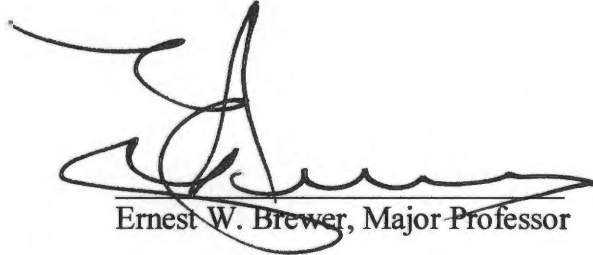


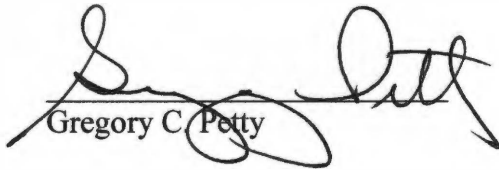
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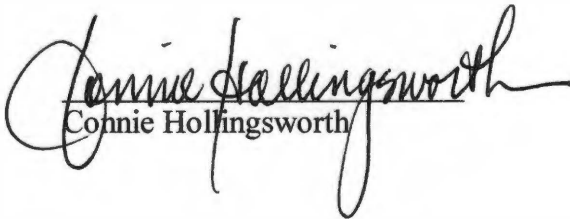


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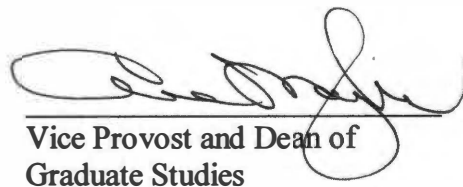


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Vice Provost and Dean of  
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**A META-ANALYTIC EXAMINATION OF THE DIMENSIONS OF TEACHER  
BURNOUT AND DEMAND AND RESOURCE CORRELATES**

**A Thesis  
Presented for the  
Master of Science  
Degree  
The University of Tennessee, Knoxville**

**Jama Lynn McMahan  
December 2003**

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## ACKNOWLEDGEMENTS

I was extremely fortunate to have worked with an outstanding committee of experienced professionals to complete this project. In addition to providing direction and guidance specific to this study, each member generously shared expertise and insight that I am confident will be of great benefit to me throughout my professional life.

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## ABSTRACT

The purpose of this study was to use meta-analytic procedures to explore the associations between various demand and resource correlates and the dimensions of teacher burnout (i.e., emotional exhaustion, depersonalization, and personal accomplishment). Demand correlates included work overload, role conflict, role ambiguity, and student misbehavior. Resource correlates included peer support, supervisory support, and participation in decision-making.

The study was based on 42 studies with 41 independent samples and 14,742 respondents. Meta-analytic statistical procedures were used to test the following relationships: (a) a positive relationship between emotional exhaustion and demand correlates, (b) a negative relationship between depersonalization and resource correlates, (c) a positive relationship between personal accomplishment and resource correlates, and (d) a negative relationship between personal accomplishment and demand correlates. The following statistics were reported: unweighted mean correlations, weighted mean correlations, and weighted Fisher's  $z$  correlations. Homogeneity was tested for using the  $Q$  statistic.

The results supported each of the tested relationships. However, in most cases, the samples on which the results were based were found to be heterogeneous, thus suggesting that the relationships were moderated by other variables. Based on these results, it is recommended that future research explore how other variables moderate the relationships between various demand and resource correlates and the dimensions of teacher burnout. Also, regarding practical implications of this research, it is recommended that school administrators review policies and procedures relative to how teachers' roles are defined

and encourage teachers to participate in decision-making processes regarding issues that affect them.

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## **CHAPTER I**

### **INTRODUCTION**

Faced with the challenges to “correct social problems, educate students in academic and skill areas, provide enrichment activities, meet the individual needs of students with a wide range of abilities, and encourage students’ moral and ethical development” (Maslach & Jackson, 1996, p. 27), teachers often have functioned under intense pressure. Continued exposure to this pressure has induced a state of mental and physical exhaustion in many teachers. This state has been termed “burnout” (Freudenberger, 1974).

In part due to the high visibility of the teaching profession, there has been an abundance of literature on teacher burnout, including copious empirical findings (see Maslach & Schaufeli, 1993, for a review). However, because many researchers did not employ an overarching theoretical framework in designing these studies, the resulting body of research lacked order and congruence (Maslach, 1999). Thus, the challenge in recent years has been to find a way to make sense of the variety of findings. This study utilized meta-analytic procedures to integrate the multitude of studies into meaningful findings about teacher burnout.

#### **Statement of the Problem**

Burnout has been associated with an overall decline in performance as well as low morale and increased turnover and absenteeism (Maslach & Jackson, 1996). Teachers suffering from high levels of burnout have lacked energy and enthusiasm to invest in student learning and have displayed negative, indifferent, distant, or callous attitudes toward students (Maslach, Jackson, & Schwab, 1996). In addition, high burnout

individuals have experienced such physical symptoms as (a) colds and flu; (b) muscle tension; (c) chronic physical exhaustion; (d) ulcer symptoms; (e) increased smoking, drinking, and drug use; (f) increased eating; (g) marked weight loss or gain; (h) insomnia; and (i) increased blood pressure (Belcastro, Gold, & Grant, 1982; Cooper, 1986; Cunningham, 1982; Hamman, 1992; Kyriacou & Pratt, 1985). Given the severity of these effects, gaining a complete understanding of burnout so that interventions can be designed to prevent and alleviate it should be a priority. However, as revealed by a brief, historical perspective of burnout research, the absence of theoretical underpinnings has impacted researchers' efforts negatively.

The concept of burnout emerged in the mid-1970s when Freudenberger (1974) noted a propensity among human service workers to experience a depletion of physical and psychological resources. Characterized by a lack of definitional clarity, the early literature on burnout was nonempirical and clinical, perhaps because the primary audience was practitioners rather than academic researchers (Maslach, 1999). A dearth of empirical evidence, coupled with absence of a consistent definition for burnout, generated a body of research lacking theoretical congruity.

The emergence of an operational definition of burnout as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do 'people' work of some kind" (Maslach & Jackson, 1986, p. 1) along with the development of standardized measurement instruments marked a new phase in burnout research. Beginning in the early 1980s, there was a multitude of empirical studies that examined possible relationships between burnout and a variety of variables, including (a) demographic characteristics, (b) locus of control, (c) coping, (d)

self-esteem, (e) professional self-concept, (f) work overload, (g) role conflict, (h) role ambiguity, (i) decision-making, and (j) interpersonal relations (Brissie, Hoover-Dempsey, & Bassler, 1988; Burke & Greenglass, 1993; Byrne, 1994; Chan & Hui, 1995; Cooper & Kelly, 1993; Friedman, 1995; Friedman & Farber, 1992; Huberman, 1993; Jackson, Schwab, & Schuler, 1986; Mazur & Lynch, 1989; Pierce & Molloy, 1990; Sarros & Sarros, 1992; Tuettemann & Punch, 1992). Although these studies yielded a great deal of empirical evidence, they often “did not utilize a conceptual model of burnout from which hypotheses could be derived and tested” (Maslach, 1999, p. 215). Consequently, interpretation of results from these studies has been problematic (Maslach).

Leiter (1993) developed the most widely accepted model of the interrelationships among the burnout dimensions (i.e., emotional exhaustion, depersonalization, and reduced personal accomplishment). Byrne (1994) provided empirical support for this model. Although Lee and Ashforth (1996) noted the merits of Leiter’s model, they considered the evidence for it to be “piecemeal” (p. 124). Applying Hobfoll’s (1989) conservation of resources (COR) theory to Leiter’s model, they conducted a meta-analysis to assess the associations between demand correlates and resource correlates and the dimensions of burnout. Their work constituted a critical step in understanding burnout. However, because Lee and Ashforth included sample populations from many different occupational groups, their study did not address characteristics distinctive of the teaching population.

Teachers have long played a vital role in the development of children and youth. They have been responsible for helping students to learn and apply concepts in diverse subjects; exposing students to various viewpoints; maintaining classroom discipline;

providing an environment conducive to learning for students from diverse backgrounds and skill levels; planning, administering, and evaluating lessons and tests; preparing the future workforce; and much more (U.S. Department of Labor, 2002). Moreover, they have fulfilled their duties in working conditions characterized by heavy workloads, isolation from colleagues, and unruly behavior by students (U.S. Department of Labor). Yet, despite the import of their responsibilities, teachers have suffered from lack of respect. Eggleston (1992) described their plight:

Because everybody has at one time been at school, most people believe that they themselves have some or even most of a teacher's expertise and capability....Teachers lack the mystique that normally enhances professional status and power and are subject to public attempts to control and constrain them: by legislation, public opinion, an even, occasionally, by media ridicule and prejudice. (p. 2)

America currently faces a potentially crippling projected teacher shortage (Gewertz, 2001; Shure, 2001). The need to educate the nation's children and youth will not abate. Therefore, it is necessary to address problems contributing to the dwindling supply of teachers. Burnout has been one of the problems associated turnover among teachers (Maslach & Jackson, 1996).

### **Purpose of the Study**

The purpose of this study was to use meta-analytic procedures to explore the associations between various demand and resource correlates and the burnout dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment among teachers. Specifically, it examined the following relationships: (a) a positive relationship between emotional exhaustion and demands, (b) a negative relationship between depersonalization and resources, (c) a positive relationship between personal

accomplishment and resources, and (d) a negative relationship between personal accomplishment and demands. Based on the findings, recommendations for future research and implications for practice were drawn.

### **Significance of the Study**

This study contributed to the body of burnout research by replicating the work of Lee and Ashforth (1996) using a more narrowly defined population: teachers. As a replication of Lee and Ashforth's research, this study also shared the significance of that study in that it had "implications for the diagnosis and the amelioration of burnout" (p. 124), albeit only among the teaching population.

Thoroughly understanding the factors related to each dimension of burnout could aid in identifying workplace situations and conditions conducive to burnout. Based on that information, policies and interventions aimed at minimizing those conditions could be designed. As noted earlier, teachers experiencing high levels of burnout have reported several negative physical symptoms (Hamman, 1992), have lacked energy to devote to student learning, and have displayed indifferent, callous attitudes toward students (Maslach et al., 1996). Moreover, the increased turnover and absenteeism associated with high levels of burnout have resulted in increased costs to school systems (Maslach & Jackson, 1996). Thus, policies and interventions that combat burnout would be of benefit to teachers, students, and school systems.

### **Hypotheses**

Directional hypotheses are used when a researcher has "a basis for believing that the results will occur in the stated direction" (Gay & Airasian, 2003, p. 65). Such a basis existed for this study. Leiter (1993) theorized that demand and resource correlates were

differently associated with the three burnout dimensions. Specifically, he proposed that demands were chiefly associated with high levels of emotional exhaustion, and resources were chiefly associated with low levels of depersonalization. Furthermore, whereas demands were associated with reduced personal accomplishment, resources were associated with increased personal accomplishment. Leiter's propositions have received empirical support (Byrne, 1994; Lee & Ashforth, 1996). Thus, in accordance with Leiter's conceptualization, this study used meta-analytic procedures to test the following directional hypotheses:

- H<sub>a1</sub>: There is a significant positive relationship between demand correlates and emotional exhaustion as measured by the Maslach Burnout Inventory.
- H<sub>a2</sub>: There is a significant negative relationship between resource correlates and depersonalization as measured by the Maslach Burnout Inventory.
- H<sub>a3</sub>: There is a significant positive relationship between resource correlates and personal accomplishment as measured by the Maslach Burnout Inventory.
- H<sub>a4</sub>: There is a significant negative relationship between demand correlates and personal accomplishment as measured by the Maslach Burnout Inventory.

### **Assumptions**

An assumption is a presumption made by the researcher in carrying out the research procedures. In conducting this study, the researcher made two assumptions:

1. The researchers who conducted the included studies used approved research methods and reported the results accurately.
2. Participants in the included studies completed surveys fully and accurately.

## **Limitations**

A limitation is a factor that may have an effect on the study, but it is not under control of the researcher. Four limitations applied to this study:

1. This study was limited by the availability of studies meeting criteria for inclusion in the meta-analysis. The researcher included only those studies that could be obtained from (a) the library, (b) electronic sources, (c) Interlibrary Loan, and (d) Dissertations Express.
2. The results for this study were dependent on the data reported in the studies used in the meta-analysis. Thus, this study was limited to the findings reported by the researchers who conducted the studies included in this meta-analysis.
3. This study was limited by the use of a self-report instrument—the Maslach Burnout Inventory—to measure emotional exhaustion, depersonalization, and personal accomplishment. Consequently, the social desirability of certain answers could have influenced results.
4. The results of this study were limited by the statistical capabilities of the researcher and the computer software used in the study.

## **Delimitations**

A delimitation is a factor affecting a study that is under the control of the researcher. Only studies meeting specific eligibility criteria were included in this meta-analysis. These criteria served as the delimitations of this study. The specific delimitations were

1. This meta-analysis included only studies that reported quantitative results in the form of correlations between (a) demand correlates and emotional exhaustion, (b) demand correlates and personal accomplishment, (c) resource correlates and depersonalization, and (d) resources correlates and personal accomplishment. Demand correlates were delimited to work overload, role conflict, role ambiguity, and student misbehavior. Resource correlates were delimited to peer support, supervisory support, and participation in decision-making.
2. This meta-analysis included only studies that used the Maslach Burnout Inventory to measure burnout.

3. This meta-analysis included only studies that used elementary, intermediate, and secondary teachers as research participants.
4. This meta-analysis included only studies that were reported in English or for which an English translation was available.
5. Only studies with results reported between 1986 and June 2003 were included in this meta-analysis.

### **Operational Definitions**

To facilitate understanding of the terms used in the study, the following definitions have been provided. The researcher has used each term consistently with the provided definition throughout this study.

1. *Burnout*: A syndrome of “emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do ‘people’ work of some kind” (Maslach & Jackson, 1986, p. 1).
2. *Emotional Exhaustion*: An overall feeling of being emotionally overextended and unable to give of oneself psychologically (Maslach & Jackson, 1996).
3. *Depersonalization*: A cynical or cold attitude when dealing with others’ needs (Maslach & Jackson, 1996).
4. *Personal Accomplishment*: The feeling that one is competent and effective in performing work tasks. Reduced personal accomplishment reflects burnout (Maslach & Jackson, 1996).
5. *Demand Correlates*: Demands or stressors that an individual perceives as threats to his or her resources. Examples include role ambiguity, role conflict, work overload, and stressful events (Lee & Ashforth, 1996).
6. *Role Ambiguity*: A lack of understanding by an individual of the expectations placed on him or her (Byrne, 1999).
7. *Role Conflict*: One demand or expectation placed on an individual conflicts with one or more other demands placed on him or her (Byrne, 1999).
8. *Work Overload*: A condition resulting when too many demands have been made, and there has been inadequate time to meet them. Another element of work overload has involved assignment of a work task to an individual who did not have the skills or knowledge to successfully execute it (Byrne, 1999).

9. *Stressful Event*: An event appraised by a person as being taxing or exceeding his or her resources, thereby endangering his or her well-being (Lazarus & Folkman, 1984). In line with the research literature on teacher burnout (Byrne, 1999; Maslach & Schaufeli, 1993), the stressful event studied in this research was student misbehavior.
10. *Student Misbehavior*: Problem behaviors exhibited by students. Examples include disrespect, lack of sociability, lack of attentiveness, and violence (Friedman, 1995; Hastings & Bham, 2003).
11. *Resource Correlates*: Those assets that an individual values and strives to obtain. Examples include social support from peers, supervisory support, and participation in decision-making (Cordes & Dougherty, 1993).
12. *Peer Support*: The exchange of information among coworkers that leads a person to believe that he or she is cared for (Cobb, 1976).
13. *Supervisory Support*: An interpersonal transaction between a teacher and principal in which the teacher perceives that he or she has received affect, affirmation, or help (Kahn & Antonucci, 1980).
14. *Artifacts*: Study imperfections produced by human errors. Examples include sampling error, errors of measurement, dichotomization of continuous variables, range variation, deviation from perfect construct validity, and variance due to extraneous factors (Hunter & Schmidt, 1990).
15. *Meta-Analysis*: "The statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings" (Glass, 1976, p. 3).
16. *Effect Size*: "A numerical way of expressing the strength or magnitude of a reported relationship" (Gay & Airasian, 2003, p. 294).
17. *Homogenous*: Presence of uniformity in the study effect sizes; relative to meta-analytic studies, homogeneity is an approximation rather than exact uniformity (Hunter & Schmidt, 1990).
18. *Heterogeneous*: Lack of an approximation of uniformity in study effect sizes (Hunter & Schmidt, 1990).

## **Summary**

This chapter constituted an introduction to the study. It included (a) the statement of the problem, (b) the purpose of the study, (c) the significance of the study, (d) hypotheses, (e) assumptions, (f) limitations, (g) delimitations, and (h) operational definitions. The next chapter contains a review of the literature that framed this study.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

This chapter contains a review of literature. The first section of the chapter contains a description of the theoretical framework that was utilized in the study. Following the first section is a review of literature related to teacher burnout. Finally, the last section of the chapter contains a review of meta-analysis.

#### **Theoretical Framework**

The postulation that Hobfoll's (1989) Conservation of Resources (COR) theory provided a cognitive framework for understanding burnout has received empirical support (Janssen, Schaufeli, & Houkes, 1999; Lee & Ashforth, 1996; Leiter, 1993). The basic premise of COR theory was that individuals strived to obtain and to protect the things that they value (i.e., resources; Hobfoll, 2001). Defining resources as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies," Hobfoll (1989, p. 516) posited that individuals experienced stress when there was (a) a threat of loss of resources due to overwhelming demands, (b) actual loss of resources, or (c) an investment of resources without subsequent resource gain. Hobfoll (2001) proposed that burnout followed from the third stress condition (i.e., inadequate resource gain following significant investment of resources, particularly over an extended period of time).

Hobfoll (1989) was not the first theorist to suggest that individuals endeavored to obtain the things that they valued. In his theory of human motivation, Maslow (1954) proposed that individuals strive to satisfy their needs in a hierarchical fashion. Similarly,

in his social learning theory, Bandura (1977) asserted that individuals were more likely to adopt a modeled behavior if it resulted in outcomes that they valued.

Lazarus (2001) and Thompson and Cooper (2001) have criticized COR theory as being merely a restatement of previous stress theories. Hobfoll (1989, 2001) asserted that COR theory built upon earlier theories while comprehensively explaining behavior in stressful situations within a testable framework. A brief review of stress research reveals how COR built upon previous stress models.

Studying the effects of environmental stressors on the human body, Cannon (as cited in Hobfoll, 1989) was the first researcher to apply the concept of stress to humans. Often referred to as the father of stress theory, Seyle (1974) continued in the tradition of Cannon. He formulated the General Adaptation Syndrome to explain the body's reactions to harmful stressors. Seyle also was noted for distinguishing negative stress and positive stress, which he referred to as *eustress*. However, Hobfoll pointed out that Cannon and Seyle failed to consider psychological phenomena and individual differences in their study of stress. Caplan (1964) addressed these shortcomings, but in his focus on the reactions of individuals in extreme crisis situations, he neglected to account for the importance of extreme external circumstances.

Lazarus and Folkman (1984) contributed significantly to the body of stress research. They recognized the vast variations in human responses to stress. Lazarus and Folkman defined stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). Inherent in this definition was an emphasis on appraisal and coping. Individuals experienced stress when they perceived

that demands would outstrip their coping capabilities. Although Lazarus and Folkman's work has been considered seminal research, Hobfoll (1989) argued that it was tautological because it did not "define demand and coping capacity" (p. 515). Moreover, because of an absence of meaningful units to measure demands and coping resources, Hobfoll asserted that Lazarus and Folkman's stress theory could never be tested directly. In response to this deficiency, Hobfoll defined and offered resources as the unit necessary for understanding and measuring stress.

### **Related Literature**

This section contains a review of the literature that framed this study. First, a description of the measurement of burnout is presented. The researcher included this section because understanding the measurement of burnout is crucial to understanding the design of the study. Second, a review of models of burnout is presented. While Leiter's (1993) model was the one tested by the hypotheses of this study, including a description of the model proposed by Golembiewski, Munzenrider, and Stevenson (1986) permitted Leiter's model to be placed in context with other research on burnout models. The fourth area presented in this section is a description of previous research that has utilized both the theoretical framework and model of burnout examined in this study. This is followed by a brief review of previous research that has reported relationships among the independent variables (i.e., demand and resource correlates) and dependent variables (i.e., the dimensions of burnout) of this study and a brief review of some variables that the literature indicated might be possible moderators of relationships examined in this study. Finally, a brief review of meta-analysis was included because some readers may not be familiar with the research technique.

## ***Measurement of Burnout***

Based on the three-dimensional (i.e., emotional exhaustion, depersonalization, and personal accomplishment) structure of burnout postulated by Maslach and Jackson (1996), the Maslach Burnout Inventory (MBI) has been the most widely accepted and frequently used burnout instrument in the research literature (Maslach & Schaufeli, 1993; Schaufeli, Enzmann, & Girault, 1993). Three subscales representing the three dimensions of burnout compose the MBI. The MBI contains 22 items that reflect the subscales. Respondents report how often they experience feelings related to each of the subscales on a Likert-type scale ranging from 0 (*never*) to 6 (*every day*). Byrne (1999) described the three dimensions as they relate to teachers:

1. Emotional exhaustion occurs when teachers can no longer give of themselves psychologically to students.
2. Depersonalization occurs as teachers develop negative, cynical attitudes toward students, parents, or colleagues.
3. Personal accomplishment is reduced for teachers when they perceive themselves as being ineffective in helping students learn.

Instead of being viewed as a dichotomous variable, burnout—as conceptualized by Maslach and Jackson (1996)—should be seen as a continuous variable ranging from a low to a high degree of experienced feeling on each of the three subscales. Low scores on the emotional exhaustion and depersonalization subscales and a high score on the personal accomplishment subscale reflect a low degree of burnout. Average scores on all three subscales represent an average degree of burnout. High scores on the emotional exhaustion and depersonalization subscales and a low score on the personal accomplishment subscale reflect a high degree of burnout. Scores from the three

subscales should be viewed separately rather than as a single score (Maslach & Jackson, 1996).

Numerous factor analytic studies have supported the three-factor structure of the MBI (Boles, Dean, Ricks, Short, & Wang, 2000; Byrne 1994; Gold, 1984; Green, Walkey, & Taylor, 1991; Iwanicki & Schwab, 1981; Pierce & Molloy, 1989). Iwanicki and Schwab and Gold investigated reliability of the MBI, reporting Cronbach alpha estimates of .90 and .88 for emotional exhaustion, .76 and .74 for depersonalization, and .76 and .72 for personal accomplishment, respectively. In addressing the construct validity of the MBI, Schaufeli and Van Dierendonck (1993) determined that the instrument was a reliable and valid indicator of burnout for individuals in the helping professions.

The only other burnout instrument that has received substantial attention in the research community is the Burnout Measure (BM) developed by Pines and Aronson (1988). This instrument includes only a measurement for emotional exhaustion. Schaufeli and Van Dierendonck (1993) concluded that although the structure of the BM was supported to a limited degree, the instrument “assessed only the affective component of burnout and should be supplemented by a scale that measures the syndrome’s attitudinal component” (p. 631).

### ***Models of Burnout***

Two primary models of burnout emerged in the literature: a phase model posited by Golembiewski et al. (1986) and Leiter’s (1993) model based in part on COR theory. A description of these models follows.

*Golembiewski's model.* Golembiewski et al. (1986) proposed an eight-phase model of burnout. To derive the eight phases, Golembiewski and his colleagues dichotomized scores from the three sub-scales (i.e., emotional exhaustion, depersonalization, and personal accomplishment) of the MBI at the median as low or high. The eight phases result from the possible combinations of the dichotomized scores (e.g., low scores for all three phases, low scores for depersonalization and emotional exhaustion and a high score for personal accomplishment, a low score for depersonalization and high scores for emotional exhaustion and personal accomplishment, etc.). Advantages of this model include that it provides a means for measuring burnout in large aggregates and for classifying individuals by degree of burnout (Burke & Richardson, 2001). Disadvantages of this model include that it dichotomizes a continuous variable. Hunter and Schmidt (1990) stated that dichotomization of a continuous variable incorrectly alters the size of a study correlation. Also, there was nominal empirical support for this model in the literature (Lee & Ashforth, 1993; Leiter, 1993).

*Leiter's model.* Leiter (1993) posited a model for burnout focusing on the developmental relationships among the three burnout dimensions: (a) emotional exhaustion, (b) depersonalization, and (c) reduced personal accomplishment. He proposed that emotional exhaustion developed first as a response to a demanding environment. Depersonalization followed sequentially from emotional exhaustion and constituted a manner of coping with emotional exhaustion. Leiter suggested that reduced personal accomplishment developed independently of the other two dimensions, arising from environmental demands and mediated by the presence of resources. This model has

received empirical support in the literature (Byrne, 1994; Lee & Ashforth, 1993, 1996). A visual representation of Leiter's model is not included in this report because the researcher did not receive permission to reproduce it.

### ***Burnout and COR Theory***

As noted in the discussion of his process model for burnout, Leiter (1993) employed Hobfoll's (1989) COR theory to build a framework for understanding burnout. Specifically, whereas demands were chiefly associated with emotional exhaustion, resources were more strongly associated with depersonalization and reduced personal accomplishment than with emotional exhaustion. Other researchers also have utilized COR theory to understand burnout. Lee and Ashforth (1996) used COR as the framework to investigate how demands and resources were associated with the three dimensions of burnout. They cited demands as role ambiguity, role conflict, stressful events, and work overload; they identified resources as social support, supervisory support, participation in decision-making, and autonomy. Utilizing a meta-analytic research design, Lee and Ashforth found that COR theory correctly explained the relationships among demands and resources and the dimensions of burnout.

Janssen et al. (1999) also applied COR theory as a framework for understanding burnout. They used a sample of 156 Dutch nurses to investigate the associations among the burnout dimensions and demands, resources, and self-esteem. Most of their findings were in line with COR theory and Leiter's model of burnout. However, they did not find a significant relationship between personal accomplishment and demand correlates.

## ***Demand Correlates***

Demand correlates are stressors that an individual perceives as threats to his or her resources (Lee & Ashforth, 1996). Lee and Ashforth identified work overload, role ambiguity, role conflict, and stressful events (i.e., student misbehavior) as demand correlates of burnout. A summary of research findings relative to demand correlates and teacher burnout follows.

***Work overload.*** Work overload has resulted when too many demands have been made, and there has been inadequate time to meet them (Byrne, 1999). Another element of work overload has involved assignment of a work task to an individual who did not have the skills or knowledge to successfully execute it. For example, Byrne identified factors that contribute to work overload for teachers as (a) excessive paper work, (b) oversize classes, (c) classes with students with different academic abilities, (d) imposed time constraints, and (e) the need to teach classes outside of the teacher's particular academic area.

Mazur and Lynch (1989) reported that work overload was the most significant predictor of teacher burnout. Other researchers provided empirical support for Mazur and Lynch (Abel & Sewell, 1999; Borg & Riding, 1991; Burke & Greenglass, 1993; Byrne, 1994; Cooper & Kelly, 1993; Fimian, 1988; Jenkins & Calhoun, 1991; Proctor & Alexander, 1992; Smith & Bourke, 1992; Tuettemann & Punch, 1992; Van der Doef & Maes, 2002). In addition, Huberman (1993) found a significant association between reduced workload and low burnout.

***Role conflict.*** Role conflict has occurred when one demand or expectation placed on an individual conflicted with one or more other demands placed on him or her. For

example, the demands that a principal places on teachers could conflict with parents' expectations. Generally, role conflict has been associated with high levels of burnout (Boles et al., 2000; Byrne, 1994; Capel, 1992; Jackson, Schwab, & Schuler, 1986; Proctor & Alexander, 1992; Starnaman & Miller, 1992; Tuettemann & Punch, 1992). On the other hand, Sermon (1994) found that role conflict was not a significant predictor of burnout, and Kijai and Totten (1995) reported inconsistent findings regarding the association between role conflict and burnout .

*Role ambiguity.* Role ambiguity has occurred when there has been a lack of understanding by an individual of the expectations placed on him or her. Byrne (1999) cited examples of role ambiguity faced by teachers:

1. Unclear and inconsistent policies regarding student behavior,
2. Required restructuring of curricula and pedagogical approaches in accordance with changing government mandates, and
3. The perception of being held in low esteem by students, parents, administrators, and the general public. (p. 22)

Findings about the relationship between role ambiguity and burnout have been somewhat inconsistent. Whereas some researchers noted a positive relationship between role ambiguity and burnout (Burke & Greenglass, 1995; De Heus & Diekstra, 1999; Pierce & Molloy, 1990; Starnaman & Miller, 1992; Tuettemann & Punch, 1992), others did not find a positive relationship (Byrne, 1994; Friesen & Sarros, 1989).

*Student misbehavior.* For teachers, stressful events have included student misbehavior. Student misbehavior has been linked to high degrees of teacher burnout (Abel & Sewell, 1999; Borg & Riding, 1991; Byrne, 1994; Friedman, 1995; Huberman, 1993; Mazur & Lynch, 1989; Sedgwick, 1998; Tuettemann & Punch, 1992). Moreover,

studies have shown that as burnout increased, teachers' interpretations of student misbehavior became more negative (Bibou, Stogiannidou, & Kiosseoglou, 1999; Whiteman, Young, & Fisher, 1985).

### ***Resource Correlates***

Resource correlates are those assets that an individual values and strives to obtain (Cordes & Dougherty, 1993). Examples of resource correlates have included supervisory support, peer support, and participation in decision-making (Cordes & Dougherty). A review of findings on the relationship between burnout and resource correlates follows.

*Supervisory support.* Among resource correlates, supervisory support has been of interest to burnout researchers. In general, supervisory support for teachers has been the degree of support that a teacher feels supported by the principal of his or her school. Most research findings have indicated a significant link between lack of supervisory support and high burnout or, conversely, high supervisory support and low burnout (Byrne, 1994; Cheuk, Wong, & Rosen, 1994; Greenglass, Burke, & Konarski, 1997; Kijai & Totten, 1995; Martin & Baldwin, 1996; Mazur & Lynch, 1989; Sarros & Sarros, 1992; Van der Doef & Maes, 2002).

*Peer support.* The degree to which teachers support one another also has been viewed as a moderator of burnout. Evidence of the effects of peer support on burnout has been inconclusive. Although some researchers have found that the presence of peer support was related to low burnout among teachers (Brissie, Hoover-Dempsey, & Bassler, 1988; Greenglass et al., 1997; Greenglass, Fiksenbaum, & Burke, 1996; Sarros & Sarros, 1992; Tuettemann & Punch, 1992), other evidence has indicated that lack of peer support was not a predictor for high burnout (Bin Batel, 1998; Burke & Greenglass,

1996; Cecil & Forman, 1990). Moreover, most of the accounts of peer support in these studies involved informal methods of support. Limited research, mostly qualitative, has been conducted into what effects more formal methods of peer support, such as support groups, could have on teacher burnout. Initial results have been promising (Epps, 1996), although not conclusive.

*Decision-making.* That teachers had little or no influence on decisions that directly affect them (e.g., curricular decisions) has been another factor that researchers have considered when investigating teacher burnout. Teachers who have an influence on decision-making have been associated with low levels of burnout (Byrne, 1994; Edwards, 1995; Friesen, Prokop, & Sarros, 1988; Mazur & Lynch, 1989; Tuettemann & Punch, 1992; Van der Doef & Maes, 2002).

### *Possible Moderating Variables*

In addition to demand and resource correlates, other variables have been linked to teacher burnout. These variables are possible moderators of the relationships among the independent and dependent variables examined in this study. Among those variables have been locus of control, coping, and demographic characteristics.

*Locus of control.* Numerous researchers have investigated locus of control relative to teacher burnout. Locus of control has referred to how individuals have viewed their control over life events. Whereas people who believed that they controlled events in their lives through their actions had an internal locus of control, individuals who believed that their lives were guided by others or by fate possessed an external locus of control. In the literature, teachers with an internal locus of control have been associated with lower levels of burnout than have teachers with an external locus of control (Byrne, 1994;

Capel, 1992; Huberman, 1993; Lunenburg & Cadavid, 1992; Lutz & Maddirala, 1990; Mazur & Lynch, 1989).

*Coping.* Coping has been defined as ways that individuals cognitively and behaviorally manage environmental demands in their lives (Lazarus & Folkman, 1984). Use of positive coping strategies have been linked to low levels of stress and burnout among teachers (Chan, 1998; Chan & Hui, 1998; Greenglass et al., 1996; Mearns & Cain, 2003), and maladaptive coping strategies have been associated with an increased risk for burnout (Hastings & Brown, 2002). However, determining which strategies have been positive and which have been negative has been problematic because of the importance of the context in which the situation requiring coping occurs (University of California Los Angeles, 1998).

*Demographic variables.* Common demographic variables reported in burnout research included gender and age. Results about the effects of demographic variables on burnout were mixed. In a study of 641 Israeli teachers, Friedman and Farber (1992) reported that demographic variables had no significant effect on the level of experienced burnout. Likewise, Byrne (1994) studied a sample of 3,044 teachers and found that demographic variables were not significant predictors of burnout. Sedgwick (1998) also found that demographic data were not significant predictors of burnout. However, other researchers reached different conclusions; a discussion of their findings follows.

Regarding gender, several researchers reported that male teachers were more susceptible to high levels of burnout than were their female counterparts (Beer & Beer, 1992; Friedman, 1991; Greenglass & Burke, 1990; Sarros & Sarros, 1992; Tuettemann & Punch, 1992; Van Horn, Schaufeli, Greenglass, & Burke, 1997). In contrast, Capel

(1992) found no significant gender differences among 405 British teachers. Friedman (1995) found that male and female teachers were relatively equal in their susceptibility to burnout, but their burnout was triggered by different causes.

Results regarding the effects of age on burnout were similarly inconsistent. Whereas some researchers found that older teachers were more likely than younger teachers to experience high levels of burnout (Friedman, 1991; Sarros & Sarros, 1992), others linked younger teachers to high degrees of burnout in regard to a specific subscale. For example, Pierce and Molloy (1990) reported that younger teachers scored higher on the depersonalization subscale than their older counterparts did, and Kantas and Vassilaki (1997) found that younger teachers experienced higher emotional exhaustion than older teachers did.

### **Meta-Analysis**

Research in the physical sciences has progressed through orderly examination of clearly defined problems using standardized methods and procedures. Consequently, physical scientists have found conclusive answers in a sequential manner, thus leading to the formation of a logical research agenda. In contrast, inconsistent definitions and disparate methods have hampered researchers' efforts in the social sciences. As a result, social scientists often have contended with a body of research replete with conflicting results that have yielded incessant calls for further research rather than producing definitive answers (Hunter & Schmidt, 1990; Wolf, 1986). The situation has compelled researchers to find "some means for making sense of the vast number of accumulated study findings" (Hunter & Schmidt, p. 37).

Traditional literature reviews have provided one method for integrating research findings. However, Wolf (1986) identified five potential problems with traditional literature reviews:

1. Selective inclusion of studies, often based on the reviewer's own impressionistic view of the quality of the study,
2. Differential subjective weighting of studies in the interpretation of a set of findings,
3. Misleading interpretations of study findings,
4. Failure to examine characteristics of the studies as potential explanations for disparate or consistent results across studies, and
5. Failure to examine moderating variables in the relationship under examination. (p. 10)

In response to these problems, Glass (1976) and Schmidt and Hunter (1977) independently developed statistical procedures to integrate research findings. Glass coined the term "meta-analysis" to describe these procedures. He defined meta-analysis as

The analysis of analysis...the statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings. It connotes a rigorous alternative to the casual, narrative discussions of research studies which typify our attempts to make sense of the rapidly expanding research literature. (p. 3)

By using meta-analytic procedures, researchers have been able to synthesize a wide variety of research findings while reducing their own personal bias.

### ***Advantages of Meta-Analysis***

As noted earlier, a chief advantage of meta-analysis is that it provides a means to synthesize disparate research findings. Moreover, meta-analytic procedures can be used to reconcile disparity in research findings; they can be used to determine whether

disparity in research findings is due to study artifacts (Hunter & Schmidt, 1990). If synthesis and reconciliation of disparate results occur, then the likelihood of generating a definitive answer is increased. Consequently, that answer can provide direction for making decisions about complex issues (Wolf, 1986). Furthermore, meta-analytic techniques can be used to improve statistical estimates of effect sizes (Wolf), thereby providing increased evidence on which to base decisions.

### ***Criticisms of Meta-Analysis***

A chief criticism of meta-analysis has been that it “mixes apples and oranges; that is, meta-analysis combines studies that are so different that they are not comparable” (Hunter & Schmidt, 1990, p. 516). For example, Smith and Glass (1977) received strident criticism for including studies that investigated disparate therapeutic approaches in their meta-analysis on the effectiveness of psychotherapy (Lipsey & Wilson, 2001). To combat such criticism, it has been important to be very specific about the criteria used to determine eligibility for inclusion in a meta-analysis (Lipsey & Wilson).

Another criticism of meta-analysis has involved an issue inherent in the very nature of meta-analysis: Any form of bias or error found in the original data set is repeated and possibly magnified in each subsequent analysis. In other words, “garbage in, garbage out” (Rosenthal & DiMatteo, 2001, p. 66). The ramifications of including a study with biased or erroneous results could be disastrous considering the improved statistical power associated with meta-analysis (Wolf, 1986).

### **Summary**

Asserting that individuals strived to obtain and to protect the things that they value, Hobfoll’s (1989) COR theory has provided a cognitive framework for

understanding burnout. Based in part on COR theory, Leiter's (1993) model of burnout has received empirical support (Byrne, 1994; Lee & Ashforth, 1996). The research literature also contains ample evidence of relationships among the dimensions of burnout and such variables as (a) work overload, (b) role conflict, (c) role ambiguity, (d) participation in decision-making, (e) supervisory support, (f) peer support, (g) demographic characteristics, and (h) locus of control (Abel & Sewell, 1999; Byrne, 1994; Greenglass et al., 1997; Mazur & Lynch, 1989; Mearns & Cain, 2003; Pierce & Molloy, 1990; Sarros & Sarros, 1992; Tuettemann & Punch, 1992; Van der Doef & Maes, 2002). Meta-analysis provides a means to bring order and congruence to a diverse body of research findings. A description of how meta-analytic procedures were used in this study follows.

## **CHAPTER III**

### **METHODOLOGY**

This study employed a meta-analytic research design. This design was chosen because of its potential to provide an organized method for integrating the multitude of empirical studies on teacher burnout into meaningful findings about the relationship between demand and resource correlates and the dimensions of burnout. This chapter contains a description of the methods that were employed in this study. Figure 1, The Process of Meta-Analysis (Brewer & McMahan, 2002), displays a flow chart of the research process. Since the first steps of the pre-study process—identify problem and variables—have been delineated previously in Chapters I and II, the discussion of research methods begins with the third step of the pre-study process, establish criteria for inclusion.

#### **Criteria for Inclusion**

Lipsey and Wilson (2001) asserted, “One characteristic of a good meta-analysis is that the researcher is very explicit about the population of research studies whose findings are to be examined and summarized” (p. 16). Only those studies meeting specific eligibility criteria were included in this meta-analysis. Lipsey and Wilson suggested several general categories for study eligibility criteria: (a) distinguishing features, (b) research respondents, (c) key variables, (d) research designs, (e) cultural and linguistic range, and (f) time frame. A discussion of how these general categories applied specifically to this meta-analytic study follows.

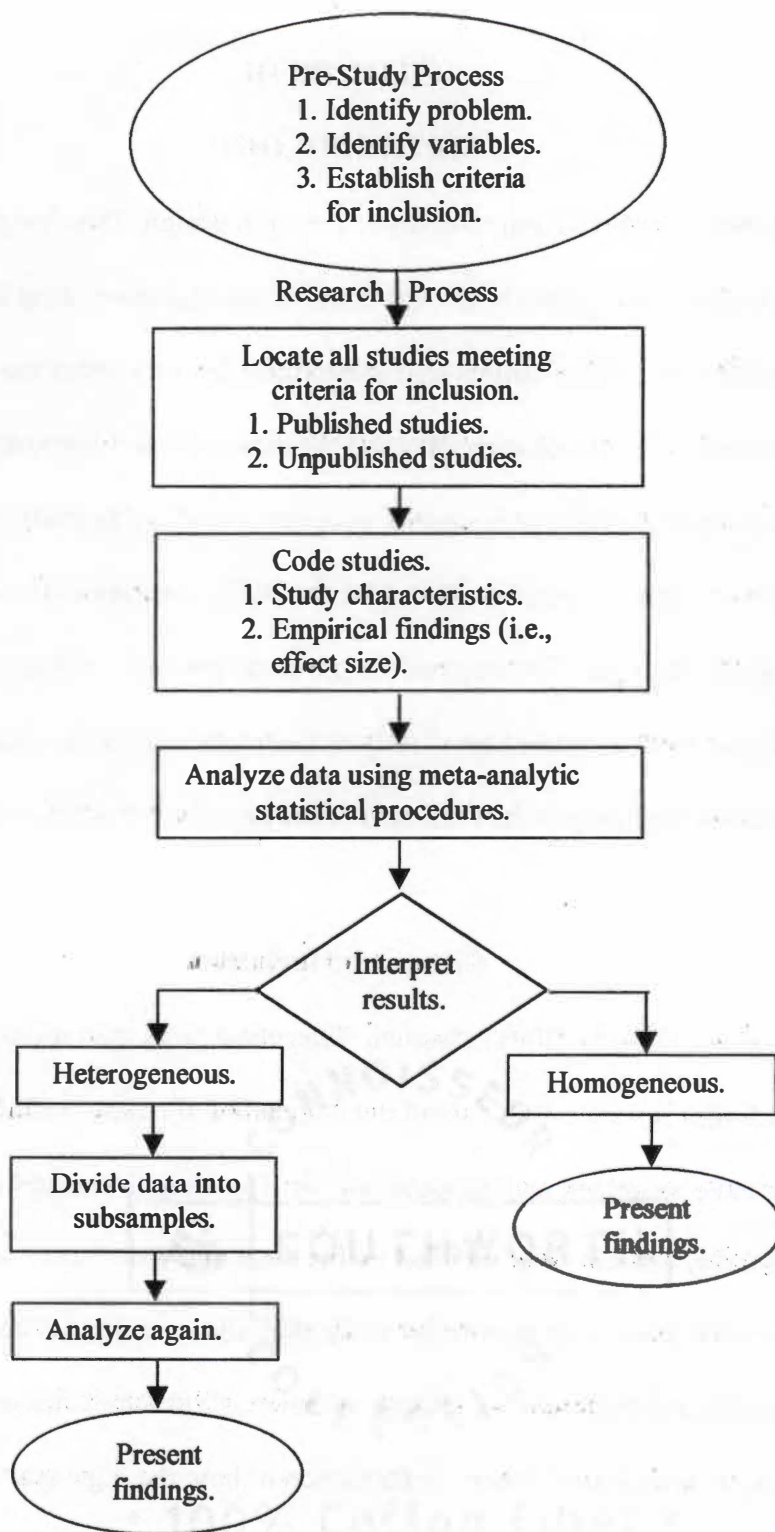


**Figure 1.** The process of meta-analysis.

Source: E. W. Brewer and J. McMahan, "Using Meta-Analysis as a Research Tool in Making HR Decisions." Unpublished manuscript, 2002.

### ***Distinguishing Features***

Eligible studies investigated teacher burnout and reported a burnout score as assessed by the Maslach Burnout Inventory (MBI). Only studies utilizing the MBI were included because this measure is the most widely accepted and frequently used burnout instrument in current research (Maslach & Schaufeli, 1993; Schaufeli, Enzmann, & Girault, 1993) and because it is the only burnout instrument that provides separate scores for emotional exhaustion, depersonalization, and personal accomplishment.

### ***Research Respondents***

Eligible studies involved elementary, intermediate, and secondary teachers as research participants. Studies using comparable populations such as college faculty, day care workers, pre-school teachers, and school administrators were not eligible.

### ***Key Variables***

Eligible studies reported a quantitative score on at least one of the subscales of the MBI. Also, eligible studies reported a quantitative score for one or more demand or resource correlates.

### ***Research Design***

Only studies for which an effect size could be computed were included. Eligible studies incorporated a correlational research design and reported the association between at least one of the dimensions of burnout and demand correlates or resource correlates. Eligible studies reported association via one or more usable measures (i.e., correlation coefficients or data that could be converted to correlations).

### ***Cultural and Linguistic Range***

Only studies reported in English or for which an English translation was available were included in this study. Because the MBI has been validated in numerous countries and across various cultures (Abu-Hilal & Salameh, 1992; Byrne, 1994; Green, Walkey, & Taylor, 1991; Pierce & Molloy, 1989; Schaufeli, Daamen, & Van Mierlo, 1994; Schutte, Toppinen, Kalimo, & Schaufeli, 2000; Whitehead, Ryba, & O'Driscoll, 2000), studies from non-English speaking countries and cultures were included. However, participants' nationalities for each study were coded in case the need to arose to check for possible moderating variables.

### ***Time Frame***

Only studies with results reported between 1986 and June 2003 were included. The researcher chose 1986 as the initial year for inclusion because it marked the publication date for the version of the MBI currently in use. Prior to 1986, the MBI measured responses on both frequency and intensity formats (Maslach & Jackson, 1981). The authors of the MBI opted to change to a frequency-only response format in 1986 because it provided the most accurate measurement of burnout (Maslach & Jackson, 1986). Including only studies published after 1986 reflected that improvement.

### **Literature Search**

Gay and Airasian (2003) asserted that a key distinguishing feature of a meta-analytic literature search was "the emphasis placed on having the review be as inclusive as possible" (p. 294). Therefore, it has been important for meta-analysts to consult multiple sources for studies. Furthermore, the review often has been extended to unpublished studies as well as published ones. Some researchers have criticized the

inclusion of unpublished studies on the grounds that because unpublished studies had not undergone the peer-review process, their quality could not be assured (Gay & Airasian; Lipsey & Wilson, 2001). However, other researchers have stressed the importance of including unpublished studies because of considerable evidence of bias toward publishing studies reporting larger effects more frequently than publishing studies reporting smaller effects (Begg, 1994; Egger & Smith, 1998; Stern & Simes, 1997). Including unpublished studies in meta-analyses has served to balance the results. This study included both published and unpublished studies. A description of the search procedures for both sets of studies follows.

### ***Published Studies***

The researcher utilized several sources to locate published studies for the meta-analysis. These sources included (a) computerized bibliographic databases, (b) bibliographic reference volumes, (c) relevant journals, and (d) reference lists from relevant studies, books, and review articles.

First, the researcher conducted a computerized bibliographic search using three databases: *Education Index*, *ERIC*, and *PsychINFO*. Key words in the search included “burnout” and “teacher OR educator” and derivations of such terms. The researcher also conducted a manual search of bibliographic reference volumes. Although these volumes contain the same material as the electronic versions, Lipsey and Wilson (2001) recommended that meta-analysts search the hard-copy formats as well because of the potential for an eligible study to be missed through a computerized search due to “the absence of the particular keywords on which that search was based” (p. 29). The

researcher also searched relevant journals and the reference lists of relevant studies, books, and review articles.

### ***Unpublished Studies***

To balance the results of the published studies, the researcher conducted a search for unpublished studies using the computerized *Dissertations Abstracts* database. The researcher searched for the key terms “burnout” and “teacher OR educator” and derivations of those terms for the years 1986-2003.

### **Coding Studies**

The researcher obtained studies meeting eligibility criteria via (a) the library, (b) electronic sources, (c) Interlibrary Loan, and (d) Dissertations Express. After deciding which studies met eligibility criteria for the meta-analysis, the researcher began coding the studies. Studies were coded according to their characteristics and empirical findings (i.e., effect size).

### ***Study Characteristics***

The researcher coded each study based upon characteristics identified through a review of literature and conceptual and methodological considerations. Participant characteristics that were coded were (a) gender, (b) age, (c) grade level taught, (d) type of student taught (i.e., special education, vocational, or academic-track), and (e) nationality. Methodological characteristics that were coded were (a) sampling method, (b) sample size, (c) reliability estimates of all measures, and (d) dichotomous or continuous variables.

## *Effect Size*

After coding for study characteristics, the researcher coded the studies' empirical findings. For meta-analytic studies, the empirical findings for a study are represented by an effect size. Gay and Airasian (2003) defined effect size as "a numerical way of expressing the strength of magnitude of a reported relationship" (p. 294). The type of effect size must be the same for all studies included in a meta-analysis and depends on the type of studies included in a meta-analysis. For meta-analyses involving correlational studies, the appropriate effect size is the Pearson product-moment correlation ( $r$ ) or its variants (Hunter & Schmidt, 1990; Lipsey & Wilson, 2001). If possible, test statistics other than Pearson product-moment correlations ( $r$ ) were transformed into the appropriate effect size statistic using methods outlined by Lipsey and Wilson and Wolf (1986).

In studies that examined multiple constructs, more than one correlation often was reported. For example, Pierce and Molloy (1990) reported correlations for emotional exhaustion and both role conflict and role ambiguity. This presented an obvious problem in that no more than one effect size from dependent data sets should be included in an analysis (Lipsey & Wilson, 2001). In other words, there should be one effect size per study per meta-analysis. An examination of the literature on meta-analytic procedures revealed that the optimal way to reduce multiple effect sizes to a single effect size was to form linear composites with unit weights (Hunter & Schmidt, 1990; Viswesvaran, Schmidt, & Ones, 2002). However, this method required statistical sophistication beyond the capabilities of the researcher and the statistical software used in this study. Therefore, other options were explored.

Lipsey and Wilson (2001) suggested some possibilities for dealing with multiple correlations within dependent data sets. One suggestion was for the researcher to choose the effect size dealing with a particular operationalization of interest and use only that effect size in the analysis. Relative to the Pierce and Molloy (1990) study, for example, the researcher would determine whether role conflict or role ambiguity was of greater interest to the study and then would use only the effect size reported for that construct. Although this approach may be appropriate for some studies, the researcher decided it was not appropriate for this study because there was no basis to choose one construct over another. Neither COR theory nor Lee and Ashforth's (1996) study indicated that any demand or resource should be considered paramount to other demands and resources. Thus, the researcher continued to search for an appropriate method to deal with multiple correlations reported for dependent data sets.

Lipsey and Wilson (2001) suggested that another alternative method to reduce multiple effect sizes to a single effect size was to average the effect sizes. In addition to Lipsey and Wilson's assertion that averaging multiple effect sizes is a suitable means to create an independent set of effect sizes, the literature contained ample evidence of researchers who had used this approach. Irvine and Evans (1995) averaged correlation coefficients when studies reported correlations between job satisfaction and turnover intentions over different time periods, and Conway, Jako, and Goodman (1995) averaged multiple coefficients reported in their study of interrater and internal consistency reliability of selection interviews. Other researchers who have averaged effect sizes in meta-analyses have included Falchikov and Goldfinch (2000); Moritz, Feltz, Fährbach, and Mack (2000); and Swanson and Lee (2000). Thus, the researcher used averaging to

obtain a single effect size when studies reported multiple correlations in the meta-analyses that tested a composite of demand correlates or resource correlates. In meta-analyses that tested specific demand correlates or resource correlates, no averaging was necessary.

### **Data Management**

Data for each study were coded manually onto an Individual Study Coding Form (see Appendix A). Data from the Individual Study Coding Forms were then recorded in electronic spreadsheets formatted for each separate meta-analysis. The electronic spreadsheets were used to transport data into the statistical software program. Since this study relied on data reported in earlier studies, no confidentiality measures were necessary.

### **Data Analysis**

Rosenthal and DiMatteo (2001) offered the following advice to researchers using meta-analytic procedures: "The simpler a meta-analysis, the more likely it is to be accurate; it is not possible to present one that is too simple" (p. 68). This study was a bare-bones meta-analysis, the most basic form of meta-analysis (Hunter & Schmidt, 1990). A bare-bones meta-analysis corrects only for sampling error. A description of the data analysis procedures followed in this bare-bones meta-analysis follows.

The first step in analyzing the data was to combine the effect sizes into an unweighted mean correlation. This was done by averaging the effect sizes for the studies included in each meta-analysis. The researcher conducted this step manually. All other statistical procedures were conducted using SAS statistical software and following the

procedures outlined in Wang and Bushman's (2000) *Integrating Results Through Meta-Analytic Review Using SAS Software*.

The next step in analyzing the data was to calculate the weighted mean correlation, which is the mean correlation corrected for sampling error. The weighted mean correlation can be reported as a weighted mean product-moment correlation coefficient or as a weighted Fisher's  $z$  correlation. Hunter and Schmidt (1990) argued that the Fisher's  $z$  transformation results in an upward bias. However, other researchers have advocated use of Fisher's  $z$  transformation (Rosenthal & DiMatteo, 2001), and Lipsey and Wilson (2001) pointed out that the "product-moment correlation coefficient has some undesirable statistical properties, including a problematic standard error formulation" (p. 63). Because the statistical software used in this study had the capability to calculate both the weighted mean product-moment correlation coefficient and the weighted Fisher's  $z$  correlation, both values were calculated and reported.

Confidence intervals were constructed for the weighted mean product-moment correlation coefficient and the weighted Fisher's  $z$  correlation. Confidence intervals were constructed at the 95% level, which is the level most often used for social science research (Gay & Airasian, 2003). Thus, if the confidence interval did not include zero, the chances were 95 out of 100 that the interval captured the parameter, that is, the interval's end points were such that the parameter lay within the interval (Huck, 2000).

### **Homogeneity Test**

The homogeneity test used in this study was the  $Q$  statistic, a chi-square test based on the weighted effect sizes (Hunter & Schmidt, 1990). It was conducted at the .05 level of significance, which is the level most often used for social science research (Gay &

Airasian, 2003). If  $p < .05$ , then the sample was heterogeneous, thus indicating that the observed variance in effect sizes was significantly different from that expected by sampling error alone (Cooper, 1998).

If heterogeneity was indicated, then the next step was to identify possible sources of the heterogeneity. To do this, Rosenthal and DiMatteo (2001), recommended plotting the effect sizes by their standard deviations and examining the resulting graph for outliers among the standard deviations. The researcher followed this recommendation. After identifying the outliers, the researcher identified which studies corresponded with the outliers, and the data for those studies were examined for patterns. Additional meta-analyses were then designed based on identified patterns.

### **Summary**

This chapter provided a description of the meta-analytic procedures that were followed in this study. The researcher utilized (a) computerized bibliographic databases, (b) bibliographic reference volumes, (c) relevant journals, and (d) reference lists from relevant studies, books, and review articles to search for published and unpublished studies on teacher burnout. The researcher assessed each identified study to determine whether or not it met inclusion criteria related to (a) distinguishing features, (b) research respondents, (c) key variables, (d) research designs, (e) cultural and linguistic range, and (f) time frame. Studies meeting inclusion criteria were coded for study characteristics and empirical findings. Then the data were analyzed using meta-analytic procedures. The results from the analysis follow in Chapter IV.

## CHAPTER IV

### RESULTS

The electronic database search for published studies on the terms “teacher OR educator” AND “burnout” yielded 862 articles. After reviewing the abstracts from all 862 articles, the researcher eliminated from consideration those articles that (a) did not contain quantitative results, (b) were not available in English, (c) did not use the MBI to measure burnout, and (d) studied an irrelevant population (e.g., college faculty). Also, the researcher noted that the different databases duplicated identification of several studies (i.e., two databases identified the same study, which was then listed twice in the results). After removing irrelevant and duplicate studies, there were 121 articles eligible for consideration for inclusion in this meta-analytic study. Reviewing the reference lists of relevant studies, books, and review articles yielded an additional 6 studies that had not been identified through other search methods, thus yielding 127 published studies eligible for consideration for inclusion in the meta-analysis. The search in *Dissertations Abstracts* on the terms “teacher” AND “burnout” yielded 219 dissertations and theses (i.e., unpublished studies). After removing works that did not (a) contain quantitative results or (b) use the Maslach Burnout Inventory (MBI) to measure burnout, there were 119 unpublished studies eligible for consideration for inclusion in the meta-analysis.

After reviewing the 246 published and unpublished studies for the eligibility criteria, the researcher identified 42 studies—19 published and 23 unpublished—that met all eligibility criteria for inclusion in this study. Two of the published studies, Burke and Greenglass (1993) and Greenglass, Burke, and Konarski (1997), reported results from the same sample. However, since the Burke and Greenglass study reported demand

correlations and the Greenglass et al. study reported resource correlations, the effect sizes were not included in the same meta-analysis. Thus, this meta-analytic study was based on 42 studies with 41 independent samples and 14,742 respondents. In comparison, the number of studies included in some other meta-analyses in the education and human resource development fields has been 34 (Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997), 42 (Bayraktar, 2001/2002), 48 (Falchikov & Goldfinch, 2000), 26 (Ma, 1999), 34 (Shapard, 2002) and 30 (Swanson & Lussier, 2001).

### **Emotional Exhaustion and Demand Correlates**

***H<sub>a1</sub>: There is a significant positive relationship between demand correlates and emotional exhaustion as measured by the MBI.***

The first hypothesis tested if there was a significant positive relationship between emotional exhaustion and demand correlates. Thirty studies were included in the meta-analysis that tested this hypothesis. The total number of subjects was 9,145. Table 1 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .442. The weighted mean correlation was .477, with a 95% confidence interval from .427 to .460. The Fisher's  $z$  correlation was .519, with a 95% confidence interval from .456 to .498. Thus, there was a significant positive relationship between emotional exhaustion and demands. A test for homogeneity was then conducted. The test indicated that the sample was heterogeneous,  $Q = 95.828$ ,  $df = 29$ ,  $p < .001$ .

Because the test for homogeneity indicated that the studies were heterogeneous, the next step was to explore possible sources of heterogeneity. In line with the

Table 1

*Studies Reporting Correlations Between Emotional Exhaustion  
and Demand Correlates*

| Author(s)                                                            | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------------------------|------|----------|----------------|
| Sermon, J. M.                                                        | 1994 | 169      | .22            |
| Edwards, L. J.                                                       | 1995 | 52       | .17            |
| Gonzalez, M. A.                                                      | 1997 | 104      | .57            |
| Huang, P. Y.                                                         | 1999 | 82       | .61            |
| O'Connor, M. J.                                                      | 1989 | 389      | .59            |
| Schoenig, T. M.                                                      | 1986 | 188      | .26            |
| Simone, D.                                                           | 1997 | 64       | .32            |
| Donald, V. P.                                                        | 1987 | 365      | .51            |
| Sedgwick, M. I.                                                      | 1998 | 208      | .45            |
| Stout, L. C.                                                         | 1987 | 548      | .49            |
| Veve, M. A.                                                          | 1993 | 190      | .48            |
| Zellefrow, A. R.                                                     | 1987 | 99       | .46            |
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | .48            |
| Crane, S. J., & Iwanicki, E. F.                                      | 1986 | 443      | .43            |
| Lutz, F. W., & Maddirala, J. S.                                      | 1987 | 583      | .49            |
| Fimian, M. J.                                                        | 1988 | 128      | .59            |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | .32            |
| Reetz, L. J.                                                         | 1988 | 307      | .45            |
| Hipps, E. S., & Halpin, G.                                           | 1991 | 277      | .60            |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | .54            |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | .57            |
| Friedman, I. A.                                                      | 1995 | 348      | .45            |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | .52            |
| De Heus, P., & Diekstra, R. F. W.                                    | 1999 | 1,018    | .48            |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | .47            |
| Dean, C. J.                                                          | 1988 | 155      | .41            |
| Abel, M. H., & Sewell, J.                                            | 1999 | 98       | .36            |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | .34            |
| Mearns, J., & Cain, J. E.                                            | 2003 | 86       | .13            |
| Van der Doef, M., & Maes, S.                                         | 2002 | 454      | .46            |

recommendation by Rosenthal and DiMatteo (2001), the researcher plotted the effect sizes by their standard deviations and examined the resulting graph for outliers among the standard deviations. This graph is displayed in Figure 2. Although the points on the graph were quite disperse, the researcher was able to discern seven extreme points. These points are displayed as squares (■) in Figure 2. After identifying the studies corresponding with the points represented by squares, the characteristics of those studies were examined for commonalities. Five of the seven studies were unpublished. Therefore, further meta-analyses were performed to determine if publication status was a moderator for the relationship between emotional exhaustion and demands.

#### ***Emotional Exhaustion and Demand Correlates in Published Studies***

Because publication status (i.e., published or unpublished) might have been a moderator of the relationship between emotional exhaustion and demand correlates, the sample was divided into published studies and unpublished studies, and a separate meta-analysis was conducted for each group. There were 15 published studies that reported correlations between emotional exhaustion and demand correlates. The total number of subjects was 6,127. Table 2 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .435. The weighted mean correlation was .476, with a 95% confidence interval from .423 to .463. The Fisher's  $z$  correlation was .518, with a 95% confidence interval from .451 to .501. The homogeneity test indicated that the sample was heterogeneous,  $Q = 35.082$ ,  $df = 14$ ,  $p = .001$ .

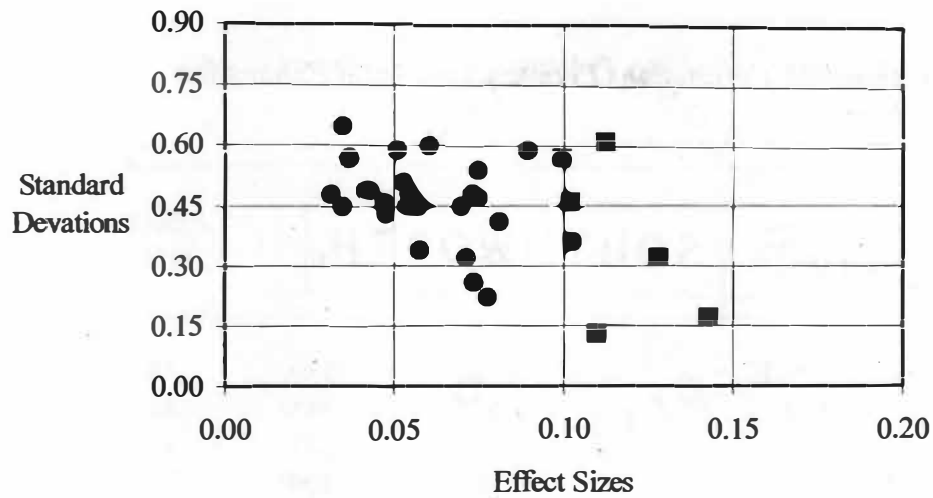


**Figure 2.** Effect sizes of studies reporting correlations between emotional exhaustion and demand correlates plotted by standard deviation. The squares (■) represent the extreme outliers, and the circles (●) represent the studies that were not considered to be outliers.

**Table 2**

***Published Studies Reporting Correlations Between Emotional Exhaustion  
and Demand Correlates***

| Author(s)                                                            | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------------------------|------|----------|----------------|
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | .48            |
| Crane, S. J., & Iwanicki, E. F.                                      | 1986 | 443      | .43            |
| Lutz, F. W., & Maddirala, J. S.                                      | 1987 | 583      | .49            |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | .32            |
| Reetz, L. J.                                                         | 1988 | 307      | .45            |
| Hipps, E. S., & Halpin, G.                                           | 1991 | 277      | .60            |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | .54            |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | .57            |
| Friedman, I. A.                                                      | 1995 | 348      | .45            |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | .52            |
| De Heus, P., & Diekstra, R. F. W.                                    | 1999 | 1,018    | .48            |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | .47            |
| Abel, M. H., & Sewell, J.                                            | 1999 | 98       | .36            |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | .34            |
| Mearns, J., & Cain, J. E.                                            | 2003 | 86       | .13            |
| Van der Doef, M., & Maes, S.                                         | 2002 | 454      | .46            |

### ***Emotional Exhaustion and Demand Correlates in Unpublished Studies***

There were 15 unpublished studies that reported correlations between emotional exhaustion and demand correlates. The total number of subjects was 3,018. Table 3 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .449. The weighted mean correlation was .479, with a 95% confidence interval from .416 to .474. The Fisher's  $z$  correlation was .522, with a 95% confidence interval from .443 to .515. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 40.073$ ,  $df = 14$ ,  $p < .001$ .

Because the tests for homogeneity for the samples of published and unpublished studies indicated heterogeneity, a further search for moderators was necessary. The researcher consulted the graph of effect sizes and standard deviations (see Figure 2) again for further patterns among outliers suggesting sources of heterogeneity. There were no discernible patterns. Consequently, the researcher had to look elsewhere for other sources of heterogeneity, namely the research literature.

The literature has yielded numerous findings about associations between demographic variables and burnout (Friedman, 1991; Sarros & Sarros, 1992; Tuettemann & Punch, 1992; Van Horn, Schaufeli, Greenglass, & Burke, 1997), and the researcher had coded studies for the demographic variables of age, gender, nationality, grade level taught, and type of student (e.g., special education, vocational track, academic track) taught. However, because the demographic data reported in most of the original studies were piecemeal, there was not enough information to conduct meta-analyses based on demographic variables.

**Table 3*****Unpublished Studies Reporting Correlations Between Emotional Exhaustion and Demand Correlates***

| Author(s)                  | Year | <i>n</i> | Effect size |
|----------------------------|------|----------|-------------|
| Sermon, J. M.              | 1994 | 169      | .22         |
| Edwards, L. J.             | 1995 | 52       | .17         |
| Gonzalez, M. A.            | 1997 | 104      | .57         |
| Huang, P. Y.               | 1999 | 82       | .61         |
| O'Connor, M. J.            | 1989 | 389      | .59         |
| Schoenig, T. M.            | 1986 | 188      | .26         |
| Simone, D.                 | 1997 | 64       | .32         |
| Donald, V. P.              | 1987 | 365      | .51         |
| Sedgwick, M. I.            | 1998 | 208      | .45         |
| Stout, L. C.               | 1987 | 548      | .49         |
| Veve, M. A.                | 1993 | 190      | .48         |
| Zellefrow, A. R.           | 1987 | 99       | .46         |
| Fimian, M. J.              | 1988 | 128      | .59         |
| Hipps, E. S., & Halpin, G. | 1991 | 277      | .60         |
| Dean, C. J.                | 1988 | 155      | .41         |

The researcher then examined the data that were adequate for further meta-analyses. There was enough information to conduct meta-analyses for the relationship between emotional exhaustion and each separate demand. Since Hunter and Schmidt (1990) had indicated that mixing “apples and oranges” (p. 516) was a possible pitfall of meta-analysis, the researcher decided to conduct separate meta-analyses for each demand correlate to determine if this was a case of apples and oranges.

### ***Emotional Exhaustion and Work Overload***

There were 15 studies that reported correlations between emotional exhaustion and work overload. The total number of subjects was 4,160. Table 4 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .498. The weighted mean correlation was .530, with a 95% confidence interval from .461 to .508. The Fisher’s  $z$  correlation was .590, with a 95% confidence interval from .499 to .560. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 58.589$ ,  $df = 14$ ,  $p < .001$ .

### ***Emotional Exhaustion and Role Conflict***

There were 13 studies that reported a correlation(s) between emotional exhaustion and role conflict. The total number of subjects was 4,591. Table 5 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .472. The weighted mean correlation was .481, with a 95% confidence interval from .423 to .470. The Fisher’s  $z$  correlation was .524, with a 95% confidence interval from .452 to .510. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 33.563$ ,  $df = 12$ ,  $p < .001$ .

Table 4

***Studies Reporting Correlations Between Emotional Exhaustion  
and Work Overload***

| Author(s)                         | Year | <i>n</i> | Effect<br>size |
|-----------------------------------|------|----------|----------------|
| Edwards, L. J.                    | 1995 | 52       | .21            |
| Gonzalez, M. A.                   | 1997 | 104      | .62            |
| Huang, P. Y.                      | 1999 | 82       | .61            |
| Donald, V. P.                     | 1987 | 365      | .55            |
| Stout, L. C.                      | 1987 | 548      | .49            |
| Zellefrow, A. R.                  | 1987 | 99       | .46            |
| Lutz, F. W., & Maddirala, J. S.   | 1987 | 583      | .49            |
| Fimian, M. J.                     | 1988 | 128      | .70            |
| Mazur, P. J., & Lynch, M. D.      | 1989 | 200      | .15            |
| Reetz, L. J.                      | 1988 | 307      | .45            |
| Hipps, E. S., & Halpin, G.        | 1991 | 277      | .60            |
| Starnaman, S. M., & Miller, K. I. | 1992 | 182      | .60            |
| Burke, R. J., & Greenglass, E.    | 1993 | 833      | .65            |
| Dean, C. J.                       | 1988 | 155      | .41            |
| Abel, M. H., & Sewell, J.         | 1999 | 98       | .41            |
| Van der Doef, M., & Maes, S.      | 2002 | 454      | .52            |

**Table 5*****Studies Reporting Correlations Between Emotional Exhaustion  
and Role Conflict***

| Author(s)                                                            | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------------------------|------|----------|----------------|
| Sermon, J. M.                                                        | 1994 | 169      | .22            |
| O'Connor, M. J.                                                      | 1989 | 389      | .58            |
| Donald, V. P.                                                        | 1987 | 365      | .54            |
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | .48            |
| Crane, S. J., & Iwanicki, E. F.                                      | 1986 | 443      | .42            |
| Fimian, M. J.                                                        | 1988 | 128      | .58            |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | .48            |
| Reetz, L. J.                                                         | 1988 | 307      | .44            |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | .56            |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | .57            |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | .45            |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | .47            |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | .34            |

### ***Emotional Exhaustion and Role Ambiguity***

Eleven studies reported a correlation between emotional exhaustion and role ambiguity. The total number of subjects was 4,977. Table 6 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .443. The weighted mean correlation was .466, with a 95% confidence interval from .412 to .457. The Fisher's  $z$  correlation was .505, with a 95% confidence interval from .438 to .494. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 31.866$ ,  $df = 10$ ,  $p < .001$ .

### ***Emotional Exhaustion and Student Misbehavior***

Ten studies reported a correlation between emotional exhaustion and student misbehavior. The total number of subjects was 1,703. Table 7 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .350. The weighted mean correlation was .399, with a 95% confidence interval from .337 to .419. The Fisher's  $z$  correlation was .422, with a 95% confidence interval from .351 to .447. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 18.943$ ,  $df = 9$ ,  $p = .026$ .

### ***Summary of Meta-Analyses Involving Emotional Exhaustion***

The first hypothesis tested if there was a significant positive relationship between emotional exhaustion and demand correlates. The researcher conducted seven meta-analyses on the relationship between emotional exhaustion and demand correlates: (a) emotional exhaustion and a composite of demands, (b) emotional exhaustion and a composite of demands for published studies only, (c) emotional exhaustion and a composite of demands for unpublished studies only, (d) emotional exhaustion and work

**Table 6*****Studies Reporting Correlations Between Emotional Exhaustion and Role Ambiguity***

| Author(s)                         | Year | <i>n</i> | Effect size |
|-----------------------------------|------|----------|-------------|
| Sermon, J. M.                     | 1994 | 169      | .22         |
| O'Connor, M. J.                   | 1989 | 389      | .59         |
| Crane, S. J., & Iwanicki, E. F.   | 1986 | 443      | .43         |
| Fimian, M. J.                     | 1988 | 128      | .48         |
| Reetz, L. J.                      | 1988 | 307      | .46         |
| Starnaman, S. M., & Miller, K. I. | 1992 | 182      | .45         |
| Pierce, C. M. B., & Molloy, G. N. | 1990 | 750      | .57         |
| Burke, R. J., & Greenglass, E.    | 1993 | 833      | .45         |
| De Heus, P., & Diekstra, R. F. W. | 1999 | 1,018    | .48         |
| Kijai, J., & Totten, D. L.        | 1995 | 304      | .34         |
| Van der Doef, M., & Maes, S.      | 2002 | 454      | .40         |

**Table 7*****Studies Reporting Correlations Between Emotional Exhaustion  
and Student Misbehavior***

| Author(s)                 | Year | <i>n</i> | Effect<br>size |
|---------------------------|------|----------|----------------|
| Edwards, L. J.            | 1995 | 52       | .13            |
| Gonzalez, M. A.           | 1997 | 104      | .51            |
| Schoenig, T. M.           | 1986 | 188      | .26            |
| Simone, D.                | 1997 | 64       | .32            |
| Donald, V. P.             | 1987 | 365      | .45            |
| Sedgwick, M. I.           | 1998 | 208      | .45            |
| Veve, M. A.               | 1993 | 190      | .48            |
| Friedman, I. A.           | 1995 | 348      | .45            |
| Abel, M. H., & Sewell, J. | 1999 | 98       | .32            |
| Mearns, J., & Cain, J. E. | 2003 | 86       | .13            |

overload, (e) emotional exhaustion and role conflict, (f) emotional exhaustion and role ambiguity, and (g) emotional exhaustion and student misbehavior. Although each meta-analysis indicated a significant positive relationship, tests for homogeneity revealed that each sample was heterogeneous ( $p < .05$ ). Therefore, other—unidentified—variables moderated the relationship.

### **Depersonalization and Resource Correlates**

***H<sub>a2</sub>: There is a significant negative relationship between resource correlates and depersonalization as measured by the MBI.***

The second hypothesis tested if there was a significant negative relationship between depersonalization and resource correlates. Twenty-one studies were included in the meta-analysis that tested this hypothesis. The total number of subjects was 8,408. Table 8 provides information relating to the authors, the year the study was reported, sample size, and the effect size for the studies included in this meta-analysis.

The unweighted mean correlation was  $-.190$ . The weighted mean correlation was  $-.200$ , with a 95% confidence interval from  $-.218$  to  $-.177$ . The Fisher's  $z$  correlation was  $-.203$ , with a 95% confidence interval from  $-.222$  to  $-.179$ . The test for homogeneity indicated that the sample was heterogeneous,  $Q = 37.541$ ,  $df = 20$ ,  $p = .010$ .

Because the test for homogeneity indicated that the studies were heterogeneous, the next step was to explore possible sources of heterogeneity. In line with the recommendation by Rosenthal and DiMatteo (2001), the researcher plotted the effect sizes by their standard deviations and examined the resulting graph for outliers among the standard deviations. This graph is displayed in Figure 3. Although the points on the graph were quite disperse, the researcher was able to discern five extreme points. These points

**Table 8*****Studies Reporting Correlations Between Depersonalization and Resource Correlates***

| Author(s)                                          | Year | <i>n</i> | Effect size |
|----------------------------------------------------|------|----------|-------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.10        |
| Chen, S. J.                                        | 1995 | 535      | -.17        |
| Edwards, L. J.                                     | 1995 | 52       | -.03        |
| Gonzalez, M. A.                                    | 1997 | 104      | -.21        |
| Harrison, E. A.                                    | 1990 | 990      | -.26        |
| Oddo, J. D.                                        | 1992 | 111      | -.08        |
| Schoenig, T. M.                                    | 1986 | 188      | -.09        |
| Walker, J. C.                                      | 1997 | 228      | -.13        |
| Kohlman, E.                                        | 1991 | 155      | -.20        |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | -.22        |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | -.22        |
| Friesen, D., Prokop, C. M., & Sarros, J. C.        | 1988 | 1,211    | -.26        |
| Mazur, P. J., & Lynch, M. D.                       | 1989 | 200      | -.18        |
| Weber, D. B., & Toffler, J. D.                     | 1989 | 68       | -.36        |
| Starnaman, S. M., & Miller, K. I.                  | 1992 | 182      | -.21        |
| Dean, C. J.                                        | 1988 | 155      | -.05        |
| Friesen, D., & Sarros, J. C.                       | 1989 | 628      | -.19        |
| Kijai, J., & Totten, D. L.                         | 1995 | 304      | -.29        |
| Pichardo, T. A.                                    | 1994 | 67       | -.27        |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | -.23        |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | -.24        |

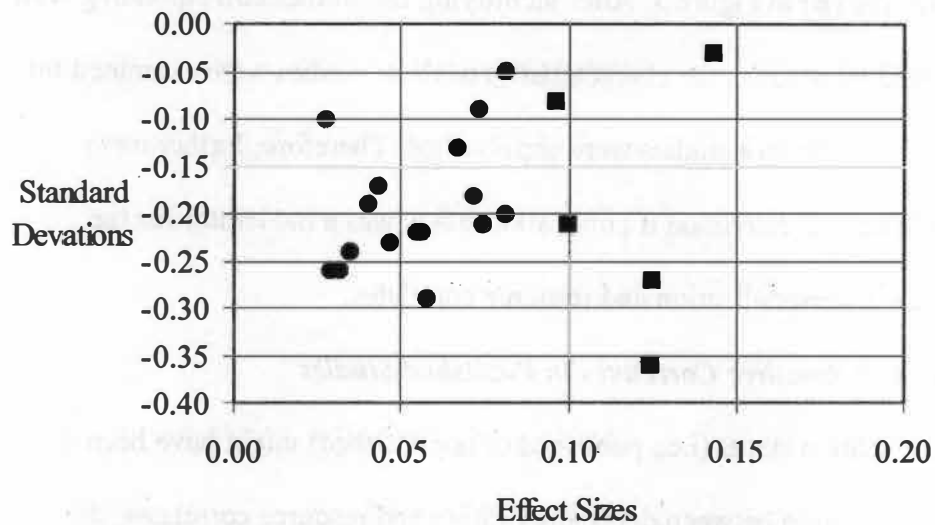


**Figure 3.** Effect sizes of studies reporting correlations between depersonalization and resource correlates plotted by standard deviation. The squares (■) represent the extreme outliers, and the circles (●) represent the studies that were not considered to be outliers.

are displayed as squares (■) in Figure 3. After identifying the studies corresponding with the points represented by squares, the characteristics of those studies were examined for commonalities. Three of the five studies were unpublished. Therefore, further meta-analyses were performed to determine if publication status was a moderator for the relationship between depersonalization and resource correlates.

### ***Depersonalization and Resource Correlates in Published Studies***

Because publication status (i.e., published or unpublished) might have been a moderator of the relationship between depersonalization and resource correlates, the sample was divided into published studies and unpublished studies, and a separate meta-analysis was conducted for each group. There were 11 published studies that reported a correlation(s) between depersonalization and a resource correlate(s). The total number of subjects was 4,535. Table 9 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was  $-.240$ . The weighted mean correlation was  $-.236$ , with a 95% confidence interval from  $-.259$  to  $-.204$ . The Fisher's  $z$  correlation was  $-.240$ , with a 95% confidence interval from  $-.265$  to  $-.207$ . The test for homogeneity indicated that the sample was homogenous,  $Q = 4.830$ ,  $df = 9$ ,  $p = .849$ .

### ***Depersonalization and Resource Correlates in Unpublished Studies***

There were 11 unpublished studies that reported a correlation(s) between depersonalization and a resource correlate(s). The total number of subjects was 3,873. Table 10 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

**Table 9*****Published Studies Reporting Correlations Between Depersonalization and Resource Correlates***

| Author(s)                                          | Year | <i>n</i> | Effect size |
|----------------------------------------------------|------|----------|-------------|
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | -.22        |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | -.22        |
| Friesen, D., Prokop, C. M., & Sarros, J. C.        | 1988 | 1,211    | -.26        |
| Mazur, P. J., & Lynch, M. D.                       | 1989 | 200      | -.18        |
| Weber, D. B., & Toffler, J. D.                     | 1989 | 68       | -.36        |
| Starnaman, S. M., & Miller, K. I.                  | 1992 | 182      | -.21        |
| Friesen, D., & Sarros, J. C.                       | 1989 | 628      | -.19        |
| Kijai, J., & Totten, D. L.                         | 1995 | 304      | -.29        |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | -.23        |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | -.24        |

**Table 10*****Unpublished Studies Reporting Correlations Between Depersonalization and Resource Correlates***

| Author(s)        | Year | <i>n</i> | Effect size |
|------------------|------|----------|-------------|
| Bin Batel, Z. M. | 1998 | 1,288    | -.10        |
| Chen, S. J.      | 1995 | 535      | -.17        |
| Edwards, L. J.   | 1995 | 52       | -.03        |
| Gonzalez, M. A.  | 1997 | 104      | -.21        |
| Harrison, E. A.  | 1990 | 990      | -.26        |
| Oddo, J. D.      | 1992 | 111      | -.08        |
| Schoenig, T. M.  | 1986 | 188      | -.09        |
| Walker, J. C.    | 1997 | 228      | -.13        |
| Kohlman, E.      | 1991 | 155      | -.20        |
| Dean, C. J.      | 1988 | 155      | -.05        |
| Pichardo, T. A.  | 1994 | 67       | -.27        |

The unweighted mean correlation was -.145. The weighted mean correlation was -.158, with a 95% confidence interval from -.188 to -.126. The Fisher's  $z$  correlation was -.160, with a 95% confidence interval from -.190 to -.127. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 20.276$ ,  $df = 10$ ,  $p = .027$ .

Although the results from homogeneity test for the meta-analysis on depersonalization and resource correlates in published studies indicated homogeneity, the results from the homogeneity test for the meta-analysis on depersonalization and resource correlates in unpublished studies indicated heterogeneity. Thus, it appeared that other moderating variables were at work. In line with the decision to conduct separate meta-analyses on emotional exhaustion and each specific demand correlate, the researcher decided to conduct separate meta-analyses on depersonalization and each specific resource correlate.

### ***Depersonalization and Peer Support***

Thirteen studies reported correlations between depersonalization and peer support. The total number of subjects was 4,773. Table 11 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was -.166. The weighted mean correlation was -.175, with a 95% confidence interval from -.201 to -.145. The Fisher's  $z$  correlation was -.177, with a 95% confidence interval from -.203 to -.146. The test for homogeneity indicated that the sample was homogenous,  $Q = 17.152$ ,  $df = 12$ ,  $p = .144$ .

**Table 11*****Studies Reporting Correlations Between Depersonalization and Peer Support***

| Author(s)                                          | Year | <i>n</i> | Effect size |
|----------------------------------------------------|------|----------|-------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.12        |
| Chen, S. J.                                        | 1995 | 535      | -.17        |
| Gonzalez, M. A.                                    | 1997 | 104      | -.11        |
| Oddo, J. D.                                        | 1992 | 111      | -.05        |
| Schoenig, T. M.                                    | 1986 | 188      | -.16        |
| Walker, J. C.                                      | 1997 | 228      | -.13        |
| Kohlman, E.                                        | 1991 | 155      | -.17        |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | -.23        |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | -.22        |
| Dean, C. J.                                        | 1988 | 155      | -.05        |
| Pichardo, T. A.                                    | 1994 | 67       | -.27        |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | -.23        |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | -.25        |

### ***Depersonalization and Supervisory Support***

Ten studies reported correlations between depersonalization and supervisory support. The total number of subjects was 3,934. Table 12 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was  $-.190$ . The weighted mean correlation was  $-.163$ , with a 95% confidence interval from  $-.192$  to  $-.131$ . The Fisher's  $z$  correlation was  $-.164$ , with a 95% confidence interval from  $-.194$  to  $-.131$ . The test for homogeneity indicated that the sample was heterogeneous,  $Q = 24.875$ ,  $df = 9$ ,  $p = .003$ .

### ***Depersonalization and Decision-Making***

Nine studies reported a correlation(s) between depersonalization and decision-making. The total number of subjects was 4,166. Table 13 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was  $-.190$ . The weighted mean correlation was  $-.226$ , with a 95% confidence interval from  $-.251$  to  $-.193$ . The Fisher's  $z$  correlation was  $-.230$ , with a 95% confidence interval from  $-.256$  to  $-.195$ . The test for homogeneity indicated that the sample was homogenous,  $Q = 11.658$ ,  $df = 8$ ,  $p = .167$ .

### ***Summary of Meta-Analyses Involving Depersonalization***

The second hypothesis tested if there was a significant negative relationship between depersonalization and resource correlates. The researcher conducted six meta-analyses on the relationship between depersonalization and resource correlates: (a) depersonalization and a composite of resources, (b) depersonalization and a composite of resources for published studies only, (c) depersonalization and a composite of resources for unpublished studies only, (d) depersonalization and peer support, (e)

**Table 12**

***Studies Reporting Correlations Between Depersonalization  
and Supervisory Support***

| Author(s)                                          | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------|------|----------|----------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.07           |
| Oddo, J. D.                                        | 1992 | 111      | -.11           |
| Schoenig, T. M.                                    | 1986 | 188      | -.04           |
| Kohlman, E.                                        | 1991 | 155      | -.22           |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | -.23           |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | -.22           |
| Weber, D. B., & Toffler, J. D.                     | 1989 | 68       | -.36           |
| Starnaman, S. M., & Miller, K. I.                  | 1992 | 182      | -.21           |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | -.21           |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | -.23           |

**Table 13*****Studies Reporting Correlations Between Depersonalization and Decision-Making***

| Author(s)                                   | Year | <i>n</i> | Effect size |
|---------------------------------------------|------|----------|-------------|
| Edwards, L. J.                              | 1995 | 52       | -.03        |
| Gonzalez, M. A.                             | 1997 | 104      | -.31        |
| Harrison, E. A.                             | 1990 | 990      | -.26        |
| Schoenig, T. M.                             | 1986 | 188      | -.06        |
| Schwab, R. I., & Jackson, S. E.             | 1986 | 339      | -.21        |
| Friesen, D., Prokop, C. M., & Sarros, J. C. | 1988 | 1,211    | -.26        |
| Mazur, P. J., & Lynch, M. D.                | 1989 | 200      | -.18        |
| Friesen, D., & Sarros, J. C.                | 1989 | 628      | -.19        |
| Van der Doef, M., & Maes, S.                | 2002 | 454      | -.21        |

depersonalization and supervisory support, and (f) depersonalization and decision-making. The results from each meta-analysis indicated a significant negative relationship. Tests for homogeneity yielded mixed results. The samples for three of the meta-analyses (i.e., depersonalization and a composite of resources for published studies, depersonalization and peer support, and depersonalization and decision-making) were homogeneous ( $p < .05$ ). The other three samples (i.e., depersonalization and a composite of resources, depersonalization and a composite of resources for unpublished studies, and depersonalization and supervisory support) were heterogeneous ( $p < .05$ ), thereby indicating that other—unidentified—variables moderated the relationship.

### **Personal Accomplishment and Resource Correlates**

***H<sub>a3</sub>: There is a significant positive relationship between resource correlates and personal accomplishment as measured by the MBI.***

The third hypothesis tested if there was a significant positive relationship between personal accomplishment and resource correlates. Twenty studies were included in the meta-analysis that tested this hypothesis. The total number of subjects was 8,341. Table 14 provides information relating to the authors, the year the study was reported, sample size, and the effect size for studies included in this meta-analysis.

The unweighted mean correlation was .180. The weighted mean correlation was .17, with a 95% confidence interval from .149 to .191. The Fisher's  $z$  correlation was .17, with a 95% confidence interval from .150 to .193. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 150.947$ ,  $df = 19$ ,  $p < .001$ .

**Table 14*****Studies Reporting Correlations Between Personal Accomplishment  
and Resource Correlates***

| Author(s)                                          | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------|------|----------|----------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.09           |
| Chen, S. J.                                        | 1995 | 535      | .18            |
| Edwards, L. J.                                     | 1995 | 52       | .15            |
| Gonzalez, M. A.                                    | 1997 | 104      | .12            |
| Harrison, E. A.                                    | 1990 | 990      | .21            |
| Oddo, J. D.                                        | 1992 | 111      | .22            |
| Schoenig, T. M.                                    | 1986 | 188      | .07            |
| Walker, J. C.                                      | 1997 | 228      | .11            |
| Kohlman, E.                                        | 1991 | 155      | -.09           |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | .21            |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | .24            |
| Friesen, D., Prokop, C. M., & Sarros, J. C.        | 1988 | 1,211    | .31            |
| Mazur, P. J., & Lynch, M. D.                       | 1989 | 200      | .30            |
| Weber, D. B., & Toffler, J. D.                     | 1989 | 68       | .42            |
| Starnaman, S. M., & Miller, K. I.                  | 1992 | 182      | .34            |
| Dean, C. J.                                        | 1988 | 155      | .03            |
| Friesen, D., & Sarros, J. C.                       | 1989 | 628      | .25            |
| Kijai, J., & Totten, D. L.                         | 1995 | 304      | .17            |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | .23            |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | .22            |

Because the test for homogeneity indicated that the studies were heterogeneous, the next step was to explore possible sources of heterogeneity. In line with the recommendation by Rosenthal and DiMatteo (2001), the researcher plotted the effect sizes by their standard deviations and examined the resulting graph for outliers among the standard deviations. This graph is displayed in Figure 4. Although the points on the graph were quite disperse, the researcher was able to discern four extreme points. These points are displayed as squares (■) in Figure 4. After identifying the studies corresponding with the points displayed as squares, the characteristics of those studies were examined for commonalities. Three of the four studies were unpublished. Therefore, further meta-analyses were performed to determine if publication status was a moderator for the relationship between personal accomplishment and resource correlates.

#### ***Personal Accomplishment and Resource Correlates in Published Studies***

Because publication status (i.e., published or unpublished) might have been a moderator of the relationship between personal accomplishment and resource correlates, the sample was divided into published studies and unpublished studies, and a separate meta-analysis was conducted for each group. There were 10 published studies that reported a correlation(s) between personal accomplishment and a resource correlate(s). The total number of subjects was 4,535. Table 15 provides information relating to the authors, the year the study was reported, and the effect size.

The unweighted mean correlation was .269. The weighted mean correlation was .258, with a 95% confidence interval from .225 to .279. The Fisher's  $z$  correlation was .264, with a 95% confidence interval from .229 to .287. The test for homogeneity indicated that the sample was homogenous,  $Q = 11.322$ ,  $df = 9$ ,  $p = .254$ .

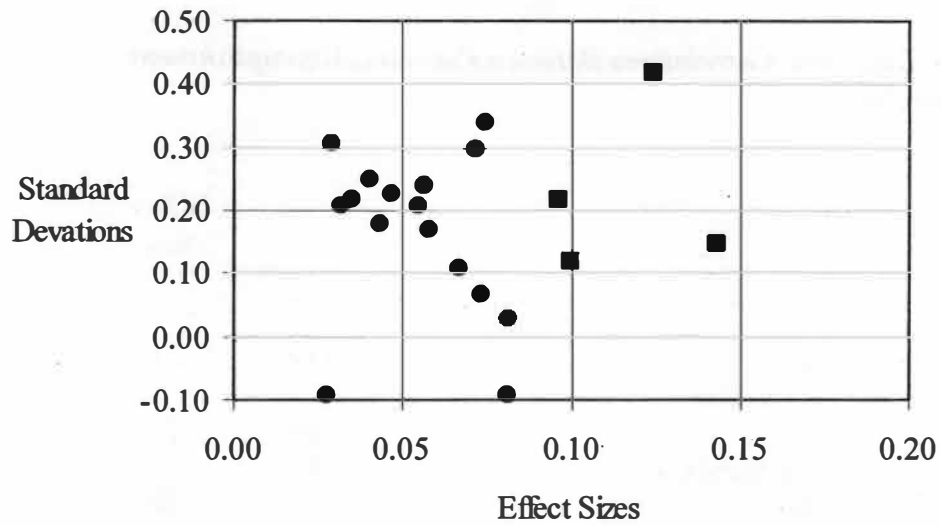


**Figure 4.** Effect sizes of studies reporting correlations between personal accomplishment and resource correlates plotted by standard deviation. The squares (■) represent the extreme outliers, and the circles (●) represent the studies that were not considered to be outliers.

**Table 15*****Published Studies Reporting Correlations Between Personal Accomplishment and Resource Correlates***

| Author(s)                                       | Year | <i>n</i> | Effect size |
|-------------------------------------------------|------|----------|-------------|
| Schwab, R. I., & Jackson, S. E.                 | 1986 | 339      | .21         |
| Russell, D. W., Altmaier, E., & Van Velzen, D.  | 1987 | 316      | .24         |
| Friesen, D., Prokop, C. M., & Sarros, J. C.     | 1988 | 1,211    | .31         |
| Mazur, P. J., & Lynch, M. D.                    | 1989 | 200      | .30         |
| Weber, D. B., & Toffler, J. D.                  | 1989 | 68       | .42         |
| Starnaman, S. M., & Miller, K. I.               | 1992 | 182      | .34         |
| Friesen, D., & Sarros, J. C.                    | 1989 | 628      | .25         |
| Kijai, J., & Totten, D. L.                      | 1995 | 304      | .17         |
| Van der Doef, M., & Maes, S.                    | 2002 | 454      | .23         |
| Greenglass, E. R., Burke, R. J., & Konarski, R. | 1997 | 833      | .22         |

### ***Personal Accomplishment and Resource Correlates in Unpublished Studies***

There were 16 unpublished studies that reported a correlation(s) between personal accomplishment and a resource correlate(s). The total number of subjects was 3,806. Table 16 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .091. The weighted mean correlation was .069, with a 95% confidence interval from .037 to .100. The Fisher's  $z$  correlation was .069, with a 95% confidence interval from .037 to .101. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 66.162$ ,  $df = 9$ ,  $p < .001$ .

Although the results from homogeneity test for the meta-analysis on personal accomplishment and resource correlates in published studies indicated homogeneity, the results from the homogeneity test for the meta-analysis on personal accomplishment and resource correlates in unpublished studies indicated heterogeneity. Thus, it appeared that other moderating variables were at work. In line with previous decisions to conduct separate meta-analyses on emotional exhaustion and each specific demand correlate and depersonalization and each specific resource correlate, the researcher decided to conduct separate meta-analyses on personal accomplishment and each specific resource correlate.

### ***Personal Accomplishment and Peer Support***

Twelve studies reported a correlation between personal accomplishment and peer support. The total number of subjects was 4,706. Table 17 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .123. The weighted mean correlation was .109, with a 95% confidence interval from .080 to .137. The Fisher's  $z$  correlation was

**Table 16*****Unpublished Studies Reporting Correlations Between Personal Accomplishment and Resource Correlates***

| Author(s)        | Year | <i>n</i> | Effect size |
|------------------|------|----------|-------------|
| Bin Batel, Z. M. | 1998 | 1,288    | -.09        |
| Chen, S. J.      | 1995 | 535      | .18         |
| Edwards, L. J.   | 1995 | 52       | .15         |
| Gonzalez, M. A.  | 1997 | 104      | .12         |
| Harrison, E. A.  | 1990 | 990      | .21         |
| Oddo, J. D.      | 1992 | 111      | .22         |
| Schoenig, T. M.  | 1986 | 188      | .07         |
| Walker, J. C.    | 1997 | 228      | .11         |
| Kohlman, E.      | 1991 | 155      | -.09        |
| Dean, C. J.      | 1988 | 155      | .03         |

**Table 17*****Studies Reporting Correlations Between Personal Accomplishment and Peer Support***

| Author(s)                                          | Year | <i>n</i> | Effect size |
|----------------------------------------------------|------|----------|-------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.07        |
| Chen, S. J.                                        | 1995 | 535      | .18         |
| Gonzalez, M. A.                                    | 1997 | 104      | .12         |
| Oddo, J. D.                                        | 1992 | 111      | .23         |
| Schoenig, T. M.                                    | 1986 | 188      | .09         |
| Walker, J. C.                                      | 1997 | 228      | .11         |
| Kohlman, E.                                        | 1991 | 155      | -.09        |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | .22         |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | .24         |
| Dean, C. J.                                        | 1988 | 155      | .03         |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | .21         |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | .23         |

.110, with a 95% confidence interval from .080 to .138. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 78.747$ ,  $df = 11$ ,  $p < .001$ .

### ***Personal Accomplishment and Supervisory Support***

Eleven studies reported a correlation between personal accomplishment and supervisory support. The total number of subjects was 4,230. Table 18 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .170. The weighted mean correlation was .105, with a 95% confidence interval from .075 to .135. The Fisher's  $z$  correlation was .106, with a 95% confidence interval from .075 to .136. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 101.714$ ,  $df = 10$ ,  $p < .001$ .

### ***Personal Accomplishment and Decision-Making***

Nine studies reported a correlation between personal accomplishment and decision-making. The total number of subjects was 4,166. Table 19 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was .212. The weighted mean correlation was .249, with a 95% confidence interval from .215 to .272. The Fisher's  $z$  correlation was .254, with a 95% confidence interval from .218 to .279. The test for homogeneity indicated that the sample was homogenous,  $Q = 15.518$ ,  $df = 8$ ,  $p = .050$ .

### ***Summary of Meta-Analyses Involving Personal Accomplishment and Resource Correlates***

The third hypothesis tested if there was a significant positive relationship between personal accomplishment and resource correlates. The researcher conducted six meta-

**Table 18**

***Studies Reporting Correlations Between Personal Accomplishment  
and Supervisory Support***

| Author(s)                                          | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------|------|----------|----------------|
| Bin Batel, Z. M.                                   | 1998 | 1,288    | -.10           |
| Oddo, J. D.                                        | 1992 | 111      | .20            |
| Schoenig, T. M.                                    | 1986 | 188      | .05            |
| Kohlman, E.                                        | 1991 | 155      | -.08           |
| Schwab, R. I., & Jackson, S. E.                    | 1986 | 339      | .22            |
| Russell, D. W., Altmaier, E., & Van<br>Velzen, D.  | 1987 | 316      | .24            |
| Weber, D. B., & Toffler, J. D.                     | 1989 | 68       | .42            |
| Starnaman, S. M., & Miller, K. I.                  | 1992 | 182      | .34            |
| Kijai, J., & Totten, D. L.                         | 1995 | 304      | .17            |
| Van der Doef, M., & Maes, S.                       | 2002 | 454      | .20            |
| Greenglass, E. R., Burke, R. J., &<br>Konarski, R. | 1997 | 833      | .21            |

Table 19

***Studies Reporting Correlations Between Personal Accomplishment  
and Decision-Making***

| Author(s)                                   | Year | <i>n</i> | Effect<br>size |
|---------------------------------------------|------|----------|----------------|
| Edwards, L. J.                              | 1995 | 52       | .15            |
| Gonzalez, M. A.                             | 1997 | 104      | .12            |
| Harrison, E. A.                             | 1990 | 990      | .21            |
| Schoenig, T. M.                             | 1986 | 188      | .08            |
| Schwab, R. I., & Jackson, S. E.             | 1986 | 339      | .20            |
| Friesen, D., Prokop, C. M., & Sarros, J. C. | 1988 | 1,211    | .31            |
| Mazur, P. J., & Lynch, M. D.                | 1989 | 200      | .30            |
| Friesen, D., & Sarros, J. C.                | 1989 | 628      | .25            |
| Van der Doef, M., & Maes, S.                | 2002 | 454      | .29            |

analyses on the relationship between personal accomplishment and resource correlates: (a) personal accomplishment and a composite of resources, (b) personal accomplishment and a composite of resources for published studies only, (c) personal accomplishment and a composite of resources for unpublished studies only, (d) personal accomplishment and peer support, (e) personal accomplishment and supervisory support, and (f) personal accomplishment and decision-making. The results from each meta-analysis indicated a significant positive relationship. Tests for homogeneity yielded mixed results. The samples for two of the meta-analyses (i.e., personal accomplishment and a composite of resources for published studies and depersonalization and decision-making) were homogeneous ( $p < .05$ ). The other four samples (i.e., personal accomplishment and a composite of resources, personal accomplishment and a composite of resources for unpublished studies, personal accomplishment and peer support, and personal accomplishment and supervisory support) were heterogeneous ( $p < .05$ ), thereby indicating that other—unidentified—variables moderated the relationship.

#### **Personal Accomplishment and Demand Correlates**

***H<sub>4</sub>: There is a significant negative relationship between demand correlates and personal accomplishment as measured by the MBI.***

The fourth hypothesis tested if there was a significant negative relationship between personal accomplishment and demand correlates. Thirty studies were included in the meta-analysis that tested this hypothesis. The total number of subjects was 9,145. Table 20 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

Table 20

***Studies Reporting Correlations Between Personal Accomplishment  
and Demand Correlates***

| Author(s)                                                            | Year | <i>n</i> | Effect<br>size |
|----------------------------------------------------------------------|------|----------|----------------|
| Sermon, J. M.                                                        | 1994 | 169      | -.36           |
| Edwards, L. J.                                                       | 1995 | 52       | .07            |
| Gonzalez, M. A.                                                      | 1997 | 104      | -.33           |
| Huang, P. Y.                                                         | 1999 | 82       | -.18           |
| O'Connor, M. J.                                                      | 1989 | 389      | -.32           |
| Schoenig, T. M.                                                      | 1986 | 188      | .05            |
| Simone, D.                                                           | 1997 | 64       | -.36           |
| Donald, V. P.                                                        | 1987 | 365      | -.04           |
| Sedgwick, M. I.                                                      | 1998 | 208      | -.26           |
| Stout, L. C.                                                         | 1987 | 548      | -.02           |
| Veve, M. A.                                                          | 1993 | 190      | -.40           |
| Zellefrow, A. R.                                                     | 1987 | 99       | .10            |
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | -.11           |
| Crane, S. J., & Iwanicki, E. F.                                      | 1986 | 443      | -.31           |
| Lutz, F. W., & Maddirala, J. S.                                      | 1987 | 583      | -.04           |
| Fimian, M. J.                                                        | 1988 | 128      | -.32           |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | .05            |
| Reetz, L. J.                                                         | 1988 | 307      | -.43           |
| Hipps, E. S., & Halpin, G.                                           | 1991 | 277      | .16            |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | -.54           |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | -.41           |
| Friedman, I. A.                                                      | 1995 | 348      | -.40           |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | -.44           |
| De Heus, P., & Diekstra, R. F. W.                                    | 1999 | 1,018    | -.11           |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | -.14           |
| Dean, C. J.                                                          | 1988 | 155      | -.23           |
| Abel, M. H., & Sewell, J.                                            | 1999 | 98       | -.21           |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | -.22           |
| Mearns, J., & Cain, J. E.                                            | 2003 | 86       | -.20           |
| Van der Doef, M., & Maes, S.                                         | 2002 | 454      | -.31           |

The unweighted mean correlation was  $-.209$ . The weighted mean correlation was  $-.220$ , with a 95% confidence interval from  $-.239$  to  $-.200$ . The Fisher's  $z$  correlation was  $-.230$ , with a 95% confidence interval from  $-.243$  to  $-.202$ . The test for homogeneity indicated that the sample was heterogeneous,  $Q = 59.400$ ,  $df = 29$ ,  $p = .001$ .

Because the test for homogeneity indicated that the studies were heterogeneous, the next step was to explore possible sources of heterogeneity. In line with the recommendation by Rosenthal and DiMatteo (2001), the researcher plotted the effect sizes by their standard deviations and examined the resulting graph for outliers among the standard deviations. This graph is displayed in Figure 5. Although the points on the graph were quite disperse, the researcher was able to discern seven extreme points. These points are displayed as squares (■) in Figure 5. After identifying the studies corresponding with the points represented by squares, the characteristics of those studies were examined for commonalities. Five of the seven studies were unpublished. Therefore, further meta-analyses were performed to determine if publication status was a moderator for the relationship between personal accomplishment and demand correlates.

### ***Personal Accomplishment and Demand Correlates in Published Studies***

Because publication status (i.e., published or unpublished) might have been a moderator of the relationship between personal accomplishment and demand correlates, the sample was divided into published studies and unpublished studies, and a separate meta-analysis was conducted for each group. There were 15 published studies that reported correlations between personal accomplishment and demand correlates. The total number of subjects was 6,127. Table 21 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

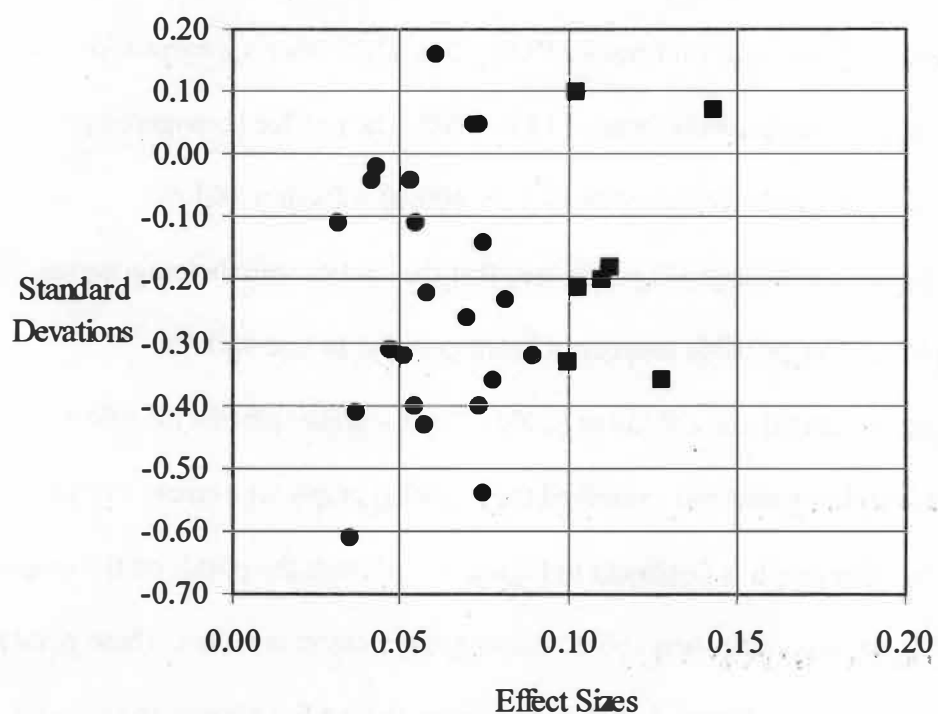


**Figure 5.** Effect sizes of studies reporting correlations between personal accomplishment and demand correlates plotted by standard deviation. The squares (■) represent the extreme outliers, and the circles (●) represent the studies that were not considered to be outliers.

Table 21

***Published Studies Reporting Correlations Between Personal Accomplishment and Demand Correlates***

| Author(s)                                                            | Year | <i>n</i> | Effect size |
|----------------------------------------------------------------------|------|----------|-------------|
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | -.11        |
| Crane, S. J., & Iwanicki, E. F.                                      | 1986 | 443      | -.31        |
| Lutz, F. W., & Maddirala, J. S.                                      | 1987 | 583      | -.04        |
| Fimian, M. J.                                                        | 1988 | 128      | -.32        |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | .05         |
| Reetz, L. J.                                                         | 1988 | 307      | -.43        |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | -.54        |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | -.41        |
| Friedman, I. A.                                                      | 1995 | 348      | -.40        |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | -.44        |
| De Heus, P., & Diekstra, R. F. W.                                    | 1999 | 1,018    | -.11        |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | -.14        |
| Abel, M. H., & Sewell, J.                                            | 1999 | 98       | -.21        |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | -.22        |
| Mearns, J., & Cain, J. E.                                            | 2003 | 86       | -.20        |
| Van der Doef, M., & Maes, S.                                         | 2002 | 454      | -.31        |

The unweighted mean correlation was -.255. The weighted mean correlation was -.264, with a 95% confidence interval from -.281 to -.234. The Fisher's  $z$  correlation was -.270, with a 95% confidence interval from -.289 to -.238. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 156.429$ ,  $df = 14$ ,  $p < .001$ .

### ***Personal Accomplishment and Demand Correlates in Unpublished Studies***

There were 15 unpublished studies that reported correlations between personal accomplishment and a demand correlate(s). The total number of subjects was 3,018. Table 22 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was -.163. The weighted mean correlation was -.140, with a 95% confidence interval from -.174 to -.103. The Fisher's  $z$  correlation was -.141, with a 95% confidence interval from -.176 to -.104. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 98.637$ ,  $df = 14$ ,  $p < .001$ .

Because the tests for homogeneity for the samples of published and unpublished studies indicated heterogeneity, a further search for moderators was necessary. Thus, it appeared that other moderating variables were at work. In line with previous decisions to conduct separate meta-analyses on a dimension of burnout and each specific demand or resource correlate, the researcher decided to conduct separate meta-analyses on personal accomplishment and each specific demand correlate.

### ***Personal Accomplishment and Work Overload***

Sixteen studies reported correlations between personal accomplishment and work overload. The total number of subjects was 4,910. Table 23 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

**Table 22*****Unpublished Studies Reporting Correlations Between Personal Accomplishment and Demand Correlates***

| Author(s)                  | Year | <i>n</i> | Effect size |
|----------------------------|------|----------|-------------|
| Sermon, J. M.              | 1994 | 169      | -.36        |
| Edwards, L. J.             | 1995 | 52       | .07         |
| Gonzalez, M. A.            | 1997 | 104      | -.33        |
| Huang, P. Y.               | 1999 | 82       | -.18        |
| O'Connor, M. J.            | 1989 | 389      | -.32        |
| Schoenig, T. M.            | 1986 | 188      | .05         |
| Simone, D.                 | 1997 | 64       | -.36        |
| Donald, V. P.              | 1987 | 365      | -.04        |
| Sedgwick, M. I.            | 1998 | 208      | -.26        |
| Stout, L. C.               | 1987 | 548      | -.02        |
| Veve, M. A.                | 1993 | 190      | -.40        |
| Zellefrow, A. R.           | 1987 | 99       | .10         |
| Fimian, M. J.              | 1988 | 128      | -.32        |
| Hipps, E. S., & Halpin, G. | 1991 | 277      | .16         |
| Dean, C. J.                | 1988 | 155      | -.23        |

Table 23

***Studies Reporting Correlations Between Personal Accomplishment  
and Work Overload***

| Author(s)                         | Year | <i>n</i> | Effect<br>size |
|-----------------------------------|------|----------|----------------|
| Edwards, L. J.                    | 1995 | 52       | .08            |
| Gonzalez, M. A.                   | 1997 | 104      | -.41           |
| Huang, P. Y.                      | 1999 | 82       | -.18           |
| Donald, V. P.                     | 1987 | 365      | .03            |
| Sedgwick, M. I.                   | 1998 | 208      | -.26           |
| Stout, L. C.                      | 1987 | 548      | -.02           |
| Zellefrow, A. R.                  | 1987 | 99       | .10            |
| Lutz, F. W., & Maddirala, J. S.   | 1987 | 583      | -.04           |
| Fimian, M. J.                     | 1988 | 128      | -.30           |
| Mazur, P. J., & Lynch, M. D.      | 1989 | 200      | .05            |
| Hipps, E. S., & Halpin, G.        | 1991 | 277      | .16            |
| Starnaman, S. M., & Miller, K. I. | 1992 | 182      | -.45           |
| Pierce, C. M. B., & Molloy, G. N. | 1990 | 750      | -.41           |
| Burke, R. J., & Greenglass, E.    | 1993 | 833      | -.61           |
| Dean, C. J.                       | 1988 | 155      | -.23           |
| Abel, M. H., & Sewell, J.         | 1999 | 98       | .14            |
| Van der Doef, M., & Maes, S.      | 2002 | 454      | -.30           |

The unweighted mean correlation was -.149. The weighted mean correlation was -.226, with a 95% confidence interval from -.249 to -.195. The Fisher's  $z$  correlation was -.230, with a 95% confidence interval from -.254 to -.198. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 98.637$ ,  $df = 14$ ,  $p < .001$ .

#### ***Personal Accomplishment and Role Conflict***

Twelve studies reported correlations between personal accomplishment and role conflict. The total number of subjects was 4,107. Table 24 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was -.247. The weighted mean correlation was -.261, with a 95% confidence interval from -.284 to -.226. The Fisher's  $z$  correlation was -.267, with a 95% confidence interval from -.292 to -.230. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 88.502$ ,  $df = 11$ ,  $p < .001$ .

#### ***Personal Accomplishment and Role Ambiguity***

Eleven studies reported a correlation between personal accomplishment and role ambiguity. The total number of subjects was 4,977. Table 25 provides information relating to the authors, the year the study was reported, sample size, and the reported correlation.

The unweighted mean correlation was -.368. The weighted mean correlation was -.309, with a 95% confidence interval from -.325 to -.274. The Fisher's  $z$  correlation was -.319, with a 95% confidence interval from -.337 to -.281. The test for homogeneity indicated that the sample was heterogeneous,  $Q = 89.768$ ,  $df = 10$ ,  $p < .001$ .

**Table 24*****Studies Reporting Correlations Between Personal Accomplishment and Role Conflict***

| Author(s)                                                            | Year | <i>n</i> | Effect size |
|----------------------------------------------------------------------|------|----------|-------------|
| Sermon, J. M.                                                        | 1994 | 169      | -.36        |
| Donald, V. P.                                                        | 1987 | 365      | -.02        |
| Schwab, R. L., & Jackson, S. E.                                      | 1986 | 339      | -.11        |
| Fimian, M. J.                                                        | 1988 | 128      | -.25        |
| Mazur, P. J., & Lynch, M. D.                                         | 1989 | 200      | -.10        |
| Reetz, L. J.                                                         | 1988 | 307      | -.43        |
| Starnaman, S. M., & Miller, K. I.                                    | 1992 | 182      | -.43        |
| Pierce, C. M. B., & Molloy, G. N.                                    | 1990 | 750      | -.41        |
| Friedman, I. A.                                                      | 1995 | 348      | -.40        |
| Burke, R. J., & Greenglass, E.                                       | 1993 | 833      | -.26        |
| Boles, J. S., Dean, D. H., Ricks, J. M.,<br>Short, J. C., & Wang, G. | 2000 | 182      | -.14        |
| Kijai, J., & Totten, D. L.                                           | 1995 | 304      | -.05        |

**Table 25*****Studies Reporting Correlations Between Personal Accomplishment and Role Ambiguity***

| Author(s)                         | Year | <i>n</i> | Effect size |
|-----------------------------------|------|----------|-------------|
| Sermon, J. M.                     | 1994 | 169      | -.36        |
| O'Connor, M. J.                   | 1989 | 389      | -.32        |
| Crane, S. J., & Iwanicki, E. F.   | 1986 | 443      | -.31        |
| Fimian, M. J.                     | 1988 | 128      | -.41        |
| Reetz, L. J.                      | 1988 | 307      | -.43        |
| Hipps, E. S., & Halpin, G.        | 1991 | 277      | .16         |
| Starnaman, S. M., & Miller, K. I. | 1992 | 182      | -.73        |
| Pierce, C. M. B., & Molloy, G. N. | 1990 | 750      | -.41        |
| Burke, R. J., & Greenglass, E.    | 1993 | 833      | -.26        |
| De Heus, P., & Diekstra, R. F. W. | 1999 | 1,018    | -.11        |
| Kijai, J., & Totten, D. L.        | 1995 | 304      | -.22        |
| Mearns, J., & Cain, J. E.         | 2003 | 86       | -.20        |
| Van der Doef, M., & Maes, S.      | 2002 | 454      | -.32        |

### ***Personal Accomplishment and Student Misbehavior***

Ten studies reported correlations between personal accomplishment and student misbehavior. The total number of subjects was 1,703. Table 26 provides information relating to the authors, the year the study was reported, sample size, and the effect size.

The unweighted mean correlation was  $-.244$ . The weighted mean correlation was  $-.247$ , with a 95% confidence interval from  $-.287$  to  $-.197$ . The Fisher's  $z$  correlation was  $-.253$ , with a 95% confidence interval from  $-.295$  to  $-.199$ . The test for homogeneity indicated that the sample was heterogeneous,  $Q = 49.242$ ,  $df = 9$ ,  $p < .001$ .

### ***Summary of Meta-Analyses Involving Personal Accomplishment and Demand Correlates***

The fourth hypothesis tested if there was a significant negative relationship between personal accomplishment and demand correlates. The researcher conducted seven meta-analyses on the relationship between personal accomplishment and resource correlates: (a) personal accomplishment and a composite of demands, (b) personal accomplishment and a composite of demands for published studies only, (c) personal accomplishment and a composite of demands for unpublished studies only, (d) personal accomplishment and work overload, (e) personal accomplishment and role conflict, (f) personal accomplishment and role ambiguity, and (g) personal accomplishment and student misbehavior. The results from each meta-analysis indicated a significant negative relationship. Although each meta-analysis indicated a significant negative relationship, tests for homogeneity revealed that each sample was heterogeneous ( $p < .05$ ). Therefore, other—unidentified—variables moderated the relationship.

**Table 26*****Studies Reporting Correlations Between Personal Accomplishment and Student Misbehavior***

| Author(s)                 | Year | <i>n</i> | Effect size |
|---------------------------|------|----------|-------------|
| Edwards, L. J.            | 1995 | 52       | .05         |
| Gonzalez, M. A.           | 1997 | 104      | -.24        |
| Schoenig, T. M.           | 1986 | 188      | .05         |
| Simone, D.                | 1997 | 64       | -.36        |
| Donald, V. P.             | 1987 | 365      | -.12        |
| Sedgwick, M. I.           | 1998 | 208      | -.26        |
| Veve, M. A.               | 1993 | 190      | -.40        |
| Friedman, I. A.           | 1995 | 348      | -.40        |
| Abel, M. H., & Sewell, J. | 1999 | 98       | -.56        |
| Mearns, J., & Cain, J. E. | 2003 | 86       | -.20        |

## Summary

Twenty-six separate meta-analyses were conducted in this study. The following directional hypotheses were tested:

- H<sub>a1</sub>: There is a significant positive relationship between demand correlates and emotional exhaustion as measured by the MBI.
- H<sub>a2</sub>: There is a significant negative relationship between resource correlates and depersonalization as measured by the MBI.
- H<sub>a3</sub>: There is a significant positive relationship between resource correlates and personal accomplishment as measured by the MBI.
- H<sub>a4</sub>: There is a significant negative relationship between demand correlates and personal accomplishment as measured by the MBI.

The results from each meta-analysis supported one of the following relationships:

The results supported the following relationships: (a) a positive relationship between emotional exhaustion and demand correlates, (b) a negative relationship between depersonalization and resource correlates, (c) a positive relationship between personal accomplishment and resource correlates, or (d) a negative relationship between personal accomplishment and demand correlates. However, in 21 of the 26 meta-analyses, results from the homogeneity test indicated heterogeneity, thus suggesting that other moderating variables were at work. A discussion of the conclusions, implications, and recommendations drawn from these findings follows in Chapter V.

## **CHAPTER V**

### **MAJOR FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS**

Burnout has been defined as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do ‘people’ work of some kind” (Maslach & Jackson, 1986, p. 1). Teachers have been especially prone to burnout. Teachers with high levels of burnout have suffered such physical symptoms as chronic physical exhaustion, ulcer symptoms, marked weight loss or gain, insomnia, and increased blood pressure (Hamman, 1992). Moreover, they have displayed negative, callous attitudes toward students (Maslach, Jackson, & Schwab, 1996), and they have been associated with an overall decline in performance as well as low morale and increased turnover and absenteeism (Maslach & Jackson, 1996).

In part due to the severity of the effects of burnout, researchers have expended extensive effort to study the topic. They have presented findings about the relationship between burnout and such variables as role conflict, work overload, demographic characteristics, peer support, participation in decision-making, and role ambiguity (Abel & Sewell, 1999; Byrne, 1994; Greenglass, Burke, & Konarski, 1997; Mazur & Lynch, 1989; Mearns & Cain, 2003; Pierce & Molloy, 1990; Sarros & Sarros, 1992; Tuettemann & Punch, 1992; Van der Doef & Maes, 2002). However, because many researchers did not employ an overarching theoretical framework in designing these studies, the resulting body of research lacked order and congruence (Maslach, 1999).

Meta-analysis provides a means to synthesize and reconcile diverse research findings (Lipsey & Wilson, 2001; Wolf, 1986). The purpose of this study was to use meta-analytic procedures to explore relationships among the dimensions of teacher burnout and demand and resource correlates. The following directional hypotheses were tested:

- H<sub>a</sub>1: There is a significant positive relationship between demand correlates and emotional exhaustion as measured by the Maslach Burnout Inventory.
- H<sub>a</sub>2: There is a significant negative relationship between resource correlates and depersonalization as measured by the Maslach Burnout Inventory.
- H<sub>a</sub>3: There is a significant positive relationship between resource correlates and personal accomplishment as measured by the Maslach Burnout Inventory.
- H<sub>a</sub>4: There is a significant negative relationship between demand correlates and personal accomplishment as measured by the Maslach Burnout Inventory.

Directional hypotheses were used because both conceptual arguments (Hobfoll, 1989; Leiter 1993) and empirical evidence (Byrne, 1994; Lee & Ashforth, 1996) provided a basis for the direction of findings.

Twenty-six separate meta-analyses using 42 studies with 41 independent samples and 14,742 respondents were used to test the hypotheses. In each case, unweighted mean correlations, weighted mean correlations, and weighted Fisher's *z* correlations supported the relationships indicated in the hypotheses. However, in 21 of the 26 meta-analyses, there was evidence of heterogeneity, thus indicating that the relationships were moderated by other variables. Table 27 contains a summary of the statistical findings of the study.

Table 27

*Summary of Findings*

| Meta-analysis                   | Weighted<br><i>r</i> | Fisher's<br><i>z</i> | <i>df</i> | <i>Q</i> | <i>p</i> |
|---------------------------------|----------------------|----------------------|-----------|----------|----------|
| Emotional exhaustion            |                      |                      |           |          |          |
| Demands (all)                   | .477                 | .519                 | 29        | 95.828   | .001     |
| Published studies               | .476                 | .518                 | 14        | 35.082   | .001     |
| Unpublished studies             | .479                 | .522                 | 14        | 40.073   | .001     |
| Work overload                   | .530                 | .590                 | 14        | 58.589   | .001     |
| Role conflict                   | .481                 | .524                 | 12        | 33.563   | .001     |
| Role ambiguity                  | .466                 | .505                 | 10        | 31.866   | .001     |
| Student misbehavior             | .399                 | .422                 | 9         | 18.943   | .026     |
| Depersonalization               |                      |                      |           |          |          |
| Resources (all)                 | -.200                | -.203                | 19        | 150.947  | .001     |
| Published studies               | -.236                | -.240                | 9         | 4.830    | .849     |
| Unpublished studies             | -.158                | -.160                | 10        | 20.276   | .027     |
| Peer support                    | -.175                | -.177                | 12        | 17.152   | .144     |
| Supervisory support             | -.163                | -.164                | 9         | 24.875   | .003     |
| Decision-making                 | -.226                | -.230                | 8         | 11.658   | .167     |
| Personal Accomplishment         |                      |                      |           |          |          |
| Resources (all)                 | .172                 | .173                 | 20        | 37.541   | .010     |
| Published studies (resources)   | .258                 | .264                 | 9         | 11.322   | .254     |
| Unpublished studies (resources) | .069                 | .069                 | 9         | 66.162   | .001     |
| Peer support                    | .109                 | .110                 | 11        | 78.747   | .001     |
| Supervisory support             | .105                 | .106                 | 10        | 101.714  | .001     |
| Decision-making                 | .249                 | .254                 | 8         | 15.518   | .050     |
| Personal accomplishment         |                      |                      |           |          |          |
| Demands (all)                   | -.223                | -.227                | 29        | 59.400   | .001     |
| Published studies (demands)     | -.264                | -.270                | 14        | 156.429  | .001     |
| Unpublished studies (demands)   | -.140                | -.141                | 14        | 98.637   | .001     |
| Work overload                   | -.226                | -.230                | 15        | 313.669  | .001     |
| Role conflict                   | -.261                | -.267                | 11        | 88.502   | .001     |
| Role ambiguity                  | -.309                | -.319                | 10        | 89.768   | .001     |
| Student misbehavior             | -.247                | -.253                | 9         | 49.242   | .001     |

## **Major Findings**

The study yielded major findings relative to relationships among the dimensions of burnout and demand and resource correlates. The specific findings are

1. Seven separate meta-analyses indicate a significant positive relationship between emotional exhaustion and demand correlates. The finding of a significant positive relationship between emotional exhaustion and demand correlates is in line with research conducted by Lee and Ashforth (1996) and Janssen, Schaufeli, and Houkes (1999). However, the test for homogeneity indicates heterogeneity in all seven meta-analyses. Thus, the relationship between emotional exhaustion and demand correlates is moderated by other variables.
2. Six separate meta-analyses indicate a significant negative relationship between depersonalization and resource correlates. The finding of a significant negative relationship between depersonalization and resource correlates is in line with research conducted by Lee and Ashforth (1996) and Janssen et al. (1999). Results from the homogeneity test are mixed. While the samples for three of the meta-analyses (i.e., depersonalization and a composite of resources for published studies, depersonalization and peer support, and depersonalization and decision-making) are homogeneous, the other three samples (i.e., depersonalization and a composite of resources, depersonalization and a composite of resources for unpublished studies, and depersonalization and supervisory support) are heterogeneous, thereby indicating that other—unidentified—variables moderated the relationship between depersonalization and resource correlates in those samples.
3. Six separate meta-analyses indicate a significant positive relationship between personal accomplishment and resource correlates. The finding of a significant positive relationship between personal accomplishment and resource correlates is in line with research conducted by Lee and Ashforth (1996) and Janssen et al. (1999). Results from the homogeneity test are mixed. The samples for two of the meta-analyses (i.e., personal accomplishment and a composite of resources for published studies and depersonalization and decision-making) are homogeneous. The other four samples (i.e., personal accomplishment and a composite of resources, personal accomplishment and a composite of resources for unpublished studies, personal accomplishment and peer support, and personal accomplishment and supervisory support) are heterogeneous, thereby indicating that other—unidentified—variables moderated the relationship.
4. Seven separate meta-analyses indicate a significant negative relationship between personal accomplishment and demand correlates. The finding of a

significant positive relationship between personal accomplishment and demand correlates is in line with research conducted by Lee and Ashforth (1996), but it differs from the finding by Janssen et al. (1999). However, the test for homogeneity indicates heterogeneity in all seven meta-analyses. Thus, the relationship between personal accomplishment and demand correlates is moderated by other variables.

### **Conclusions**

All conclusions must be viewed in light of the limitations and delimitations of the study. Relative to the limitations and delimitations identified in Chapter I, the following conclusions are drawn from the findings of this study:

1. There is a significant positive relationship between emotional exhaustion and demand correlates, measured together and separately. However, that relationship is moderated by other, unidentified variables.
2. There is a significant negative relationship between depersonalization and resource correlates, measured together and separately. The following relationships are moderated by other, unidentified variables: depersonalization and a composite of resources, depersonalization and a composite of resources for unpublished studies, and depersonalization and supervisory support.
3. There is a significant positive relationship between personal accomplishment and resource correlates, measured together and separately. However, the specific relationships of personal accomplishment and a composite of resource correlates, personal accomplishment and a composite of resource correlates in unpublished studies, personal accomplishment and peer support, and personal accomplishment and supervisory support are moderated by other, unidentified variables.
4. There is a significant negative relationship between personal accomplishment and demand correlates, measured together and separately. However, that relationship is moderated by other, unidentified variables.
5. In two out of eight cases, publication status was a moderator of a relationship between a dimension of burnout and a demand or resource correlate.
6. All of the meta-analyses involving demand correlates were found to be heterogeneous.

7. Seven of the 12 meta-analyses involving resource correlates were found to be heterogeneous. Conversely, 5 of the 12 meta-analyses involving resource correlates were found to be homogeneous.

### **Recommendations**

Recommendations for future research can be drawn from the findings and conclusions of this study. These recommendations include

1. Future research should explore how other variables moderate the relationships between the burnout dimensions and demand and resource correlates, and this information should be incorporated into Leiter's (1993) model of burnout. The research literature contains some starting points for this exploration, including locus of control (Byrne, 1994; Huberman, 1993; Mazur & Lynch, 1989), coping (Chan, 1998; Chan & Hui, 1998; Mearns & Cain, 2003), and demographic characteristics (Friedman, 1991; Kantas & Vassilaki, 1997; Pierce & Molloy, 1990; Tuettemann & Punch, 1992).
2. In addition to exploring how variables already identified in the research literature might moderate relationships between the dimensions of burnout and demand and resource correlates, future research should seek to identify new moderating variables. Hobfoll's (1989) Conservation of Resources (COR) theory might provide some direction in this search. Hobfoll identified resources—not demands—as the unit necessary for understanding and measuring stress. Indeed, demands may be related to stress—as evidenced by the relationship between emotional exhaustion and demand correlates—but resources, or lack thereof, might be the unidentified variables moderating that relationship.
3. It might be interesting to analyze both the relationship between emotional exhaustion and resource correlates and the relationship between depersonalization and demand correlates.
4. Additional research should be conducted on the efficacy of formal support groups to provide peer support. Early research in this area has been promising (Epps, 1996), although piecemeal. Empirical validation of the efficacy of formal support groups to provide peer support would be helpful.
5. Research should be conducted relative to what supervisory behaviors teachers find most supportive. Insights might be drawn via such methods as individual and group interviews, focus groups, and written survey questions designed to elicit qualitative responses.

6. Future research should explore differences in studies relative to publication status. Previous research suggests a bias toward publishing studies reporting larger effects more frequently than studies reporting smaller effects (Begg, 1994; Egger & Smith, 1998; Stern & Simes, 1997). How extensive is this publication bias? Are the research designs and procedures utilized in unpublished studies lower in quality than the research designs and procedures utilized in published studies? The answers to such questions might shed light on differences in studies relative to publication status.
7. Future meta-analyses on burnout topics should include procedures to correct for study artifacts other than just sampling error, such as range restriction and measurement unreliability. Then, the results of those meta-analyses should be compared with results from bare-bones meta-analyses.
8. Burnout researchers should consider placing their complete, raw data sets into archives such as the Inter-university Consortium for Political and Social Research (ICPSR). A deficiency in reported information prohibited the researcher in this study from exploring certain possibilities in the search for moderators. For example, the research literature has indicated that gender can be a possible moderator of burnout among teachers (Friedman, 1991; Greenglass & Burke, 1990; Tuettemann & Punch, 1992; Van Horn, Schaufeli, Greenglass, & Burke, 1997). Indeed, the researcher had attempted to code studies for gender, but there was not enough reported data to do so. Because journals have a limited number of pages, they cannot report every study in minute detail (McConnell, 1999). Data archives can hold vast amounts of data that can be made available to meta-analysts and secondary data analysts for further study.

### **Implications**

The findings and conclusions from this study also have implications for practical application. These implications are presented in the form of suggestions for practical application of the literature review, findings, and conclusions of this study. Some of these implications include

1. School administrators should review policies and procedures relative to how teachers' roles are defined. Any ambiguous policies or procedures should be revised for clarity.
2. Principals should receive training on how to provide adequate support to their teaching staff.

3. Teachers should be encouraged to participate in the decision-making process regarding issues that affect them. Moreover, this participation should not merely be token; administrators and policy makers should make a concerted effort to listen to and understand teachers' viewpoints.
4. Teachers should receive specific training relative to dealing with problem student behaviors. Clear policies should be in place for dealing with specific types of student misbehavior.
5. Interventions should be designed for teachers experiencing work overload. Interventions might include re-design of work processes and training in time management skills.
6. Teachers should not be assigned to teach classes outside of their particular academic realm.
7. Teachers should receive a clear explanation of all expectations placed on them.
8. Administrators of schools and school systems should organize formal support groups for teachers and should provide ample opportunity for interaction among teachers.

### **Summary**

This chapter served to review the findings and conclusions of this study and to relate them to recommendations for future research and implications for practical application. Some of the recommendations for future research focused on the search for and identification of variables that might moderate the relationships between the dimensions of burnout and demand and resource correlates. Some of the implications were in the form of suggestions of topics for future training. It is through research that a thorough understanding of teacher burnout can be obtained, but research findings must be applied practically if they are to be of benefit to teachers, students, schools, and—ultimately—society.

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## **APPENDIX**

**APPENDIX A**  
**INDIVIDUAL STUDY CODING FORM**

## Individual Study Coding Form

Study ID No. \_\_\_\_\_

Reference information:

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- \_\_\_\_\_ 1. Type of publication
- |                          |                         |
|--------------------------|-------------------------|
| 1 journal article        | 4 technical report      |
| 2 conference paper       | 5 other (specify) _____ |
| 3 thesis or dissertation |                         |

### Participant Characteristics

- \_\_\_\_\_ 2. Predominant gender
- |                    |                    |
|--------------------|--------------------|
| 1 0% - 25% female  | 4 76%- 100% female |
| 2 26% - 50% female | 5 unknown          |
| 3 51% - 75% female |                    |

- \_\_\_\_\_ 3. Grade level taught
- 1 elementary
  - 2 middle
  - 3 secondary
  - 4 unknown

- \_\_\_\_\_ 4. Type of student taught
- 1 academic track
  - 2 vocational track
  - 3 special education
  - 4 unknown

- \_\_\_\_\_ 5. Nationality
- |                        |                         |
|------------------------|-------------------------|
| 1 United States/Canada | 5 Australia/New Zealand |
| 2 Great Britain        | 6 The Netherlands       |
| 3 Israel               | 7 Taiwan                |
| 4 Japan                | 8 other (specify) _____ |

- \_\_\_\_\_ 6. Mean age

## Methodological Characteristics

\_\_\_\_\_ 7. Dichotomization of continuous variable  
1 no  
2 yes (specify) \_\_\_\_\_

\_\_\_\_\_ 8. Sampling method  
1 simple random                      5 convenience  
2 stratified                            6 purposive  
3 cluster                                7 unknown  
4 systematic                           8 other (specify) \_\_\_\_\_

\_\_\_\_\_ 9. Sample size

## Dependent Variable Characteristics

\_\_\_\_\_ 10. Study statistic reported  
1 *r*                                        5 *d*  
2 *t*                                        6 *p*  
3 *F*                                        7 other (specify) \_\_\_\_\_  
4 two-way ANOVA

\_\_\_\_\_ 11. Type of relationship reported  
1 emotional exhaustion and demand correlate  
2 depersonalization and resource correlate  
3 personal accomplishment and demand correlate  
4 personal accomplishment and resource correlate

\_\_\_\_\_ 12. Specific correlate  
1 role ambiguity                      5 peer support  
2 role conflict                        6 supervisory support  
3 work overload                      7 control  
4 stressful event                      8 decision-making

\_\_\_\_\_ 13. Reliability estimate of burnout instrument

\_\_\_\_\_ 14. Reliability estimate of correlate instrument

\_\_\_\_\_ 15. Relationship reported

\_\_\_\_\_ 16. Effect size reported as *r*

## VITA

Jama Lynn McMahan was born in Maryville, Tennessee. After graduating from high school in Maryville in 1990, she attended The University of Tennessee, Knoxville. A Hodges Merit Scholar, Ms. McMahan participated in the Honors English program and completed a minor in Secondary Education. She was named the Top Graduating Senior for the College of Liberal Arts for Spring semester 1994.

Following graduation from college, Ms. McMahan moved to Banner Elk, North Carolina, where she worked intensively with sexually abused children at Grandfather Home for Children. After 2 years, she returned to Knoxville and continued to pursue a career in social work. She served as a liaison between Knox County Schools and families of emotionally disturbed children and worked as a crisis intervention specialist for Covenant Behavioral Health.

Ms. McMahan entered the master's degree program in the Department of Human Resource Development (HRD) at The University of Tennessee in 2000. While in graduate school, she served as the Assistant Editor for two peer-reviewed journals, the *International Journal of Vocational Education and Training* and the *Journal of Educational Opportunity*. In addition, she co-authored articles accepted for publication in several scholarly journals. Ms. McMahan received the award for Outstanding HRD Graduate Student in 2002.