for example, student behaviour, in order to have an appreciable effect on engagement domains.

Comments from teachers raise possible explanations for the lack of a significant relationship between Pro D with a sustained focus and engagement. The first possible explanation pertains to secondary teachers. Secondary teachers have curriculum specialties or preference areas and may therefore focus their professional development in a particular curriculum area. Perhaps the quality of, and access to, opportunities are limiting factors for maintaining a concentrated focus. For example, even if focused on a particular curriculum area, if the opportunity to collaborate with peers teaching the same method or subject area or to access specialized professional development is limited, it could be that teachers are not experiencing sufficient depth of focus to affect engagement. Also, if teachers’ assignments change frequently, they may not be able to apply their professional development long enough to benefit in terms of engagement.

The second possible explanation for the lack of a significant relationship between Pro D with a sustained focus and work engagement pertains to lack of opportunities. If teachers have limited access to helpful professional development, for whatever reasons, then it may not be sufficient enough to assist teachers in dealing with demands, and therefore support engagement.

Two comments may represent isolated sentiment or may identify aspects with wider application. One teacher wrote about the need to control the pace of professional development learning and its application in the classroom. This comment may signal the potential of professional development to act, at least initially, as a demand. A second teacher commented on using professional development to address pressing student behaviour issues.
This comment may begin to explain the small negative correlations between Pro D and each of student behaviour and student support. These two comments are weak on their own, related to scales that may need revision, and the implications are speculative.

Teachers identified professional development as the fifth most important job resource. They said they value their professional development and that local opportunities were insufficient. The importance ranking of professional development may help to explain the results of the low variance attributed to professional development in the multiple regression models. The question remains, if teachers experienced sufficient professional development, would it become a more important predictor of engagement?

*Values Congruency*

The positive skew of the values distribution showed that most teachers perceived a strong lack of congruency between their values and those of their employer. This finding is consistent with the sentiments expressed by Vancouver teachers (Grimmett, Dagenais, D’Amico, Jacquet, & Ilieva, 2008) and teachers in the province (British Columbia Teachers’ Federation, 2010). The results of the 3-item values scale should be considered cautiously due to its limited number of items. The negative correlation between values and each of exhaustion and cynicism support Hypothesis 1. The negative correlations reflect that higher levels of values congruency correlate with higher levels of energy and involvement and support Leiter and Maslach’s (2004, 2009) theory that values congruency is a job resource important to work engagement. The lack of a correlation between values and efficacy does not support Hypothesis 1 as expected. Before concluding that the latter finding adds to the question of whether efficacy should be included as an engagement domain, further development of the values scale is needed. It is also possible that values congruency is not one of the resources that predict efficacy while others may be.
Values congruency had a moderate negative relationship with workload, a direct relationship that was not predicted by the mediation model. The moderate size of the correlation suggests there may be a relationship between workload and values congruency. The relationship likely reflects the political discourse described by Grimmett, Dagenais, D'Amico, Jacquet, and Ilieva (2008), as teachers' comments indicated incongruence was related to unmet student needs and lack of funding.

An expansion of the values scale would provide more robust results. The rectangular distribution of one of the items may point to a need to be more specific with the definition of employer in the wording of the question "My values are consistent with those of my employer." Further study of this variable would require revisions of the scale.

Organizational Climate

Organizational climate was not a variable studied in the quantitative portion of this research. However, teachers rated it the sixth leading important resource and, in general, teachers commented that an improvement in organizational climate was needed. Many comments about improving engagement were coded to the organizational climate category. The comments related overall to roles, responsibilities, and relationships, and encompassed personnel at all levels of the educational system. The comments related to decision-making, value for teacher input and teachers in general, leadership, needs of students, teamwork, and support for teachers. The question asked about factors that would increase engagement, and therefore did not capture examples of organizational climate that were working well. In addition, there is potential overlap between organizational climate and other variables; it would be important to establish operational definitions for organizational climate and other constructs if examined further, in order to distinguish them from one another.
Demand Levels and Correlations with Engagement

The levels of demands studied in this research were expressed in terms of mean score values. In addition, the strength and direction of the correlation coefficients were used to discuss their importance. Descriptive statistics and qualitative data were combined to create complementary analyses. Not all teachers commented in the qualitative section of the survey, so the opinions expressed in the qualitative data may not be representative of all teachers in the survey. Nevertheless, the qualitative data offers insight into the quantitative data.

The demands are discussed in the order most frequently selected as important by teachers in the study. It is important to note that while teachers identified expectations of self and time pressure as leading important job resources, the survey instrument did not include a scale for expectations and the scale for time pressure was combined with workload to create one scale.

Workload

The workload scale ($M = 5.05$, $SD = 1.04$) showed that on average teachers perceived their workloads to be somewhat high. They perceived manageability of workload, the number of issues, unfinished work at the end of the day, and lack of time as particularly high workload items. This finding was consistent with qualitative data that showed teachers found their workload somewhat heavy.

The positive correlations between workload and each of exhaustion and cynicism, and the negative correlations with efficacy, support Hypothesis 2 and are consistent with findings in the literature. The direction of the correlations reflect that higher levels of workload correlate with lower levels of energy, involvement, and efficacy, and support some aspects of both theories of work engagement. Proponents of the job demands-resources model maintained that workload predicts burnout (Demerouti, Bakker, Nachreiner, & Schaufeli,
The mediation model proposed that workload is an important area of worklife that predicts exhaustion and involvement (Leiter & Maslach, 2004, 2010). The moderate correlations are similar in size to the meta-correlations reported by Lee and Ashforth (1996) and indicate the importance of the relationship between workload and engagement, as well as the robust nature of the workload results.

The results of the multiple regression models indicated that workload was a fairly important predictor of engagement outcomes, a finding consistent with the correlations found in this study. Workload had greater importance in the energy and involvement models, and less importance than social support in the efficacy model. The multiple regression findings are consistent with research that found workload predicted engagement (Leiter & Maslach, 2004; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

Due to a British Columbia Teachers' Federation (2010) study in which teachers reported needs of students and class composition as important aspects of demands, I attempted to explore workload by creating two class composition variables. The secondary class composition variable could not be tested due to small numbers in the created categories and to the use of threshold attainment rather than precise student counts. The elementary class composition variable also used threshold attainment, but because elementary teachers teach one class with a stable composition, the threshold categories potentially provide estimates of relationships. In addition, the number of elementary teachers responding to the survey was higher than secondary teachers so categories within the variable were large enough to permit testing. A Kruskal-Wallis test found differences between categories for exhaustion, and a follow-up Mann Whitney test showed that when one, but not both, thresholds were met energy was significantly lower than when neither threshold was met. A
Kruskal-Wallis test for cynicism and a one-way ANOVA for efficacy did not find significant results. As the discussion of student support results expressed, the allocation of student support needs to be taken into account when studying relationships between workload and teacher engagement. The findings illustrated the need to gather more complete information in order to obtain more comprehensive results.

Moderate significant negative correlations between workload and 3 out of 4 resources with reliable scales provide further support for the importance of workload in the workplace. The negative correlations could indicate that high workload depletes job resources, or conversely, a manageable workload leaves resources intact. The concept of resources being expended on demands was common to early models of the relationships between resources, demands, and stress (Hobfoll, 1989; Hockey, 1993, 1997; Johnson & Hall, 1988; Karasek, 1979). The negative correlations between workload and resources could also indicate that high workload psychologically influences perceptions of resources. Hobfoll (1989) purported that when resources are diminished, people experience psychological stress. The psychological stress could negatively influence the perception of resources. A third possibility, combining the two former explanations, is that high workload depletes or threatens resources and leads to a psychologically influenced perception of resources. The latter possibility is consistent with Hobfoll’s theory that psychological stress is experienced when resources are threatened or diminished.

Taken together, the somewhat high levels of workload as compared to normative data, significant correlations with engagement, the importance of workload in the multiple regression models, and workload’s three medium negative correlations with the resources variables, converge and confirm that workload is an important factor in the classrooms of the teachers in this sample.
Expectations of Self

Teachers identified expectations of self as the second most important demand. However, the survey did not include a scale for expectations of self and it was not a category generated from the comments. Some indication of this demand was embedded in comments pertaining to time pressures, which included references to personal standards, such as producing work of good quality and striving to be more effective. Teachers also wrote about wanting to do extra tasks, keep up with pedagogical trends, and be involved with a specific content area or activity. Considering the rating teachers gave this demand, it would be important to explore it further.

Student Behaviour

Student behaviour was the third most important demand identified by teachers. The exploratory student behaviour variable, based on two items, indicated a general perception of needing to frequently manage difficult student behaviour. Comments indicated that student behaviour related to class composition and student support. Student behaviour had a stronger significant correlation with student support than with workload. Teachers’ perceptions, in addition to the small correlations with engagement variables in the expected directions, indicate that it would worthwhile to expand this scale. Further study could be fruitful, since Bakker, Hakanen, Demerouti, and Xanthopoulou (2007) found that student behaviour was an important job demand for teachers.

Time Pressure

Teachers identified time pressure as the fourth most important job demand. The survey instrument had a scale for time pressure that was combined with workload items to create one workload scale in order to improve the reliability of both scales. Comments talked about a lack of time in general, lack of time to cover the curriculum, deadlines, and about
periods of time during the year that were more intense than others due to activities that occur in addition to regular teaching duties. A revision of the time pressure scale that improves its reliability would yield useful information about the relationship of time pressure to teacher engagement.

**Administrative Tasks**

Results showed that administrative tasks were the fifth most important job demand according to teachers in this sample. The survey instrument did not have a scale for administrative tasks. Comments indicated that paperwork and data collection added to workload and were not viewed as directly meeting student needs. The relative lower importance of this demand may not justify its further development as a scale on its own.

**Coping Themes**

This section of the chapter addresses the central research questions that sought to determine the type of coping strategies teachers used in specific demand situations. Teachers reported reflections of their thoughts in specific job-stress situations and the subsequent coping strategies they usually used to manage the stress. The reflections were coded in two qualitative analyses that compared teachers with high engagement to those with low engagement and did not include teachers with moderate levels of engagement. The first analysis coded appraisal processes and types of coping strategies, guided by Lazarus and Folkman’s (1984) theory of stress, appraisal, and coping. The second analysis coded according to emergent themes.

Plans to transform the qualitative data pertaining to coping strategies into quantitative data in order to examine the relationship between types of coping and levels of engagement were abandoned for two reasons. First, teachers proposed a variety of coping strategies they would use in the individual hypothetical demand situations, and in many cases it was not
possible to determine whether a strategy was adaptive or not. Categorization of strategies would require more in-depth theoretical research than the scope of this thesis allowed.

Second, the first analysis of the qualitative data did not show strong differences between the two groups of teachers in thoughts and strategies; I did not expect to find statistically significant differences for simple categorization of coping strategies because the raw data appeared to have little difference between categories. Therefore, I did not attempt quantitative testing of differences in the use of coping strategies according to levels of engagement.

*Analysis 1*

*Part one: Thought processes.* In the first part of the first analysis, teachers’ thoughts when faced with high demands were coded as primary appraisals, perceived stress, secondary appraisals, and selection of coping strategies. All of the categories contained comments providing evidence of Lazarus and Folkman’s (1984) stages of appraisal indicating some degree of coping was exercised. According to Lazarus and Folkman (1984), coping is required when demands exceed the capacity of resources, use up, or threaten resources. Teachers could have experienced any one of these reasons for engaging in coping activity.

Highly engaged teachers reported more appraisals of professional goals and more thoughts about action plans, while teachers in the low engagement categories thought more about stress, resource-demand imbalance, and personal goals. The difference in focus could reflect the higher resources and more manageable workload indicated for more engaged teachers in the quantitative data. Such a work environment would be more conducive to assessing the impact of the demands on workplace goals and selecting an action plan because resources are available to address demands. In contrast, the focus of teachers with low engagement may reflect anticipated negative outcomes from an imbalance between their
reported lower resources and greater demands. It could also be that teachers with high engagement do not contemplate personal goals because they do not have, or do not allow, threats to worklife balance; the personal goals that were reported by teachers with low engagement mainly related to concern for impact on family. Both explanations are consistent with Hobfoll’s (1989) conservation of resources theory that individuals seek to maintain resources and experience psychological stress when resources are depleted or threatened. Another explanation for the difference in focus on goals could be that teachers with higher engagement are more task oriented, expend their energy on problem-solving, meet demands, and thereby reduce the stress.

Thoughts pertaining to plans of action appeared to increase in frequency as engagement increased, indicating teachers with high engagement were more inclined or more able to apply their resources to planning than teachers with low engagement. Differences could indicate that teachers with higher engagement benefit from the spiral of gain proposed by Hobfoll (1989) and that they meet demands by mobilizing their resources. It is possible that, in contrast, teachers with low engagement experience stress from the resource-demand imbalance, spend longer on primary and secondary appraisals, and arrive at action planning more gradually.

*Part two: Coping strategies.* In the second part of the first analysis, teachers’ responses related to coping strategies were coded according to seven types of strategies under two broad categories: problem- and emotion-focused coping.

Highly engaged teachers reported letting go of demands they could not meet more than their counterparts with low engagement. They took breaks from work, whereas teachers with low engagement worked harder. Letting go of some demands could reduce workload. In addition, or on its own, having a more manageable workload might afford teachers with high
engagement the time to take breaks and return to the demands with more energy and effectiveness. It could be that teachers who are overloaded would benefit from using similar strategies. However, the type and flexibility of the demands may dictate the degree to which such strategies can be followed.

Highly engaged teachers reported more positive thinking. The direction of causation requires longitudinal research. It may be easier to have positive thoughts in a more favourable situation, but it may also be that the perceived intensity of demands is diminished with positive thinking. Conventional wisdom is that positive thinking is more efficacious than its absence, the latter sometimes being an indication of ill health.

I experienced challenges when coding coping strategies that may have affected the results of the analyses. I used examples in Lazarus and Folkman’s (1984) theory as a base model and added examples of coping from other sources (Hockey, 1997; Montgomery & Rupp, 2005) to determine the appropriate category in which to place comments. For example, setting a new standard of behaviour, cutting back, and learning new skills were considered behavioural problem-focused coping aimed at oneself. While it would have been easier to code to two categories, problem- and emotion-focused coping, important differences within those categories would have been lost. An additional challenge when coding was that teachers may not have distinguished between thoughts and strategies to the same degree that I did, as indicated by comments such as “as above,” or they may have repeated strategies they reported in thoughts when they came to the strategies question.

Results from coding thought processes supported Lazarus and Folkman’s (1984) theory of appraisal and stress in that respondents reported thought processes that fit into the stages of appraisal. However, coding the strategies showed little difference between teachers in the high and low categories of engagement. There seemed to be recurring themes unique to
the categories that were not captured by sorting according to function of coping categories, so I completed a second analysis based on emergent themes.

*Analysis 2*

In the second qualitative analysis of coping thoughts and strategies, data were coded into emergent themes. Themes showing the greatest differences between teachers with high levels and low levels of engagement will be discussed. Despite the absence of quantitative data relating coping strategies to resources and demands, possible roles for the latter will be considered in the context of existing literature.

The strongest differences were that teachers with high levels of engagement reported more positive thinking, venting about stress, and problem-focused task oriented behaviours, specifically, taking a break, letting go of demands, and breaking tasks into chunks. In contrast, teachers with low levels of engagement reported more negative thoughts, resisting demands, avoidance strategies, and the problem-focused task oriented behaviour cutting corners.

*Positive and negative thinking.* There was a contrast in teachers with high and low engagement in terms of the effect of their thoughts. The former group reported positive thinking more frequently than teachers with low engagement, and the latter group more frequently reported negative thoughts. While both coping strategies were considered emotion-focused (Lazarus & Folkman, 1984), positive thinking could be deemed cognitive reappraisal designed to lessen emotional distress and negative thinking could be viewed as a cognitive strategy that increases emotional distress similar to escalating stress. If negative thoughts are indicative of negative affect, then the work of Griffith, Steptoe, and Cropley (1999) could inform further study. They found negative affect was positively associated with teacher stress and avoidance, and negatively related to workplace social support. They
suggested that negative affect could have important relationships with teacher stress, social support, and coping. The apparent dichotomy of thoughts in relation to levels of engagement in this study could be important for understanding their role in teacher engagement.

*Venting about stress.* Teachers with high engagement reported venting about stress more than teachers with low engagement. Venting is an emotion-focused behaviour that may or may not lead to changed meaning (Lazarus & Folkman, 1984). As the term implies, venting could release, and thereby reduce, the amount of stress experienced. Venting implies there is someone to call upon for social support. As the quantitative data showed, teachers with high engagement reported higher levels of social support than their peers with low engagement.

*Task oriented behaviours.* A further difference between teachers with high engagement and those with low levels was the former group reported more problem-focused task oriented behaviours. In addition to the frequency of reporting, the former group also reported greater variety, while the latter group mainly reported cutting corners. If the use task oriented behaviours indicates that greater goal attainment or task completion is achieved, then teachers with high engagement would be reducing their demands.

The higher incidence of letting go of demands with apparent ease and taking a break from work among teachers in the high engagement categories might signal that teachers with low engagement may have more difficulty “turning off” work. If the latter teachers take fewer breaks, or thoughts about work are persist even when they do take breaks, then the persistent work or thoughts about work may contribute to lower engagement. Griffith, Steptoe, and Cropley (1999) found that suppression of competing activities was associated with higher work stress and suggested that focusing on work at the expense of extra-work activities such as home life are maladaptive responses in a teaching environment. As stated
earlier, teachers with higher engagement may be able to afford taking breaks, whereas teachers with lower engagement may not. Alternatively, the practice of letting go of demands may grant the opportunity to return to work tasks somewhat refreshed and better able to meet demands.

_Resisting demands_. Resisting demands was a problem-focused behaviour aimed at the environment (Lazarus & Folkman, 1984) reported more frequently by teachers with low engagement. It is a strategy aimed at changing or reducing the demands. Seeking support, used by teachers with high engagement, is in the same category of coping as resisting demands, but in contrast it is aimed at accessing resources that will reduce the demands. It is possible that resisting demands uses energy, and when it is not successful in reducing demands, has the net effect of requiring more energy in the long run.

_Avoidance strategies_. Teachers with high engagement did not report avoiding demands, whereas colleagues with low engagement did. Leiter (1991) found that avoidant emotion-focused coping was positively associated with low engagement. He concluded that his findings did not support Lazarus and Folkman’s (1984) proposal that avoidance might be effective when faced with sustained demands or when control over the environment is lacking, since his results showed that burnout increased with its use.

_The role of resources and demands_. My analysis considers coping strategies in relation to engagement levels. However, it is important to recognize the absence of data relating coping strategies directly to resources and demands. Longitudinal data are needed to address the direction of the relationship among resources, demands, use of coping strategies, and levels of engagement. It is important to know whether the differences in coping strategies prevent an imbalance of resources and demands, whether coping strategies change in response to degree and duration of balance, or whether they have no effect. McCarthy,
Lambert, O’Donnell, and Melendres (2009) have begun this work. Following their study of classroom resources and demands, preventive coping, and burnout, they concluded that teacher perception of resources and demands as well as coping resources contribute to burnout.

Leiter (1991) considered the role of resources when he analyzed his data. He found that problem-focused coping was positively associated with engagement, while avoidant emotion-focused coping was positively associated with low engagement. He concluded that cognitive and behavioural problem-focused coping seemed to require resources in the environment, such as colleague and supervisor support. He reasoned that the use of problem-focused coping in the context of a lack of organizational resources could lead to greater stress. My qualitative findings that teachers with high engagement reported task oriented behavioral problem-solving and sought the support of staff are consistent with Leiter’s findings.

Leiter’s (1991) explanation might align with the possibility Lee and Ashforth (1996) offered to interpret their finding that control coping was weakly negatively associated with exhaustion. They proposed that a stronger relationship might not have been found due to the under-use of the strategy or to the cessation of its use due to ineffectiveness. Their proposal implies that if organizational resources are lacking, they cannot be used to effectively apply problem-focused coping strategies.

Griffith, Steptoe, and Cropley (1999) proffered that active planning, seeking social support, suppression of competing activities, and mental and behavioural disengagement accounted for less variance than work pressure, student misbehaviour, and social support and suggested the importance of coping may be moderating the effects of teacher stress on well-being. Despite their finding of low variance, they also found that the four coping strategies
they studied seemed to influence teacher stress at the appraisal stage. This concept that coping influences appraisal of stress is consistent with McCarthy, Lambert, O'Donnell, and Melendres' (2009) construct of preventive coping. They saw preventive coping as a composite construct consisting of perceived control or feeling able to handle stress, maintaining perspective, social resourcefulness, self-acceptance, and scanning the environment in order to anticipate and divert problems. The positioning of coping at the appraisal stage, as well as at the response stage, invites the longitudinal study of resources, demands, coping, and engagement.

Matters of personal importance. Lazarus and Folkman (1984) theorized that stress results from appraising an imbalance of resources and demands, particularly in matters of personal importance. The high importance assigned to expectations of self and the comments regarding professional goals and the needs of students indicate the importance placed on their performance when completing work-related tasks. If teachers with higher engagement have more resources and lower demands, they would not experience stress to the same degree as those with fewer resources and greater demands, and may have more options for coping strategies that require resources. They could experience better results when problem-solving, and therefore less anticipated threat to matters of personal importance such as professional goals.

Chapter Summary

In this chapter, I discussed the reliability of my sampling methods. I determined that comparisons of my sample's characteristics to normative and school district data showed similarities and that sampling methods were sound. Next, I reported the levels of the three domains of engagement, as measured by mean or median, categorization of scores into three levels, and the extremes of the engagement–burnout continuum. The results of low levels of
energy, low to moderate levels of involvement, moderate to high levels of efficacy, and lower numbers of teachers with high engagement than with low engagement were consistent with many aspects of the two main models of engagement and provincial and national context. I then discussed the relationships among the key constructs and suggested the strength of the workload and social support correlations showed them to be important predictors of engagement.

In addition, I spoke to the levels of specific resources and demands, using teachers' comments to elaborate or corroborate on quantitative results. Some of the resources and demands that teachers identified as important were not measured using scales. Where scale scores were available they were combined with qualitative data to provide an integrated description. Finally, I discussed the two analyses of coping strategies. In the first analysis, I encountered challenges when coding according to the function of strategies. In the second analysis, emergent themes were coded. The results showed differences between teachers with high and low engagement, particularly in the effect of thoughts.

Chapter 1 of this thesis provided the rationale for conducting this research and stated the research questions. The literature review in Chapter 2 demonstrated the importance of investigating the relationships between and among the constructs in the central research questions. Chapter 3 identified the methods that were used in the research design and the analyses that were used. In Chapter 4, I reported the results of the qualitative and quantitative data analyses. This chapter followed with a discussion of results and proposed interpretations in the context of earlier research. Chapter 6 of this thesis presents conclusions and recommendations for further study.
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Chapter 1 introduced the need for the study of the engagement of teachers, outlined the central questions, stated two hypotheses, and identified key terms. Chapter 2 reviewed the two main models of work engagement: the mediation model and the job demands-resources model. It provided a review of job resources and job demands, as they are central constructs in work engagement theory and research. Chapter 2 also presented an overview of the professional literature on work-related coping. Chapter 3 delineated the research design and methods used in this study. It supported the use of a mixed methods design and the survey method. It also described the treatment of data that preceded statistical analyses of the quantitative data and explained the data analyses that were carried out. Chapter 4 reported the results of the quantitative and qualitative analyses. Chapter 5 analyzed the combined qualitative and quantitative data, discussed it in the context of the literature reviewed in Chapter 2, and offered interpretations. This final chapter will present conclusions for the central research questions identified in Chapter 1. It will also include implications and recommendations.

Conclusions for Questions and Hypotheses

This section of the chapter will present conclusions for the questions and hypotheses stated in the introductory chapter of this thesis. The conclusions will be presented in order of growing complexity beginning with the levels of resources, demands, and engagement, followed by relationships among resources, demands, and engagement. The section continues with the more complex relationships proposed by the two main models of engagement. Finally, the section presents conclusions of the data related to coping strategies.
Resource Levels

Teachers indicated autonomy, rewards, and material resources were leading important resources, but scaled data were not available for statistical examination of their levels. While qualitative data were sparse for autonomy, they confirmed the relevance of rewards and material resources. The importance of autonomy (Bakker, Demerouti, & Euwema, 2005; Karasek, 1979; Schaufeli, Bakker, & van Rhenen, 2009; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007) and rewards (British Columbia Teachers' Federation, 2010; Grimmett, Dagenais, D'Amico, Jacquet, & Ilieva, 2008; Leiter & Maslach, 2004, 2009) are supported in the professional literature. Due to the importance of those two factors indicated in this study and in the professional literature, further research should include measures of autonomy and material resources, and revisions to the rewards scale. They might explain more variance in levels of engagement than did the quantitatively measured resources in this study.

The social support scale showed high levels ($M = 5.26$, $SD = 0.99$) of this resource. Scale items, the scale distribution, and qualitative data indicated that two dimensions, possibly differing responses related to coworkers and administrators, might have been represented in the data. Bakker, Demerouti, and Euwema (2005) found the two sources of support differentially buffered demands and correlated to engagement. The importance of social support to engagement outcomes, as demonstrated in the professional literature (Griffith, Steptoe, & Cropley, 1999; Johnson & Hall, 1988; Schaufeli, Bakker, & van Rhenen 2009) suggests that the high level in this study could have positively influenced engagement outcomes.

Three resources followed in perceived relative importance. Student support had a positively skewed distribution that indicated a general perception of a lack of sufficient student support. The two modes and somewhat bimodal appearance could indicate two
groups are represented. Qualitative data suggest the importance of student support. The Pro D variable showed that teachers participated to a moderate degree ($M = 4.13, SD = 0.90$) in professional development with a sustained focus. Teachers' comments reflected a perception of insufficient professional development resources. The values scale distribution indicated teachers perceived a lack of congruency between their values and those of their employer. The scale had three items, so results should be regarded cautiously.

A measurement for organizational climate was not used. However, many teacher comments were coded to organizational climate and reflected a perceived need for improvement. Clear operational definitions and contrast with other variables such as supervisor support, values congruency, rewards, and collaboration would avoid possible overlap in further study.

*Demand Levels*

Teachers indicated the relative importance of job demands. First, the workload scale showed that teachers perceived their workload to be somewhat high ($M = 5.05, SD = 1.04$). The results were consistent with qualitative data. Second, teachers identified expectations of self as important and comments indicated it might contribute to workload. Due to the high rating, it may be informative to investigate this variable further. Third, the student behaviour scale was not reliable, so the exploratory results can only be taken to indicate further study of this demand could be of interest. Fourth, time pressure comprised part of the workload scale and comments indicated a general lack of time to meet demands. Finally, comments and rating of demands indicated that administrative tasks added to demands.
Relationships Among Key Engagement Constructs

This section draws conclusions regarding the relationships and comparative strength of relationships among resources, demands, and engagement. It also comments on perceived levels of available resources and demands.

**Hypotheses 1 and 2**

Hypothesis 1 proposed that resources would be positively related to engagement and negatively related to burnout. Hypothesis 2 proposed that job demands would be negatively related to engagement and positively related to burnout. Results showed that 8 out of 12 correlations supported the Hypothesis 1, and 5 out of 6 correlations supported Hypothesis 2. Both hypotheses were based on, and mainly supported, the job demands-resources model (Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). The significant correlations between social support and efficacy and efficacy and workload seem to contradict the exclusion of efficacy as a domain of engagement (González-Roma, Schaufeli, Bakker, & Lloret, 2006).

**The Strongest Correlations Between Variables and Engagement**

Workload and social support had the strongest correlations with the three domains of engagement and were important predictors of engagement in the multiple regression models. The correlation between workload and energy was large (.57, p < .01), and the others were moderate (see Tables 5 and 6). The results indicate that workload is particularly important for predicting energy and that workload and social support are important for predicting engagement. The importance of workload is supported in the professional literature (Bakker, Demerouti, & Euwema, 2005; Hockey, 1997; Leiter & Maslach, 2004, 2010; Maslach & Leiter, 2008; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). The importance of social support is also supported in the professional literature (Bakker, Demerouti, &
Euwema, 2005; Hobfoll, 2002; Johnson & Hall, 1988; Lazarus & Folkman, 1984). In this study, workload had a negative relationship with engagement, while social support had a positive relationship with engagement. Both variables were important for teachers in this study.

The values congruency correlations with engagement had mixed degrees of strength. The correlations were significant and medium with energy ($r = .37$, $p < .01$), significant and small with involvement ($r = .27$, $p < .01$), and not significant with efficacy ($r = .13$). While results in the professional literature vary (Leiter & Maslach, 2004, 2005, 2009), my correlation results and findings of Leiter and Maslach (2004, 2005) and Maslach and Leiter (2008) indicate that values congruency is important for predicting energy and involvement. My finding that values congruency did not make significant contributions to the multiple regression models might indicate that other resources account for the variation in engagement for this sample.

The student support correlations with engagement also had mixed degrees of strength. The correlations were significant and medium with energy ($r = .38$, $p < .01$), significant and small with involvement ($r = .27$, $p < .05$), and not significant with efficacy ($r = .08$). Student support did not make significant contributions to the multiple regression models. The professional literature did not feature student support as a discreet resource, so a comparison is not possible. McCarthy, Lambert, O'Donnell, and Melendres (2009) incorporated student support into their instrument that measured classroom resources and demands, and reported an overall measure of classroom stress. My results indicate that student support could be an important predictor of teacher energy and involvement. Further development of the student support scale is needed to increase its reliability ($\alpha = .76$) and construct validity.
Levels of Teacher Work Engagement

Levels of the Three Domains of Engagement

The three domains of work engagement, as measured using the Maslach Burnout Inventory – General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996), can be viewed on the engagement–burnout continuum in terms of burnout (exhaustion, cynicism, efficacy) or engagement (energy, involvement, efficacy). The instrument used the burnout terms and my discussion and conclusions refer to the engagement terms where practical to emphasize the focus on engagement. Although differences such as instrument version and occupation existed, comparisons between my sample and normative and meta-analysis data suggested I followed procedures accurately and that the related results of my research could be considered valuable. Further study of the same or a similar population using the same instrument would further corroborate the reliability of my procedural accuracy.

Three data analyses were considered for reporting levels of engagement. A comparison of sample means (energy, efficacy) and median (involvement) to normative and meta-analysis samples showed that levels for my sample may have been slightly lower for energy, similar for cynicism, and in the higher end of the range for efficacy. A comparison of the percentage of teachers in the high, moderate, and low categories to the equal thirds of the normative data showed my sample had a smaller percentage in the high energy and high involvement categories and a larger percentage in the high efficacy category. The two comparisons provided the basis for interpreting levels of engagement. In addition, a smaller number of teachers had scores across domains in the high categories compared to those with scores across domains in the low categories.

Overall, the sample seemed to have low to moderate levels of engagement. It had low levels of energy, low to moderate levels of involvement, and moderate to high levels of
efficacy. The results have provided a reference point for future studies that could make comparisons to this sample of teachers.

Engagement Levels Within the Context of the Two Main Models

The combination of low levels of energy, low to moderate levels of involvement, and moderate to high levels of efficacy in my sample fit the mediation model's theory (Leiter & Maslach, 2009) that energy predicts involvement, which, in turn, predicts efficacy. The levels for the domains in my study, lowest for energy, more moderate for involvement, and strongest for efficacy, reflect the model. The model purports that resources and demands combine to formulate workload, an area of worklife that predicts energy.

My results showed a somewhat heavy workload. In terms of resources, results indicated varying levels. Social support was high, while student support and values congruency were low. Professional development with a sustained focus was moderate, while sufficient opportunities may have been lacking. More information is needed regarding autonomy. It is possible intrinsic rewards levels were high while extrinsic rewards levels were moderate or low. According to the mediation model, the somewhat heavy workload would reflect an unfavourable balance of demands and the mixed resource levels, and could be expected to predict the low levels of energy found in this sample.

The energy and involvement levels in my sample could also fit the job demands-resources model (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). The model viewed exhaustion as part of a health impairment/energetic process related to demands, and energy and involvement as part of a motivational process related to resources. The somewhat heavy demands in this study would be expected to predict the high exhaustion, while less than optimal resources would predict the lower energy and low to moderate involvement. The support for Hypotheses 1 and 2 confirmed the direction of correlations for these
relationships. The job demands-resources structural model proposed relationships among demands, resources, the two processes, and engagement in general, whereas individual studies provided results related to specific resources and demands. The correlations and multiple regression models' results in this study concur with Bakker, Demerouti, and Euwema's (2005) findings that workload predicted exhaustion and cynicism, and Xanthopoulou, Bakker, Demerouti, and Schaufeli's (2007) finding of a moderate correlation between workload and exhaustion. Bakker, Demerouti, and Euwema's finding that social support was an important buffer for the effects of high workload on exhaustion and cynicism suggests the resource may function in a similar manner in this study sample. Schaufeli and Bakker (2004) found cross-links between the motivational and energetic processes, so interaction effects could also have influenced levels of engagement in this study.

Efficacy, the third domain of engagement in the mediation model, is not consistently used in research related to the job demands-resources model. Some studies measured two dimensions, vigour and dedication, that parallel energy and involvement (González-Roma, Schaufeli, Bakker, & Lloret, 2006; Schaufeli, Bakker, & van Rhenen, 2009) while others included a third domain, absorption (Hakanen, Bakker, & Schaufeli, 2006; Schaufeli, Bakker, & Salanova, 2006). Therefore, by design, the efficacy results do not fit the job demands-resources model.

Engagement Levels Within the Canadian and Provincial Contexts

Researchers have indicated that an intensification of work has occurred in the Canadian workplace (Duxbury & Higgins, 2003) and British Columbia schools (British Columbia Teachers’ Federation, 2010; Grimmett, 2007). The reported high demands in this study, workload and possibly dealing with difficult student behaviour, could reflect Canadian and provincial accounts. According to both of the main models of engagement, the increase
in demands associated with intensification would require sufficient resources to offset the demands. It is possible the relevant resources are not keeping pace with demands.

Grimmett, Dagenais, D'Amico, Jacquet, and Ilieva (2008) suggested the rewards of teaching, collegiality, and intellectual aspects of teaching counterbalanced the despair related to the work demands and lack of social recognition that teachers expressed in contrasting political and professional discourses. A similar contrast seems evident in my findings, as teachers reported somewhat high demands and a lack of the extrinsic reward of feeling valued on one hand and strong social support and intrinsic rewards on the other hand. However, the degree of contrast in the discourses and the levels of engagement cannot be precisely compared due to differing measures and possibly differing contexts between studies.

*Engagement Levels Within Elementary Class Composition*

The class composition variables were meant to broaden understanding of the role of workload. Teachers indicated whether their classes met the threshold of three or more students for whom they were concerned and prepared student intervention plans (grey area) or with designation of exceptional needs (Bill 33). Elementary class composition analyses compared classes that met neither, only one, or both thresholds. Results showed that energy and sufficiency of student support were highest and workload was lowest for classes that met neither threshold. For this group of teachers, a balance of workload and student support, or a manageable workload with reduced need for student support, seemed to predict relatively higher energy. For classes that met both thresholds, results showed workload was significantly higher, sufficiency of student supports significantly lower, and energy was statistically similar to teachers whose classes met neither threshold. For this group, a balance of workload and student support seemed to predict energy that was lower, but not statistically
lower, than the neither threshold group. When only one threshold was met, workload was not significantly higher, sufficiency of student support was significantly lower (lowest for grey area classes), and energy was significantly lower (lowest for Bill 33 classes) compared to neither threshold being met. For teachers whose classes met a single threshold, an apparent imbalance of workload and student support predicted lower energy levels. The neither and both groups reported higher social support and energy than the single threshold groups. It seems that student support played an important role in predicting energy levels, because even though workload increased with class complexity, energy did not significantly decrease with complexity when student support levels increased sufficiently.

According to the mediation model (Leiter & Maslach, 2004), the combination of resources and demands contribute to overall workload, workload has a direct path to energy, and the other areas of worklife indirectly predict energy levels. In the context of the model, the student support resources would have been expressed within the workload variable, but rankings did not show a linear decrease in energy as workload and class complexity increased, so it is possible that student support is in some way related to another area of worklife through which it influenced energy levels.

The elementary class composition results seem to support the job demands-resources theory that while higher workload mainly predicts lower energy, resources also contribute to energy. Further, it supports the assertion that combinations of resources and demands are not simply additive in nature, but interact to offset one another (Bakker & Demerouti, 2007). In this study, teachers reported higher workload as class complexity increased, which would be expected to result in lower energy, but the greater sufficiency of student support reported for the most complex classes could have contributed to the higher energy reported compared to the single threshold groups. My results seem consistent with Bakker, Demerouti and
Euwema's (2005) findings that job demands had a weaker or no relationship with exhaustion and cynicism when sufficient job resources were available. They asserted that resources buffer the effects of job demands on burnout and have a stronger effect on engagement in the context of high demands. It could be that student support buffered the effects of class complexity and workload on energy, and had a stronger effect on energy in the context of somewhat high workload and more complex classes than it would otherwise have had.

The combined findings suggest that higher levels of student support for the more complex classes offset the higher workload and predicted higher energy compared to less complex classes meeting one threshold. It is possible that less sufficient resources were allocated to the classes meeting one threshold, and energy was lower due to a less favourable balance of resources and demands. The greatest sufficiency of student support was found for the apparently least complex classes, those that met neither threshold. It is likely that the perception of more sufficient student support for classes with fewer students with exceptional needs reflects a lower need for student support services rather than the receipt of greater student support.

Class composition category rankings indicated that as the perception of sufficiency of student support increased, so did energy levels, whereas energy did not decrease as perception of workload increased. While these findings suggest student support was important for predicting energy, the multiple regression models did not.

Class composition data using thresholds seemed to reflect workload, but more detailed class composition data, such as the number and category of students, would provide finer measurement and more valid results. In addition, in order to better understand the role of student support, the type and amount of student support could be gathered. More detailed
Engagement Levels Within Demographic Variables

Demographic variables did not predict engagement and therefore support the theory that resources and demands are the more important factors that predict levels of engagement. Differences that were found between categories of the variables were not statistically significant.

Coping Strategies

The qualitative data showed evidence of teachers involved in the appraisal activities and planning of coping strategies that Lazarus and Folkman (1984) proposed would occur in stressful situations. Teachers with high engagement levels focused more on professional goals and plans of action; being task-oriented may be an effective strategy for reducing demands and increasing engagement. It is also possible they experienced greater resources with which to meet goals. Leiter (1991) asserted that cognitive and behavioural problem-focused coping seemed to require resources in the environment, such as colleague and supervisor support. Consistent with Leiter's findings, highly engaged teachers in my study reported using task-oriented behavioral problem-solving and sought the support of staff.

Teachers with high engagement levels seemed to more easily let go of demands and take breaks from work. It is possible that the ability to psychologically let go of demands restores or preserves emotional energy, and it is also possible that it is easier to let go in the context of a more favourable balance of resources and demands. The positive thinking reported by teachers with high engagement and negative thinking reported by teachers with low engagement could be important for understanding their roles in relation to engagement. McCarthy, Lambert, O'Donnell, and Melendres (2009) and Griffith, Steptoe, and Cropley
(1999) asserted that coping strategies might influence the perception of stress. It is possible that as a coping strategy, type of thought could influence the perception of stress and the choice of further coping strategies. The venting used by highly engaged teachers could reduce stress and could relate to their access to social support.

Teachers with low engagement reported greater incidences of resisting demands and using avoidance strategies. These strategies may be either maladaptive or ineffective for coping with workplace stress as Griffith, Steptoe, and Cropley (1999) suggested might be the case for avoidance.

Without longitudinal data, it is not possible to determine whether teachers selected coping strategies based on their level of engagement or whether their level of engagement was, in part, the result of coping strategies. It is possible a feedback loop or interaction takes place. Understanding cause and effect through a longitudinal study would help to explain the role of coping strategies.

**Summary**

Workload and social support were important predictors of engagement levels. High social support may have offset the somewhat high workload, although other factors could have interacted with these variables to predict engagement levels. Sufficiency of student support was low in general, and seemed to offset elementary class composition. Since social support was already high, it is possible that a reduction of workload or the addition of other resources is needed to increase teacher engagement. It would also be important to preserve the current levels of social support, as a decrease in social support could result in a decrease in engagement. Professional development with a sustained focus did not predict engagement. Possible reasons for the professional development results need investigation. Autonomy, rewards, and material resources were probably important resources and their relationships
with teacher engagement should be considered for future research. Rewards could be separated into intrinsic and extrinsic categories. The roles of expectations of self and administrative tasks need further examination to determine whether they are discreet demands and whether teacher ratings of importance can be confirmed in a quantitative study of correlation, regression models, or structural models. Student behaviour may be important and revision of the scale is needed.

Engagement levels established using the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996) provide a baseline for future research. The sample seemed to have low to moderate levels of engagement, low levels of energy, low to moderate levels of involvement, and moderate to high levels of efficacy. Results are consistent with the main models of engagement and studies that involved national and provincial contexts. Findings suggest that the degree of balance between resources and demands contributes to work engagement. Student support seemed to offset the relationship between workload and energy levels.

A comparison of engagement levels for this sample to teachers in a similar context or the same population at a different time would be needed to draw stronger conclusions regarding the engagement levels in this sample. This thesis research could be the first record of levels of engagement using the *Maslach Burnout Inventory – General Survey* (Schaufeli, Leiter, Maslach, & Jackson, 1996) specifically for teachers in the province.

**Recommendations**

**Study Sample**

The results showed low levels of energy, low to moderate levels of involvement, moderate to high levels of efficacy. If increased levels of engagement are sought, the study results and professional literature indicate possible strategies.
Based on the findings that engagement has a positive relationship with resources and a negative relationship with demands, the organizational characteristics that can be adjusted are resources and demands. The study results showed somewhat high demands and a mixture of sufficient and insufficient resources. An increase in resources or a decrease in demands could be expected to increase engagement. Bakker, Demerouti and Euwema (2005) and Bakker and Demerouti (2007) offer a further refinement to possible interventions. Their findings indicated that resources have a stronger effect on engagement in the context of high demands and may imply that increasing resources would be most effective if demands remain unchanged. An increase in demands or a decrease in resources might be expected to decrease engagement.

Social support was an important sufficient resource that should be fostered and maintained. The elementary class composition data suggest that allocation of demands should take into account resource levels, and vice versa. Increases in autonomy, feeling valued, or material resources might increase engagement while decreases might be associated with decreased engagement. A subsequent assessment of resources, demands, and engagement levels could provide valuable feedback regarding the direction of any change.

**Future Research**

The next step in the study of teacher engagement in the provincial context could be the study of random samples throughout the province. Such data would help determine whether regions of the province differ in measures of the key constructs. If differences are found between regions, it could lead to valuable indicators for planning interventions or enhancements.

The ranking and qualitative data from this study identify important resources and demands that could be included in future quantitative research. It would be important to
determine whether the resources and demands teachers deemed to be most important have strong correlations with engagement or improve multiple regression models (Lee & Ashforth, 1996). Variables that show significant relationships with engagement could then be included in a longitudinal study to increase understanding of the direction of the relationships.

The improved collection of class complexity and student support data might yield important information for understanding teacher engagement. The professional literature indicated that the relevance of specific resources and demands might differ according to occupation (Bakker & Demerouti, 2007; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Hakanen, Bakker, & Schaufeli, 2006; Hakanen & Roodt, 2010; Halbesleben, 2010; Schaufeli & Salanova, 2007). It could be that student support and class complexity are important predictors of teacher engagement.

Longitudinal study of coping strategies, resources, demands, and engagement is needed to investigate the direction of the relationships among the variables. It would extend the longitudinal work of Leiter and Maslach (2004) and Maslach and Leiter (2008) by confirming or contrasting existing studies of engagement. As results in the professional literature have sometimes been inconsistent, it would be useful to amass consistent data that support reliable relationships. Further study is needed to lead to the most effective strategies for enhancing engagement.

Chapter Summary

In this chapter I indicated levels of resources and demands based on scaled data. In addition I reported their deemed importance in relation to teacher engagement based on ranking and comments and based on the professional literature. Quantitative data analyses showed that workload and social support were the strongest predictors of work engagement. The values congruency and student support correlations had mixed degrees of strength with
the domains of engagement. In addition, the qualitative data and professional literature indicated the importance of additional workplace characteristics. Findings that resources had positive relationships and demands had negative relationships with engagement supported the two stated hypotheses.

I concluded that this sample seemed to have low to moderate levels of engagement. The relationships among the key constructs matched aspects of the main models of engagement. The levels of the three domains of engagement and their relationships with the somewhat high workload were consistent with the mediation model (Leiter & Maslach, 2009). The relationships among resources, demands, energy, and involvement were consistent with the job demands-resources model (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004).

I related my findings to the extant literature and found parallels and possible explanations for my results. My findings indicate that levels of resources and demands interact to influence levels of engagement. Student support as a discrete variable may have been unique to this study and may have influenced the relationship between workload and energy. In keeping with the professional literature, I suggested that increasing resources or decreasing demands might increase engagement levels.

Finally, I offered possible directions for future research. The study of teachers in other areas of the province or investigation of resources and demands that teachers in this sample deemed to be important may be of interest. In addition, improved collection of class composition and student support data might yield valuable information. In conclusion, I stated that longitudinal research is needed to show causal relationships among the key constructs.
The first chapter of this thesis identified the importance of studying teacher engagement in northwestern British Columbia. It defined key terms, posed questions, and stated hypotheses. Chapter 2 provided a review of the professional literature and demonstrated the relevance of the questions and hypotheses that were investigated. In Chapter 3 I described the research methods that were followed and the data analyses that were conducted. Chapter 4 reported the results of the quantitative and qualitative analyses. Chapter 5 discussed the results and proposed interpretations based on the professional literature. In this final chapter I stated conclusions to the investigations of the central research questions and presented considerations for further study.
References


FluidSurveys [Computer program]. (2010). Ottawa, Ontario, Canada: Chide.it Inc.


Appendix A

Resources Identified in the *Other Important Resources* Category

1. Working within my subject area. This promotes confidence and interest in my teaching.

2. Positive working relationships with parents and students.

3. Internet. (Coded as material resources)

4. Access to professionals like counselors and specialists. We aren't allowed to meet and discuss students but we need their expertise.

5. Aboriginal materials. (Coded as material resources)

6. Working in a small school.


8. Time.
Appendix B

Demands Identified in the *Other Important Demands* Category

1. Job security.

2. Student motivation. (Teacher indicated student behaviour).

3. Special needs students.

4. Not meeting student needs.

5. Number of special needs students without support.

6. Meeting diverse needs of all students in the class with not enough support.

7. Change in MASKED (Teacher indicated a curricular area).

8. Provincial exam expectations. (Teacher indicated workload).

9. Parents. (Coded as workload).

10. Class composition and lack of support for gray area and identified students.

11. Administration.

12. Lack of resources.

13. Demands made by administrators and parents to follow I.E.P.s without any Special Services Assistance help. (Teacher indicated workload).

14. Lack of resources, lack of motivation of students. (Teacher indicated student behaviour).

15. Timetable.

16. Philosophy.

17. Motivating the learner. (Teacher indicated student behaviour).

18. Loss of MASKED specialists.

19. Marking load. (Teacher indicated workload).

20. Spending too much time at school. (Teacher indicated time pressure).