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**THE EFFECT OF NATIONAL BOARD CERTIFICATION ON
BURNOUT LEVELS IN EDUCATORS**

by

TANYA JUDD

B.S. University of Florida, 1994

M.A. University of Florida, 1996

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the College of Health and Public Affairs
at the University of Central Florida
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Major Professor: Lawrence Martin

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ABSTRACT

Teacher attrition and retention has become a major issue facing education policymakers and practitioners as our nation's school age population continues to grow, but the teaching workforce does not. This study seeks to examine the impact of certification by the National Board for Professional Teaching Standards (NBPTS) on burnout levels in educators. The potential benefits to teachers who pursue NBPTS certification include a sense of professional pride, new leadership roles and responsibilities for teachers, recognition of outstanding teaching practice, and higher salaries (Shapiro, 1995). Some of these potential rewards seem to address a number of the factors that are related to the onset burnout, and therefore may reduce teacher attrition.

The study utilized the Maslach-Leiter conceptual framework to examine burnout, which breaks the burnout construct into three separate dimensions; emotional exhaustion, depersonalization, and reduced personal accomplishment. The research questions sought to determine if there was a difference between National Board Certified Teachers (NBCTs) and their non-certified peers in each of these dimensions of burnout.

The research sample consisted of the NBCTs and a comparable random sample of their non-certified peers from a large urban school district in the Central Florida area. The Maslach Burnout Inventory Educators Survey was used as a basis of comparison of the burnout levels. The two groups were compared utilizing an independent samples t-test. The instrument utilized in this study also included demographic questions, as well as questions that were designed to measure the various elements of the Maslach-Leiter theoretical model of burnout. These questions and the independent variable NBPTS

certification were included in a multiple regression analysis in order to determine if the differences noted between the groups using the independent samples t-tests were in fact a result of NBPTS certification, and not the theoretical model itself. The instruments were mailed in the fall of 2006, and were returned to the researcher anonymously. A total of 476 surveys were returned, for a response rate of 52%.

The independent samples t-tests revealed significant differences between NBCTs and their non-certified peers on all three dimensions of burnout. An examination of the individual scores for each group revealed that in each of the dimensions showed that the NBCTs demonstrated lower levels of experienced burnout in each dimension. The multiple regression analyses that were conducted to confirm that NBPTS certification was in fact a significant factor in the development of each burnout dimension revealed mixed results. Emotional exhaustion and reduced personal accomplishment were both found to have a significant negative relationship with NBPTS certification, which indicates that the NBCTs are significantly less burned out than their non-certified peers. Despite the initial finding of significance in the independent samples t-test, NBPTS certification was not found to be a significant factor in the onset of the depersonalization dimension of burnout. This relationship needs further exploration in future studies.

The significant difference between the research and control groups in this study suggests that NBPTS certification may reduce burnout levels in at least two dimensions. Legislators and policymakers at the state and federal levels have provided millions of dollars to support NBPTS certification. These findings seem to indicate that this financial support has impacted burnout levels in educators, and may therefore warrant examination as a strategy to address the issue of teacher attrition.

I would like to thank my husband for standing by me throughout this process, and reading countless drafts. I would also like to thank my family and friends for providing an extensive network of support for me throughout this process, and especially my mother, who always believed that I could. She also makes a great envelope stuffer! I think we are all burned out on burn out!

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I would like to thank my committee for their hard work and patience with me throughout the process. Dr. Martin read countless versions and provided sound advice on countless occasions. Dr. Holmes was invaluable in his input regarding my methodology and processing of the statistics. If you can help me with statistics, you can teach stats to anyone! Dr. Hopkins provided irreplaceable insight into the NBPTS certification process that helped me convey the information about certification, clearly, convincingly, and consistently. Last but not least there is Dr. Abel, whose moral support and academic advice has been tremendous throughout my work in the doctoral program. I have learned a great deal from all of you.

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LIST OF ABBREVIATIONS

FCAT: Florida Comprehensive Assessment Test

MBI: Maslach Burnout Inventory

MBI-ES: Maslach Burnout Inventory-Educators Survey

NBPTS: National Board for Professional Teaching Standards

NBCT: National Board Certified Teacher

CHAPTER ONE: INTRODUCTION

The nation is facing a teacher shortage that is reaching epidemic proportions. It has been estimated that nearly two million new educators will be necessary in the next decade in order to meet the needs of soaring enrollments (Olson, 2000). The National Commission on Teaching and America's Future recently observed that the problem facing the nation is not necessarily one of teacher recruitment-it is a problem of retaining teachers once they enter the profession (National Council on Teacher Quality, 2003). Richard Ingersoll's analysis of the Schools and Staffing Survey reveals that in most content areas our universities are generating more teacher education graduates than are actually needed (2001). However, only 50% of these new graduates make it to the classroom and of those who enter the classroom, 46% leave teaching within the first five years (Ingersoll, 2001, pg. 14). Of those public teachers in the classroom, only 11% of teachers in public school settings described being very satisfied with their jobs (Perie & Baker, 1997, p. 7). Consequently, we are facing a tremendous shortage of not only highly qualified teachers, as defined by the No Child Left Behind Act, but a shortage of anyone to take the reins in our nation's classrooms.

If the solution to the teacher attrition problem is retaining teachers who enter the classroom, the challenge becomes one of overcoming the variety of reasons that lead educators to leave the profession. Researchers and policy makers have long attempted to determine why teachers leave the profession. Common reasons cited by teachers for leaving the field include: low teacher pay, the declining respect accorded to teachers by society, the attitudes of students and parents, inadequacy of administrative support, the increasingly violent nature of the school environment, and an inability to advance in the

profession (Anderson & Iwanicki, 1984; Blase, Dedrick, & Strathe, 1986; Bryne, 1998; Byrne, 1999; Farber, 1984a; Farber, 1991; Hock, 1988; Villa & Calvete, 2001). Many of the reasons cited for leaving the profession can also be linked to burnout (Byrne, 1999; Friedman & Farber, 1992; Villa & Calvete, 2001). Research shows that one of the consequences of burnout is attrition (Brouwer, Evers, & Tomic, 1999; Byrne, 1999; Farber, 1984b; Farber, 1991; Hock, 1988; Mor Barak, Nissly, & Levin, 2001). Consequently, educators and policy makers need to evaluate methods to address some of the factors that lead to burnout if we are to address the teacher retention issue. Forty-one states have attempted to increase the retention of veteran teachers by providing bonuses to teachers who have earned certification from the National Board for Professional Teaching Standards (To close the gap, quality counts, 2003; CommunicationWorks, 2007). As a result, establishing policies that encourage teachers to pursue National Board Certification may be a critical first step in dealing with the issues of teacher burnout and attrition that currently plague our educational system.

The National Board for Professional Teaching Standards, or NBPTS, is an organization that developed a certification process in order to address assertions that the field of education did not seem to have a set of codified knowledge, skills, and abilities that demonstrated mastery in the field, such as you would see in other professions like law or medicine (Baratz-Snowden, Shapiro, & Streeter, 1993). The mission of NBPTS is to “establish high and rigorous standards for what accomplished teachers should know and be able to do, to develop and operate a national voluntary system to assess and certify teachers who meet these standards, and to advance related education reforms for the purpose of improving student learning in American schools” (NBPTS, 2002).

Though no studies have directly evaluated the relationship between the National Board certification process and burnout, a review of the literature provides preliminary indications that some of the components of the Maslach-Leiter model of burnout could potentially be impacted by the National Board Certification process. According to Shapiro (1995), possible benefits of the NBPTS certification process include a sense of professional pride, new leadership roles and responsibilities for teachers, recognition of outstanding teaching practice, and higher salaries. Many of these very rewards can be related to the components of the conceptual model of burnout. In addition, the rigorous nature of the certification process coupled with studies that demonstrate that National Board Certified Teachers have a positive impact on student learning may be able to enhance the respect accorded to teachers by society (Bond, Smith, Baker, & Hattie, 2000; Goldhaber & Anthony, 2004). Studies by Friedman and Farber (1992) and Villa and Calvete (2001) found a significant negative relationship between burnout and professional self-concept, or how an individual views their competence as a professional, so a process that instills the confidence that one is an accomplished teacher may have the ability to influence perceived levels of burnout. Teachers who have successfully completed the NBPTS certification process have stated that the process has renewed their professional vigor and provided them with a sense of professional satisfaction, the very type of professional renewal that many mid-career teachers in danger of burning out may need (NBPTS, 2002). Finally, the NBPTS certification process has opened up leadership roles for NBCTs (National Board Certified Teachers) within their schools and districts, and has provided opportunities to become involved in critical decision-making for their schools and the field of education. Studies have shown that enhancing decision-making

opportunities and leadership functions can lead to a decrease in perceived burnout levels (Byrne, 1999; Friedman & Farber, 1992).

Overall, these documented benefits of the National Board for Professional Teaching Standards certification process may directly influence some of the factors related to the onset of burnout, such as organizational characteristics, task qualities, social support, and the personal qualities of teachers. As a result, an examination of the NBPTS certification process and its effects to see if the process can stem the tide of educator burnout may be a critical next step in education research and policy formation.

The Problem

Rationale, Significance, or Need for the Study

There is a clear need for highly qualified teachers in American classrooms, and the problem seems to be getting worse. In order to meet this need, the focus of education professionals, researchers, and policy makers needs to be on how to reduce turnover and retain accomplished teachers in the classroom. One way to accomplish this may be to investigate methods of reducing burnout amongst teachers, a leading cause of attrition. The National Board for Professional Teaching Standards program may have the potential to serve as a strategy that addresses some of the factors that lead to burnout in educators. If this is so, NBPTS certification may then become a viable strategy to both alleviate the problem of burnout in today's classrooms and to retain qualified teachers to staff them.

Research Questions and Hypotheses to be Investigated

The primary research questions to be investigated are:

- What is the impact of the NBPTS certification process on the emotional exhaustion dimension of burnout?
- What is the impact of the NBPTS certification process on the depersonalization dimension of burnout?
- What is the impact of the NBPTS certification process on the reduced personal accomplishment dimension of burnout?

The researcher has several hypotheses:

- H_{o1} : There will be no significant difference in emotional exhaustion as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.
- H_{a1} : There will be a statistically significant difference in emotional exhaustion as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.
- H_{o2} : There will be no significant difference in depersonalization as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.
- H_{a2} : There will be a statistically significant difference in depersonalization as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.

- H_{03} : There will be no significant difference in personal accomplishment as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.
- H_{a3} : There will be a statistically significant difference in personal accomplishment as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.

The variables involved in the study are as follows:

- X : Certification from the National Board for Professional Teaching Standards, a dichotomous variable (yes/no)
- Y_1 : Emotional Exhaustion, one of the dimensions of burnout as operationally defined by Maslach, and a subscale of the MBI Instrument.
- Y_2 : Depersonalization, one of the dimensions of burnout as operationally defined by Maslach, and a subscale of the MBI Instrument.
- Y_3 : Personal Accomplishment, one of the dimensions of burnout as operationally defined by Maslach, and a subscale of the MBI Instrument.

CHAPTER TWO: LITERATURE REVIEW

The review of relevant literature covers several key areas. First, there is an evaluation of the factors related to teacher burnout, including its theoretical framework, its definitions, and potential effects. Next, there will be a review of the relevant literature related to the National Board for Professional Teaching Standards (NBPTS) certification process. Since there are no studies at this point directly relating the phenomena of burnout and the NBPTS certification process, the researcher will discuss literature related to the potential outcomes of the NBPTS certification process, and their possible connections to the burnout construct.

Burnout: Framing the Problem

Farber, a leading researcher in burnout amongst educators, uses Maslach's social-psychological framework to formulate a conceptual definition of burnout. Farber defines burnout as:

a work-related syndrome that stems from an individual's perception of a significant discrepancy between effort (input) and reward (output), this perception being influenced by individual, organizational, and social factors. It occurs most often in those who work face to face with troubled or needy clients and is typically marked by withdrawal from and cynicism toward clients, and various psychological symptoms such as irritability, anxiety, sadness, and lowered self-esteem (1991, p. 24).

Early information provided in the professional literature about teacher burnout was primarily anecdotal, consisting of stories of how individual teachers became burned out,

the varied effects on the teacher's emotional and physical health, and concluded with some suggestions for dealing with burnout (Maslach, 1999). The anecdotal nature of this work made it difficult to generalize and determine what the causes and effects of burnout were, much less come up with prescriptive measures for prevention.

Beginning in the late 1970s and continuing throughout the 1980s, there was a push to empirically study burnout from its origins through its consequences in order to develop a model for how one becomes burned out, and what can be done to either prevent it, or treat it once it occurs. Even the empirical work has its limitations in that it has been primarily based on correlations using subjective, self report, cross sectional data (Byrne, 1999). As a result, academicians have virtually worked backward, from an identification and description of a real world problem back to the development of a theoretical framework. This may in part explain some of the definitional ambiguity of the burnout construct (Maslach, 1999). It has also resulted in multiple theoretical frameworks of the burnout phenomena. The literature identifies the primary frameworks for understanding burnout as a clinical approach as exemplified by the worker of Freudenberger, an organizational approach as exemplified by Cherniss, and a social-psychological approach as exemplified by Maslach and later other researchers such as Pines, Jackson, and Leiter (Byrne, 1999; Farber, 1991).

Maslach's Social-Psychological Burnout Framework

The primary framework that shapes the discussion of burnout in educators is the multidimensional social-psychological burnout framework of Maslach (Byrne, 1999). A social-psychological approach seeks to examine the relationship between personality

characteristics of teachers and external social/organizational stressors in understanding the burnout phenomena (Farber, 2000). Burnout is commonly associated with the concept of stress as it results from prolonged high levels of stress in the workplace (Medland, Howard-Ruben, & Whitaker, 2004). The social-psychological framework focuses on how this role-related stress contributes to experiencing mental and emotional fatigue, a distancing from the client, and a decline in feelings of accomplishment related to work (Byrne, 1999). Researchers concur that burnout is a negative psychological experience that is experienced by the individuals, though the sources of burnout occur at the individual, group, and organizational levels (Schuler, 1980).

Maslach has continued to be one of the leading researchers in the field of burnout over the last three decades, and is one of the creators of the Maslach Burnout Inventory, or MBI, the leading instrument in evaluating burnout in helping service professionals (Maslach, Jackson, & Leiter, 1996). Maslach et al. have tailored the MBI toward educators with the MBI-Educators version that was first introduced in the mid-1980s.

Burnout is a phenomenon that seems to be especially prevalent in the human service professions, which encompass many of the occupations within the field of Public Affairs. Pines and Aronson (1988) noted three characteristics of human service professionals that make them more susceptible to burnout: they are typically very sensitive to people, they perform work that is emotionally charged and demanding, and they have a client-focused orientation (Elman & Dowd, 1997). Many human service professionals, including educators, social workers, and health care providers, enter their chosen profession for intrinsic motives, including a desire to make a difference in the lives of others, or to provide meaning to their own (Elman & Dowd, 1997; Farber, 1991). These intrinsic

motives may actually make the risk of burnout greater when the reality of the work environment does not meet expectations (Farber, 2000). Geurts, Schaufeli, and De Jonge (1998) report an extremely high turnover rate among human service employees, indicating that high rates of attrition may be the result of the propensity toward burnout for professionals in these fields.

The Dimensions of Burnout

Maslach and Pines operationalize burnout through three primary dimensions, which are interrelated to varying degrees (Farber, 1991; Maslach & Pines 1977). These dimensions, while distinct, are still related empirically (Byrne, 1999). The MBI instrument, developed by Maslach and Jackson in 1986 and updated by Maslach, Leiter, and Jackson in 1996, is divided into these three dimensions'. All three of these dimensions represent separate subscales within the MBI. Byrne (1999) notes that for educators, this three dimension approach as evaluated by the MBI has been empirically validated in a number of studies across multiple grade ranges by Beck and Gargiulo (1983), Byrne (1991, 1993, 1994), Friesen, Prokop, and Sarros (1988), Friesen and Sarros (1989), Gold (1984), Iwanicki and Schwab (1981), Jackson et al. (1986), and Schwab and Iwanicki (1982).

The first dimension of burnout within the social-psychological framework is emotional exhaustion, or the feeling that one has been sapped of energy or used up. Emotional exhaustion can be seen as experienced stress (Maslach, 1999; Maslach & Pines, 1977). Emotional exhaustion has been described as feeling emotionally fatigued, debilitated, or worn out (Maslach, 1999). Schwab and Iwanicki (1982) found that

teachers suffer from emotional exhaustion when they feel that they can no longer provide services to their students in the same way they did early in their careers.

Depersonalization, the second dimension, deals with an emotional distancing between the helping professionals and their clients, as well as a hardening of emotions toward the client and their own work (Maslach, 1999; Maslach & Pines, 1977). Depersonalization, or devaluation of others, is a negative outlook of those that the worker is purporting to help. Depersonalization has been described as being detached or uncaring, with frequently high levels of irritation with clients and the work itself (Maslach, 1999). Depersonalization occurs as a form of self-protective emotional withdrawal when the individual perceives they have inadequate emotional resources available (Kittel & Leynen, 2003). Recently the conceptualization of depersonalization has been redefined, and is now also referred to as cynicism (Farber, 2000).

The final dimension, lack of personal accomplishment, is the feelings of inadequacy associated with burnout. This dimension deals with an evaluation of self (Maslach, 1999; Maslach & Pines, 1977). Reduction in personal accomplishment, or the self-evaluation component, is a decline in one's feelings of accomplishment or experienced success in the workplace. It has also been described as an inability to cope, which is often accompanied by signs of declining morale and reduced productivity (Maslach, 1999). These teachers see themselves as ineffective in terms of helping students achieve, and are often unmotivated to fulfill their other duties and responsibilities in the school setting (Byrne, 1999).

These dimensions are not necessarily interrelated; one would not simply sum up the scores for the individual dimensions on the MBI to generate a burnout total (Maslach,

Leiter, & Jackson, 1996). It is entirely possible for an individual to demonstrate signs of burnout in one or two of the dimensions, but not all three. Leiter (1993) built upon the Maslach framework by evaluating the relationships between the dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment. This work found that there was a sequential link between feelings of emotional exhaustion and a resulting increase in depersonalization. The reductions in feelings of personal accomplishment were found to develop separately because it is a reaction to different features in the work environment (Leiter, 1993). This was empirically validated by studies of Belgian teachers conducted by Kittel and Leynen (2003).

The Maslach-Leiter Model

There are many factors that researchers have linked to the phenomena of teacher stress and burnout. These factors include demographic characteristics, societal beliefs, workplace issues, elements of the school environment, the political, policy, and economic context of the school, and the personal qualities of teachers, including their self-concept (Blasé, Dedrick, & Strathe, 1986; Burke & Greenglass, 1989; Farber, 1982; Friedman, 1991; Gold, 1985; Jackson, Schwab & Schuler, 1986; Maslach & Leiter, 1999; Schwab & Iwanicki, 1982; Zabel & Zabel, 1982). Demographic factors include characteristics such as age, gender, and race of the teacher. Societal factors include society's view of the worth of the education profession and the pervasiveness of alienation. Workplace issues include items such as salary and benefits, overcrowded classrooms, or availability of resources. These factors were the initial causal agents identified in the early research before a theoretical framework was developed.

The remaining causal factors that are commonly linked with burnout, the personality qualities of teachers, the political, policy, and economic context of the school, and elements of the school environment, are key components of the Maslach-Leiter model of burnout (see Figure 1, next page), which is an outgrowth of the social-psychological framework of burnout developed by Maslach (Vandenberghe & Huberman, 1999). This conceptual model has been supported empirically by Byrne (1999) and Rudow (1999), and is the most prevalent in guiding current research in the field.

The model also includes the consequences of burnout that shows impacts on not only teacher behaviors, but on student behaviors and outcomes as well. Researchers have noted that burnout can result in potentially serious outcomes for teachers, the students, and schools (Barnett, Brennan, & Gareis, 1999). According to Maslach & Jackson (1981) and Medland et al. (2004), these effects may lead to a reduction in the quality of care and service for the client in a health care setting, which could be comparable to a reduction in the quality of teaching and learning in school settings. Barnett et al. (1999) found that burnout is associated with higher levels of attrition, absenteeism, and low organizational morale. Mor Barak, Nissly, and Levin (2001) also note that burnout has been shown to be a significant predictor of turnover and intention to leave in various social work fields and in most human service professions. High levels of attrition have negative repercussions on the value and stability of services provided to clients of social work services, which can be compared to students in a school setting (Mor Barak, Nissly, & Levin, 2001). All of these issues have a clear impact on student outcomes, as indicated in the model, showing that the extent of the influence of burnout is beyond simple retention issues for teachers.

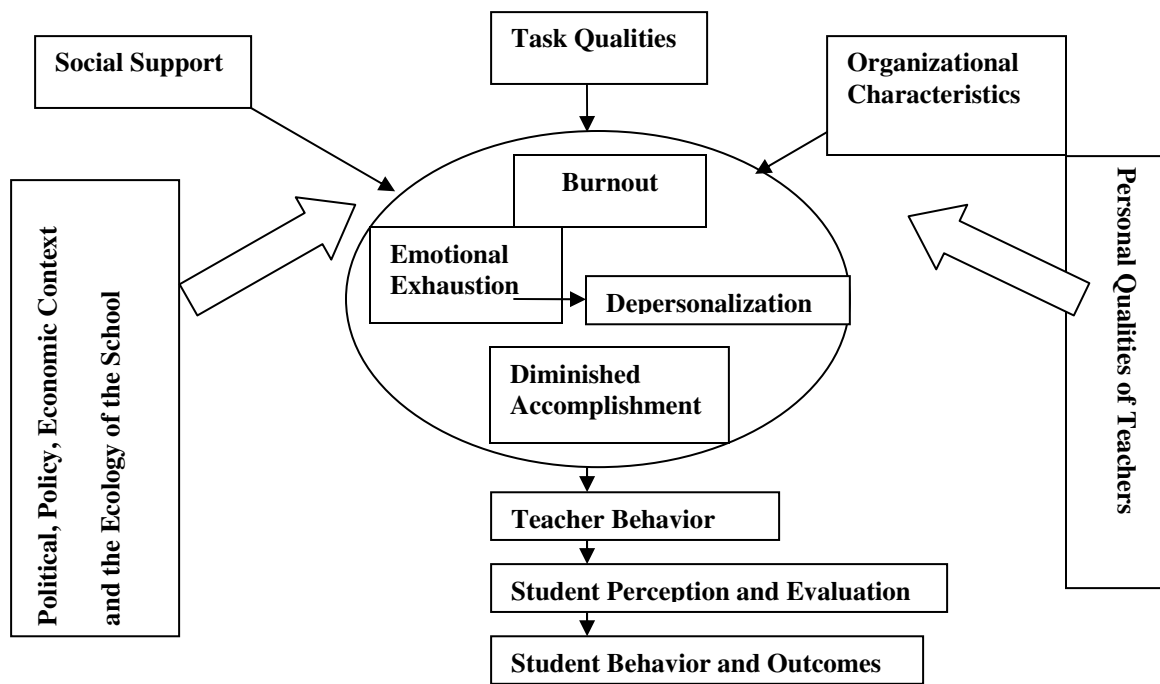


Figure 1: Maslach-Leiter model of teacher burnout¹

Personal Qualities of Teachers

The personal qualities of teachers, such as coping skills, locus of control, and self-esteem or professional self-concept, have been identified as an interaction variable in this model, meaning that they are more prone to be influenced by aspects of the school environment that have been shown to promote burnout, such as task qualities, social support, and organizational characteristics (Maslach & Leiter, 1999). This aspect of the model is confirmed by van Dick and Wagner (2001), who state that characteristics of the individual teacher, such as self efficacy beliefs, have influence on the development of

¹ From “Teacher Burnout: A Research Agenda,” by C. Maslach and M.P. Leiter. Found in R. Vandenberghe & A. M. Huberman (Eds.), *Understanding and preventing teacher burnout* (pp. 211-222). Cambridge, UK: Cambridge University Press.

teacher stress, which can lead to burnout. The study also concluded that coping strategies are an intervening factor in the development of burnout. Teachers who demonstrated adaptive coping techniques displayed lower levels of burnout than did teachers who dealt with their stress and feelings of burnout by ignoring it or using avoidance behaviors (van Dick & Wagner, 2001). As a result, these personal qualities identified in the model have the potential of moderating the effects of a teacher's reaction to the environmental conditions of their work.

The Political, Policy, and Economic Context of the School

The political, policy, and economic context in which the school exists and functions is a second interaction variable in this model. Student and teacher outcomes and behaviors in schools located in communities with extreme levels of violence, poverty, or other negative conditions are more likely to be strongly influenced by the overall political, economic, and social context of the community than teacher burnout (Maslach & Leiter, 1999). In contrast, schools located in communities in which the overall political, economic, and social context is not as overpowering and may be perceived as safer will find that variance in student and teacher outcomes and behaviors are more strongly influenced by burnout.

Elements of the School Environment

The model includes three major elements of the school environment that contribute to a negative classroom climate, and make burnout more likely (Maslach & Leiter, 1999). These elements include: (1) task qualities, (2) social support, and (3) organizational

characteristics. The model treats these elements as the three primary causal agents that lead to the development of the various burnout dimensions of emotional exhaustion, depersonalization, and personal accomplishment.

Task qualities.

Task qualities involve the nature of the work itself, in this case the nature of teaching. Task qualities include role conflict, role ambiguity, and workload; all of which contribute to a negative classroom climate and are thereby predictive of higher levels of perceived burnout in educators (Maslach & Leiter, 1999). Studies in other Public Affairs professions, such as social work and health care, show these same organizational variables to be factors in the development of work related stress, job satisfaction, and intention to leave (Acker, 2004; Mor Barak, et al., 2001).

Role conflict occurs when there are concurrent expectations for the teacher that seem to be divergent, with the result that fulfillment of one role means that fulfillment of other roles is compromised (Byrne, 1999). Role conflict can be viewed as irreconcilable, contradictory or inappropriate demands that are placed on a professional (Farber, 1991). Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) state that role conflict manifests itself in a variety of ways, including a discrepancy between the interpretation of his or her role versus the interpretation of a supervisor or the organization, a conflict inherent in the actual position, or the receipt of conflicting instructions (Starnaman & Miller, 1992).

In terms of educators, these role conflicts may include the quantity of work that needs to be completed versus the quality of that work, the necessity of balancing the demands of large classes with heterogeneous ability levels against the importance of meeting the needs of individual learners, or the attempt to resolve disciplinary issues with students,

parents, and/or administrators who are at times neutral or even negative (Byrne, 1999).

An additional source of role conflict may occur when the individual values of a teacher conflict with those of his or her peers, administrators, or the school (Farber, 1991). When a conflict between individual and organizational values occurs, burnout is more likely to occur (Maslach & Leiter, 1997).

Multiple studies (Bensky et al., 1980; Capel, 1992; Jackson et al., 1986; Pettegrew & Wolf, 1982; Proctor & Alexander, 1992; and Tosi & Tosi, 1970) have demonstrated that role conflict can result in feelings of stress and ultimately burnout in teachers (Byrne, 1999). A study of 200 Michigan teachers showed that role conflict had the second strongest correlation to job dissatisfaction, a concept often associated with the development of burnout (Sutton, 1984). Separate studies by Schwab and Iwanicki (1982) and Starnaman and Miller (1992) found that role conflict has specifically been a predictor of burnout in the emotional exhaustion and depersonalization dimensions in educators. A study of British teachers by Griva and Joekes (2003) also found a significant relationship between role conflict and depersonalization.

Task qualities also include role ambiguity. Role ambiguity occurs when teachers receive conflicting messages from various groups, such as parents, administrators, and students, regarding their work (Maslach & Leiter, 1999). These conflicting messages may be about the definition of the role itself, or how role performance is being evaluated (Starnaman and Miller, 1992). Roles that do not have clearly expressed expectations concerning behaviors, outcomes, or appropriate levels or quality of performance are by their very nature ambiguous (Seifert, n.d.). Role ambiguity stems from a lack of

specificity as to the teacher's standing, goals, rights, and responsibilities in an organization that is becoming increasingly complex and changes swiftly (Farber, 1991).

The most commonly cited stressors related to role ambiguity include keeping up with constantly shifting governmental policies pertaining to education, the feeling that society holds teachers in low esteem, and the ambiguous policies that govern student behavior (Byrne, 1999; Farber, 1991). Studies by Pierce and Molloy (1990), Schwab and Iwanicki (1982), and Starnaman and Miller (1992) have shown consistent empirical relationships between measures of role ambiguity and the personal accomplishment dimension of burnout, though its relationship with the other two dimensions is less stable (Byrne, 1999).

Other helping service professionals also find role ambiguity to be a factor that leads to stress and burnout. Duquette, Keouac, Sandhu and Beaudet (1994) evaluated 36 studies on nursing burnout and found that the factors most often associated with the burnout construct in nurses were role ambiguity and workload, two of the task qualities identified in the Maslach-Leiter model, as well as social support, another critical element of burnout in teachers (Medland et al., 2004). Seifert (n.d.) describes the ambiguity between the expressed and unexpressed rules of behavior management for correctional officers as a source of stress in the criminal justice field.

The final component of task qualities involves workload, which becomes a stressor when the burden of the amount of work surpasses the ability of the individual to manage it (Maslach, 1982). The concept of workload includes both what the individual does and how much of it the individual does (Maslach & Leiter, 1997). This element of the organizational environment is sometimes referred to as work overload in the literature.

Maslach and Leiter (1999, September) noted that burnout is more prevalent when the workplace demands Herculean efforts, or leaves people feeling overloaded. Koeske and Koeske (1989) found that in relation to social workers, an excessive workload represents a taxing environment that can place the worker under stress, which when prolonged places the individual at risk for emotional exhaustion, a component of the burnout construct.

Researchers such as Fimian (1987), Levitov and Wangberg (1983), and Needle, Griffin, and Svendensen (1981) note that workload levels in educators become problematic in a quantitative sense due to factors such as class size, the amount of required paperwork, or the number of students assigned to the teacher (Starnaman & Miller, 1992). Workload levels can also be problematic in a more qualitative sense as some educators may view the intricacy of the work as overwhelming, such that it is seen as too difficult to complete adequately given the resources and assistance available to them (Byrne, 1999). Maslach and Leiter (1997) state that work overload “hurts quality, disrupts collegial relationships, kills innovation-and brings on burnout” (Maslach & Leiter, 1997, p. 11).

Numerous studies have empirically evaluated the impact of work overload on burnout. Studies by Bensky et al. (1980), Borg and Riding (1991), Kyriacou (1987), O’Connor and Clarke (1990), Olson and Matuskey (1982), Pettegrew and Wolf (1982), Proctor and Alexander (1992), and Smith and Bourke (1992) have empirically tested the various aspects of work overload and shown them to significantly contribute to teacher stress and burnout (Byrne, 1999). A 2001 study of German teachers by van Dick and Wagner found that perceptions of excessive workload leads to burnout, and noted that principal

support can reduce the feeling of work overload and reduce burnout. Starnaman and Miller (1992) found that teachers who perceived that they were overloaded exhibited higher levels of emotional exhaustion and depersonalization. Griva and Joeke (2003) found that higher workload demands were a significant predictor of the depersonalization and personal accomplishment components of burnout specifically.

The absence of a manageable workload has been identified as a factor related to stress and burnout in other Public Affairs professions as well. Vachon (1995) found that stress and burnout levels increased among workers in hospice and palliative care settings when the workers felt that their workload was unmanageable. Jackson et al. (1986) and Maslach and Jackson (1981) also found that a workload that is perceived as excessive is a contributor toward burnout in helping service professionals. Koeske and Koeske (1989) found that work overload was related to burnout, but that social support acted as a buffering factor against the problems associated with work overload in social workers. In other words, social workers who had a strong network of support were not as effected by the negative influences of excessive workload demands, which Koeske and Koeske (1989) found to be related to the emotional exhaustion component of burnout.

Social support.

A second element of the school environment that influences perceived levels of burnout is adequacy of social support. Cobb (1976) defines social support as information that indicates to the individual that they are loved, respected, cared for, and valued (Farber, 1991). Based upon a definition developed by House (1981), Sarros and Sarros (1992, p. 58) further clarify the concept as an “interpersonal transaction involving one or more of the following: (1) emotional concern (liking, love, empathy), (2) instrumental

aid (goods or services), (3) information (about environment), or (4) appraisal (information relevant to self-evaluation)”).

Social support includes a network of assistance including significant others, family, friends, and/or colleagues (Byrne, 1999). The social support within the workplace may consist of colleagues as well as supervisors, which in the case of teachers usually means administrative or principal support. The networks are often informal, but may also consist of formal support groups that meet on a regular basis. This social support network serves as a source of strength to draw from when individuals have to deal with stressful situations in their personal lives or in the workplace (Farber, 1991). A supportive organizational climate can also provide an environment in which helping service professionals can derive fulfillment from their efforts and an opportunity to enact their values through their work, enhancing commitment to the field (Acker, 2004).

Research indicates that teachers who operate professionally within a supportive work environment report lower levels of job stress and burnout (Anderson & Iwanicki, 1984; Burke & Greenglass, 1989; Jackson et al., 1986). This finding is similar to results found in other helping professions. The fields of social work and nursing have identified a concept called compassion fatigue, which is yet another term in the field that is describing the phenomena of burnout (Collins and Long, 2003). In their review of the literature, Collins and Long found that professional support, as well as support from the organization itself, has a tendency to intervene in the development of compassion fatigue. Compassion fatigue can be offset by compassion satisfaction, the sense of fulfillment one feels by helping others (Collins and Long, 2003). Kraus (2005) found that study

participants derived compassion satisfaction from multiple factors, including support provided by staff and supervisors.

Russell, Altmaier, and Van Velzen (1987) found that three elements of social support were negatively associated with burnout in educators. These elements included supervisor support, confirmation of professional worth, and the availability of a network of individuals for support. Griva and Joeke (2003) found a significant negative relationship between social support and the emotional exhaustion component of burnout among their sample of British educators. Brouwers et al. (1999) found that self-efficacy in terms of support, or the ability of the individual to take actions that help them obtain the support they desire, was found to have a significant negative relationship with the emotional exhaustion component of burnout.

Social support is an important concept in the field of education as teachers conduct most of their work in isolation from peers, an isolation that can impact a teacher's response to their work environment (Farber, 1984b). Farber points out that "even within the school building itself, a teacher's need for affiliation and support are often unfulfilled (Farber, 1991, p. 65). The majority of the work day for the educator is spent with their clients, the students. Goodlad (1984) reports that teachers have some degree of contact with one another in workshops, committee meetings, and other brief associations, but points out that few teachers in the study engaged in ongoing collaborative endeavors with their colleagues. Since teaching is an isolated endeavor in most cases, social support is diminished without purposeful attempts to connect to colleagues through support group settings with their peers. Farber and Miller (1981) suggest that sweeping changes need to be made to the school environment in order to establish a "psychological sense of

community” within the school (Farber, 1991, p. 311). Features of this psychological community might include active committees that consist of teachers and other personnel, a concentrated outreach to the community, the presence of professional development resources, a teaming approach to instruction, and several other components to reduce the sense of isolation in educators, and thereby increasing levels of perceived social support (Farber, 1991; Farber & Miller, 1981).

In relationship to burnout, the issue is not only the actual levels of social support, but also may be the difference between desired and actual support (Farber, 1991; Maslach & Leiter, 1999). Such a discrepancy may accentuate feelings of isolation and helplessness. The types of social support and its sources are also important components of this concept (Sarros & Sarros, 1992).

Multiple researchers have found that principal support is an important predictor of the teacher burnout. A study (Jackson, et al., 1986) of 327 teachers found principal support to be a critical component of social support which significantly impacted burnout. Sarros and Sarros (1992) confirmed these earlier findings in their study of 550 Australian teachers, noting that respondents who experienced greater levels of social support from their administrators experienced lower levels of burnout across all three of the burnout dimensions identified in Maslach’s social-psychological framework. A study by van Dick and Wagner (2001) of 504 German teachers found that principal support was related to burnout, and could even reduce perceptions of stress and burnout reactions related to workload issues. Their study also found that principal support enhances appropriate stress coping strategies, which reduces burnout (van Dick & Wagner, 2001). A 1992 study by Starnaman and Miller found that greater levels of administrative support led to

lower levels of role conflict and role ambiguity, two elements of the task qualities identified in the Maslach-Leiter model of burnout.

Social support has been found to be a critical element in understanding the development of burnout in other Public Affairs related fields as well. Abelson (1987) and Tai (1996) found that emotional and psychological forms of support from significant others, family members, and friends outside of the work environment may reduce job stress and turnover (Mor Barak, Nissly, & Levin, 2001). Mor Barak et al. also point out that the lack of support negatively impacts human service workers and their ability to cope with the stress in their jobs, increasing the likelihood that they will quit (2001). Researchers such as Spicuzza and DeVoe (1982) and Brashear (1987) have recommended support groups as a method of reducing stress and burnout for individuals in the helping professions (Elman & Dowd, 1997). In the health professions field, Medland et al. (2004) note that nurses who remain in the profession have not only a wide variety of coping skills, but also a strong sense of support from their peers. Studies of social workers in a child welfare setting who remained in the field reported substantially higher levels of support from colleagues than those who left the field (Mor Barak, Nissly, & Levin, 2001). Ellman and Dowd (1997) note that substance abuse therapists who had higher levels of social support had correspondingly higher levels of personal accomplishment, which is negatively related to the development of burnout. In other words, therapists who had more social support perceived themselves as more accomplished, which reduced the likelihood of the development of burnout.

Organizational characteristics.

The third and final element of the school environment that may influence burnout are organizational characteristics. Organizational characteristics include the level of decision-making authority that teachers have within their school environment and the levels of burnout that are experienced by administrators (Friedman, 1995; Maslach & Leiter, 1999).

Multiple studies, including Cedoline (1982), Farber (1991), Ginsberg and Bennet (1981), McGrath et al. (1989), and McLaughlin et al. (1986) found that when teachers are allowed only nominal input into critical decisions that impact their work, such as curricular issues and student disciplinary actions, there is a clear impact on their job satisfaction and self-esteem, as well as on their locus of control (Byrne, 1999). Jackson (1983) found that teachers' perceptions of their decision making authority are negatively associated with role ambiguity and role conflict, meaning that the more decision making ability teachers believe they have, the less likely they are to face role ambiguity and role conflict, which are task qualities identified as contributors to burnout within the Maslach-Leiter model. Starnaman and Miller (1992) found that supportive principals were interested in the ideas of their teachers, allowing them to influence the educational process in their school setting through a participatory decision making process, reducing the propensity to burn out.

The lack of decision-making authority seems to be a common occurrence in our nation's schools, as shown in a national study by the National Center for Educational Statistics, which found that only a minority of principals indicated that teachers had key decision-making authority in their schools (Ingersoll, Quinn, & Bobbit, 1997). If

teachers are unable to maintain adequate control over their actions in order to execute their values through their work, the possibility of burnout may be greater (Maslach & Leiter, 1999).

The level of decision-making authority available seems to be a contributor to burnout in other Public Affairs fields as well. Vachon (1995) found that when workers in a hospice or palliative care setting felt that they lacked involvement in key decisions vital to the organization, the levels of stress and burnout were higher.

Another organizational characteristic that may lead to the development of burnout in educators is the level of burnout experienced by the administrative staff within the school environment (Maslach & Leiter, 1999). This is a logical conclusion given the extensive research and empirical evidence suggesting that the level of principal support was negatively related to the development of burnout (Jackson et al., 1986; Sarros & Sarros, 1992; van Dick and Wagner, 2001). It seems unlikely that a principal who was suffering from burnout would be able to provide the social support necessary to help stave off the development of burnout in their teachers.

National Board Certification: A Possible Solution?

The National Board for Professional Teaching Standards (NBPTS) is a non-profit organization whose purpose is to identify accomplished teachers by measuring their teaching practice against a rigorous set of standards designed for teachers, by their fellow practitioners (NBPTS, 2002). NBPTS operates on the belief that it is possible to identify highly qualified educators through a rigorous assessment process demonstrating mastery of standards that have been developed by the educational community (Goldhaber &

Anthony, 2004). Certification by NBPTS should not be confused with the basic state requirements that must be satisfied in order to be licensed to teach (Feldman, 2000).

NBPTS certification is meant to demonstrate that the educator has reached a level of mastery within the field that extends far beyond the requirements necessary for licensure in an effort to professionalize teaching in a way comparable to fields such as law and medicine (Goldhaber & Anthony, 2004).

NBPTS certification requires teachers to submit a portfolio that reflects their teaching practice, which consists of analyses of student work samples, videotapes of lessons, and analyses of the educator's teaching practice and of student learning. NBPTS candidates also complete an assessment which involves a series of written exercises designed to allow teachers to demonstrate the depth and breadth of their subject matter knowledge, as well as how that knowledge is taught to their students.

The NBPTS certification process is perceived by many to be a significant method for an individual teacher from anywhere in the nation to find recognition for excellence in their profession (Feldman, 2000). The NBPTS certification process is intended to be an indicator that a teacher has attained a level of mastery in the teaching profession that is connected to teaching skills and has an impact on student learning (Goldhaber & Anthony, 2004). The rigorous standards developed by NBPTS focus on the teacher's knowledge of the subject matter, their level of professional commitment and continued development, their ability to reflect deeply on their own teaching practice, a demonstrated ability to manage and monitor student learning, and interaction with other educators as members of a larger learning community (Pershey, 2001).

Candidates within the National Board process face a daunting task. In its first 10 years, from 1987 through 1997, the passage rate for first time candidates was approximately 25% (Pershey, 2001, p. 201). The first time passage rate has increased to 48% between 1999 and 2002, perhaps due to the introduction of readiness programs in many states (Goldhaber & Anthony, 2004, p. 7; Johnson, 2001, p. 3). These rates are far lower than the national average passage rate on the most common teacher licensure exam, the Praxis II, as reported by Lantham et. al.(1999), which was at 90% during the first attempt from 1994-1997 (Goldhaber & Anthony, 2004, p. 7). Candidates who do not certify the first time have two additional years to resubmit individual entries in order to achieve a passing score, a process known as banking. Despite the fact that the numbers of National Board Certified Teachers (NBCTs) is on the rise, by 2006 there were only approximately 55,306 NBCTs across the nation, which makes up less than 2% of the nation's 3.4 million teachers (CommunicationWorks, 2007; NCES, 2003, p. 1). The low passage rate confirmed for many the notion that the difficulty of the process demonstrated its ability to truly identify accomplished teaching.

This feeling has been supported by preliminary research by Bond, Smith, Baker & Hattie (2000), which has shown that NBCTs (National Board Certified Teachers), surpassed their non-certified colleagues on thirteen measures of what is generally recognized as good teaching, with strong significant relationships on eleven of these measures. Another recent study by Goldhaber and Anthony (2004) has confirmed that the NBPTS certification process is identifying accomplished teaching. The study evaluated the effectiveness of NBCTs compared to their non-certified peers, and found that teachers who have become certified by NBPTS are more effective in the classroom.

According to the study, on average students of NBCTs increased their scores on year end reading and math assessments by seven percent more than their peers in classrooms taught by teachers who had gone through the NBPTS certification process and had not attained certification (Goldhaber & Anthony, 2004). Overall, the study by Goldhaber and Anthony indicates that the NBPTS certification process is in fact recognizing teachers who are more successful in impacting student learning.

If NBPTS had reached its goal of 105,000 National Board Certified Teachers by the year 2006, these individuals would still have made up only about 3% of America's teaching workforce, signifying achievement of certification as a true indicator of excellence within the profession (Johnson, 2001, p. 3).

NBPTS and the Energy Expansion Model

A theoretical view of human energy is also relevant to the study. One factor related to burnout is the need of the professional to balance multiple roles (Maher, 1983). The energy expansion model, developed by Marks, puts forth the theory that although time and energy are not necessarily limitless, they are extremely elastic and expandable (Marks, 1977). Therefore, even when roles of the educator are expanding, it may not lead to burnout.

Certification can provide school systems with an objective standard that can be used to recognize excellent teachers, who then may serve as important resources in a variety of ways (Feldman, 2000). NBCTs often find that certification leads to increased leadership roles in the profession, including mentoring other teachers, involvement in lobbying, being invited to work with school or district development plans, and many others

(Serafini, 2002). The energy expansion model suggests that rather than becoming an added stressor contributing to burnout, these added roles may in fact counteract burnout by creating more energy in the educator. According to Marks, “some roles may be performed without any net energy loss at all; they may even create energy for use in that role or in other role performances” (1977, p. 926).

The critical factor in the expansion of energy is commitment, which can be encouraged by four conditions: an inherent enjoyment of the activities involved in performing the role, the loyalty to significant others involved in the role, the expectation of external rewards for performing the role, and an avoidance of negative consequences resulting from non-participation (Maher, 1983; Marks, 1977). The NBPTS certification process may be able to impact some of these factors, such as renewing a passion for teaching and the receipt of external rewards, such as bonuses, that come with certification. The renewal of passion for teaching may occur by taking on new roles in which the individual impacts the development of their colleagues and the direction of education. Research shows that educators at the midpoint in their career, a point in which professional renewal may be most critical, are interested in leading professional development opportunities for their peers that focus on the improvement of teaching and learning (Johnson, 2001). The opportunity to mentor others and become involved in other leadership activities is often a result of becoming an NBCT. As a result, the successful completion of the NBPTS certification process may heighten commitment levels in educators, leading to energy expansion and reduced levels of burnout.

A case in point is the state of Florida. The Dale Hickam Excellent Teaching Act, the guiding legislation that governs the NBPTS certification process as it relates to Florida

teachers, provides a mentoring bonus equivalent to 10% of the average teaching salary in Florida to teachers who engage in mentoring activities that facilitate the professional growth of their colleagues. In the case of Florida teachers, NBPTS certification has opened the door for teachers to engage in a wide variety of leadership activities that not only increase their salary, but may renew their passion for the field as they take on the role of a mentor teacher. If Marks' theory of energy expansion (1977) holds true, the process of mentoring may in fact alleviate burnout as it accentuates the level of commitment of teachers and thereby expands their energy levels. The additional monies associated with mentoring for Florida teachers may also mitigate the development of burnout in some teachers.

NBPTS and Burnout

Many of the benefits of successful completion of the NBPTS certification process recognized by researchers address some of the factors that are related to burnout. Serafini (2002) acknowledges that terms such as "recognition and respect" are often used to explain the outcomes associated with attaining NBPTS certification. Shapiro (1995) suggests several possible advantages to being certified, including new positions and responsibilities, a sense of accomplishment and self-esteem, salary increases, recognition of accomplished teaching, reasons for remaining in the profession, and increased mobility between states. Other researchers mention increased public accountability, verifying the hard work of teachers, or peer recognition of excellence in the field as being important results of the process (Aregladao, 1999; Smargorinsky, 1995).

Enhanced Respect from Society

Farber (1991) makes the argument that the rise in burnout could be related in some way to the loss of respect that the teaching profession as a whole has been experiencing over the last several decades. Teacher shortages have forced school districts to attract individuals into the classroom by any means necessary. Many of these individuals have not completed a traditional teacher-training program, a situation that often results in a lowering of standards for teachers in order to fill the void (Bohen, 2001). Bohlen describes these lowered standards as conflicting with the high expectations of educators held by the general public, a conflict that may be leading to that overall loss of respect for the profession noted by Farber (1991) and felt by educators. This perceived lack of respect is illustrated in a study conducted by Elam (1989), which asked teachers to rank 12 occupations based on contribution to the overall good of society as well as social prestige. The occupations included teacher, doctor, clergy, principal, judge, politician, and others. The respondents indicated that teachers were first in contribution to society, but last in terms of prestige. In other words, teachers recognize the impact that they have on society, while at the same time recognizing that society as a whole does not seem to recognize their contributions.

The arduous nature of the certification process and the fact that preliminary research seems to indicate that NBCTs are effective in the classroom (Bond et. al, 2000; Goldhaber & Anthony, 2004) may impact the public perception of teachers and challenge the stereotype that “those who can’t, teach”. The potential for validation of their professional competence may be a factor drawing teachers to pursue certification. When

asked if the NBPTS certification process could be seen as an opportunity for professional recognition and reward, Lee Shulman, president of the Carnegie Foundation for the Advancement of Teaching, replied that NB certification is a “chance to demonstrate to themselves and to others that they are really, really good at what they do” (cited in Tell, 2000, p. 10). The NBPTS certification process has been supported by a variety of groups, such as the National Commission on Teaching and America’s Future, the American Federation of Teachers, the National Education Association, and the American Council on Education, a factor which may strengthen the public opinion of those teachers who have achieved certification (Goldhaber, Perry, & Anthony, 2003). If the NBPTS certification process can impact the public perception of education and teachers who are certified by NBPTS, than perhaps certification can impact burnout levels in educators.

A case study of NBCTs by Bohlen (2000) showed that the participants realized that the NBPTS certification process had the potential to change perceptions of what it means to be a teacher and in the respect accorded to teachers by the public. According to one teacher “when the rigorous standards are better known to the public, our profession will gain the prestige it so richly deserves” (Bohlen, 2000, p.76). The influence that the discrepancy between the perceptions of competence held by self versus the perceptions held by significant others has on the individual’s professional self-concept is related to the propensity for an educator to become burned out (Friedman & Farber, 1992). If the respect that is accorded to the profession by the public increases, then teachers may begin to see their own professional endeavors and abilities in a more positive light, improving professional self-concept and influencing the likelihood that a teacher will become a victim of burnout.

Financial Rewards

Another influence that the NBPTS certification process may have on burnout is by changing salary schedules. An outgrowth of the public's perception of educators is often manifested in the low salaries received by educators. The recognition of quality teaching that is an outgrowth of the arduous standards and assessments of NBPTS may not only improve the professional stature of teachers, but also may improve their salaries (Bohen, 2001). Many school systems are beginning to use the certification process to augment teacher salary, perhaps leading to the use of a merit pay system (Feldman, 2000). North Carolina, which has the largest number of NBCTs in the nation, pays the application fee for the process and provides a 12% increase in salary to those who become NBCTs. The state of Florida, with the second largest number of NBCTs at 7732, also pays for the majority of the application fee and provides a 10% bonus to NBCTs, and an additional 10% to NBCTs who use their expertise to mentor other teachers. Many other states also have incentive programs for becoming certified (Feldman, 2000). Forty-one states and the District of Columbia provide fee support or offer some form of financial incentive for becoming an National Board Certified Teacher (CommunicationWorks, 2007). Such rewards for recognition of accomplished teaching may improve the professional self-concept of the educator, and therefore may influence perceived levels of burnout in these teachers.

In addition to the low salary levels for teachers across the nation, the career path and salary schedules of educators are a source of frustration for many. The majority of teachers follow a similar career path, going from initial licensure, to having a tenured

status that provides substantial job security coupled with financial increases based solely on years of experience (Goldhaber et al., 2003). This process may serve as a frustration to teachers who view themselves as accomplished, but only receive standard salary increases-the same increases that other teachers receive, no matter how effective or ineffective they may be. As a result, many teachers seek job opportunities outside the classroom, both in the field of education and outside of it, as a way to increase their salary. For those teachers who enjoy their work in the classroom environment, but are looking for a method of professional advancement, the NBPTS certification process may be the appropriate avenue. The certification process in many states allows NBCTs to receive higher pay for demonstrating skills and effective teaching. Along with the financial rewards, there is a recognition of mastery and accomplishment that can increase one's professional sense of self.

Confidence and Professional Self-Concept

The recognition of being an accomplished educator has increased the professional confidence of teachers in a case study conducted by Bohen (2000). Bohen found that the teachers in the study noted that the deep reflection and analysis that is a part of the certification process was a powerful professional development process that helped refine their skills and professional judgment (2000). According to one teacher, "I am much more confident in my decisions because I feel more competent in my judgment about what is best for my kids and how best to reach them" (Bohen, 2000, p.103).

Overall, the teachers in Bohen's case study felt that the National Board process will alter the perceptions that educators have of teaching by encouraging a greater degree of

confidence in their own knowledge, skills, and abilities (2001). In a series of interviews, Bobek (2002) identified a sense of proficiency, achievement, and self-confidence as resources critical in developing resiliency, which enables individuals to continue in the teaching profession despite daunting occurrences. If the NBPTS certification process can heighten confidence and a sense of accomplishment, than teachers may prove more resilient and may be more resistant to burnout.

A greater sense of self confidence would influence one's professional self-concept, which researchers have established as having a relationship to burnout (Friedman & Farber, 1992; Villa & Calvete, 2001). One's professional self-concept involves how the educators view their own professional abilities (Friedman & Farber, 1992). Anderson and Iwanicki (1984) and Malanowski and Wood (1984) have shown a relationship between burnout and the needs of teachers, such as self-esteem and self-actualization (Farber, 1991; Friedman & Farber, 1992). Self-actualization deals with the need to feel successful and to work to one's full potential. Self-esteem includes the educator's need for self-respect, as well as the respect of others and society both as an individual and as a professional. Research has shown that when an educator's need to find fulfillment and respect through their professional endeavors are not met, burnout is more likely to occur (Farber, 1991). Studies by Hughes (1987) also showed that educators with more affirmative self-concepts and who regarded themselves as professionally proficient saw themselves as less burned out and dealt better with instances of stress. Further studies by Friedman and Farber (1992) and Villa and Calvete (2001) found significant negative relationships between professional self-concept of educators and burnout as measured by the Maslach Burnout Inventory.

In addition to the educators own perceptions of their professional competence, the NBPTS certification process may in fact improve the self-esteem and professional self-concept of teachers by providing recognition from their colleagues, administrators, and the community that they are an accomplished teacher. If the NBPTS certification process does in fact enhance one's professional self-concept and confidence, and provides the teacher with the sense that significant others recognize their competence, than NBPTS certification may impact burnout levels in educators. Becoming an NBCT may therefore become a viable strategy for dealing with burnout in educators.

Professional Renewal

A study by the National Center for Education Statistics (Perie & Baker, 1997) found that younger teachers with less experience had higher levels of professional satisfaction than teachers who were older and had more experience. The experienced teachers may be in need of something to renew their professional interest. Teachers who have successfully completed the NBPTS certification process have stated that the process has renewed their professional vigor and provided them with a sense of professional satisfaction (NBPTS, 2002). The NBPTS certification process itself may provide experienced teachers with an opportunity for professional renewal, and therefore higher levels of job satisfaction.

The certification process may also facilitate professional renewal by helping individuals grow as educators. Studies have shown that the National Board certification process is a rewarding professional development experience. A 2001 study of 235 NBCTs found that 61% found the process to have a greater impact on their teaching than

the actual certification, and nearly 80% felt that the experience was more beneficial than other professional development activities (NBPTS, 2001, p. 2-3). Over 90% of participants indicated that the certification process had a strong impact on their teaching as well (NBPTS, 2001, p. 3). The study results indicate that the experience of completing the process may be a method for teachers who are interested in continuing their education and growth as professionals, a factor that may keep the professional interest of mid-career teachers who may be contemplating leaving the profession.

Leadership and Decision-Making Opportunities

In addition to the increased sense of professional competence, the NBPTS certification process has also opened up possible leadership roles for NBCTs, a factor that has been identified as leading to a decrease in perceived burnout levels (Friedman & Farber, 1992). Among its recommendations for school reform in the mid-1980s, the Carnegie Forum on Education and the Economy recommended that a new professional structure for education be created, one which would allow a differentiation between teachers, utilizing the expertise of experienced educators to revitalize education (Johnson, 2001). The National Board for Professional Teaching Standards was the outgrowth of the committee's recommendations. The recognition of accomplished teaching by NBPTS may help formulate what Johnson (2001) refers to a staged career, in which the expertise of these teachers recognized as accomplished by their peers allows them to move into roles outside of their classroom that influence their schools, and the field of education as a whole.

Studies by Bacharach et al. (1986), Blasé and Matthews (1984), Cedoline (1982), Evers (1987), Ginseng and Bennet, 1981), Iwanicki (1983), Lortie (1975), McLaughlin et al. (1986), Natale (1993), Phillips and Lee (1980), and Ricken (1980) all demonstrate that the lack of teacher participation in decision making is a critical factor in the development of burnout (Byrne, 1999). In fact, the degree of decision-making authority and teacher autonomy present in a school is part of organizational characteristics, a major component of the Maslach-Leiter burnout model. When teachers have nominal input into the decisions that impact their ability to perform, such as disciplinary actions or curricular changes and implementation, there is an impact on their self-esteem, morale, and job satisfaction, which may eventually result in burnout (Byrne, 1999; Farber, 1991). A study by Byrne (1999) demonstrated a significant, positive correlation between decision-making ability and self-esteem in teachers, as well as a significant, positive relationship between self-esteem and the personal accomplishment dimension of burnout. If becoming an NBCT can open up leadership opportunities and result in teachers having a more active role in decision-making, levels of self-esteem maybe be enhanced, and therefore burnout in educators may very well be reduced.

Shore (1992) states that once someone is able to participate and share authority, as well as engage in significant work, that person is more likely to demonstrate their knowledge and skills and discard negative emotions associated with their work. Woods & Weasmer (2002) conclude that teachers who take up leadership roles in their school by assisting the school meet its institutional goals are demonstrating their dedication to the school system and augmenting their job satisfaction. Both studies would seem to indicate that a process that allows teachers to participate in more decision-making and opens the

door to leadership opportunities are logical interventions for burnout. In other words, when a teacher is empowered through increased leadership roles and decision-making opportunities, which they may find open to them after completing the NBPTS certification process, they are more likely to have a greater degree of job satisfaction, impacting their feelings of burnout.

Preliminary research shows that such leadership opportunities may be an outgrowth of certification. A 2001 study by NBPTS indicated that the certification process has resulted in new professional roles for certified teachers. The study found that 74% of NBCTs indicated that their status as an NBCT has opened door to new leadership opportunities, such as mentoring other teachers, and serving on committees within the school, school district, or community (NBPTS, 2001, p. 4). For example, the Southeast Center for Teaching Quality has developed the Teacher Leadership Network, or TLN, an online network of accomplished teachers who discuss issues related to teacher leadership and educational policy. The TLN network includes 300 teachers scattered across 16 states; over 75% of these teachers are NBCTs (Southeast Center for Teaching Quality, 2004). The discussion board opens opportunities for teacher participants to go beyond discussion and act in a leadership capacity within their field. Since the overwhelming majority of TLN participants are NBCTs, this opportunity for collegial discussion and leadership may be an outcome of the NBPTS certification process that can potentially mitigate some of the factors leading to burnout.

A New Measure of Accountability

Teachers may also feel burnout due to role conflict (Byrne, 1999; Farber, 1991; Maslach & Leiter, 1999). In an era of high stakes testing of students to ensure accountability, the quality of a teacher's ability is often viewed through the scores his or her students receive on these standardized tests. This may create role conflict as teachers have to choose between focusing on skills that will improve scores on standardized tests or utilizing other approaches that they feel will benefit their students as learners. Role ambiguity may also result as the teacher receives inconsistent messages about how performance is being evaluated. Rather than rely on standardized tests to demonstrate teacher competence by measuring student test scores, the NBPTS certification process attempts to use authentic assessment of skills and knowledge identified as important by members of the profession to demonstrate accomplished teaching (Benz, 2000). This evaluation of a teacher's abilities may mitigate role conflict as teachers see themselves as being evaluated by measures beyond standardized tests. NBPTS certification may also serve as a measure of accountability in that NBCTs are already identified as highly qualified according to the federal No Child Left Behind legislation, perhaps demonstrating that the federal government recognizes the value of the certification process.

Conclusion

Farber, a leading researcher in burnout amongst educators, defines burnout through the social-psychological framework as an issue of inconsequentiality (2000). Burnout

from this perspective develops when one feels that their work has failed to help others, that the task is never-ending, and the perceived rewards, such as recognition and respect, gratitude, or job advancement, have failed to materialize (Farber, 1991, 2000). If interventions are not developed to stem the tide of inconsequentiality, then burnout may continue to wash across more and more of America's educators. However, if a process such as achieving certification by the National Board for Professional Teaching Standards can make a teacher feel valued or respected, than perhaps we can improve how teachers view themselves and perhaps control burnout.

CHAPTER THREE: RESEARCH DESIGN

Research Methodology

The research methodology that will be employed in this study is a comparative model. The researcher is looking for statistically significant differences in levels of perceived burnout between the comparison groups as measured by the Maslach Burnout Inventory-Educators Survey (MBI-ES), which is a variation of the Maslach Burnout Inventory (MBI) that substitutes the term “client” with “student”. The comparisons will be made across the three dimensions of the MBI-ES including emotional exhaustion, depersonalization, and personal accomplishment. Byrne (1999) notes that for educators, this three dimensional approach as evaluated by the MBI has been empirically validated in a number of studies across multiple grade ranges by Beck and Gargiulo (1983), Byrne (1991, 1993, 1994), Friesen, Prokop and Sarros (1988), Friesen and Sarros (1989), Gold (1984), Iwanicki and Schwab (1981), Jackson et.al. (1986), and Schwab and Iwanicki (1982).

The researcher believes that teachers who have attained National Board Certification (NBCTs) will have lower reported levels of burnout on all three dimensions as compared to their non-certified peers (non-NBCTs). A comparative model will allow policy makers and practioners to evaluate the impact of the NBPTS certification process on teacher burnout, and therefore attrition. The subscales, which represent the dimensions of the MBI-ES, cannot be added together to create a single burnout index since there is no clear causal relationship between dimensions (Leiter, 1993). As a result, it is

necessary to make multiple comparisons between the groups to evaluate differences on each dimension of burnout.

Specific Procedures

First, the MBI-ES instrument will be modified to include demographic information regarding subject area taught, grade levels taught, and number of years of teaching experience. This data will be controlled for in the statistical models used and will be critical in order to generate a comparable sample of non-certified teachers. The modified MBI will also contain questions regarding task qualities, organizational characteristics, social support, and the personal qualities of teachers, which are components of the Maslach-Leiter conceptual burnout model.

There will be additional modifications made to the MBI-ES version that will be given to the NBCT comparison group. The researcher is interested in determining motivations for pursuing the NBPTS certification, as well as the perceptions of the NBCTs as to the benefits of attaining certification by NBPTS. These questions will not appear on the MBI-ES version presented to the non-NBCT comparison group.

The result of the modifications of the MBI-ES will be two versions of the instrument; one version will be tailored to NBCTs, and the second will be designed for the non-NBCT comparison group.

Second, the researcher will conduct a small pilot study for the instrument. The concurrent think aloud interview technique will be used with two NBCTs and two non-NBCTs with the modified version of the MBI (Dillman, 2000). Using this technique, respondents will be asked to talk through the survey as they respond. The researcher then

will note any problematic questions or formatting issues. The instrument will then be modified as necessary.

Third, the researcher will submit the proposed study for review by the Institutional Review Board at the University of Central Florida for review. The proposal must also be submitted to the school district in order to solicit permission to include their employees in this study.

Fourth, the researcher will distribute the study to two distinct groups. The first group will include all NBCTs within the target school district. The second group will be a random sample of non-NBCTs who have never been a part of the NBPTS certification process. The researcher will only be sampling non-NBCTs from schools in which there is at least one NBCT in order to control for organizational factors that may influence burnout. Each respondent will receive a copy of the instrument, as well as a return envelope for the completed instrument to be sent to the researcher via the U.S.mail. An email will be sent out after 3 weeks as a reminder to all participants to complete their surveys. If necessary, a second copy of the instrument will be sent to respondents in order to improve the response rate.

Research Sample

The sample will be drawn in two phases, with the samples for both phases being drawn from within a large school district in Central Florida. This school district is the twelfth largest school district in the nation, and Florida currently has the nation's second largest number of National Board Certified Teachers. The targeted district has the third highest number of NBCTs in a given Florida school district, behind only Miami-Dade

and Palm Beach counties. The district also has the seventh highest number of NBCTs in the nation (CommunicationWorks, 2007). As a result, the researcher feels that utilizing this school district is a reasonable selection of focus for this study, though it does limit the generalizability of the findings.

The first group is the population of NBCTs within the targeted school district. At present there are approximately 433 NBCTs within this Central Florida district that will be contacted and asked to participate. The first sample will actually be the entire population of NBCTs within the targeted district. The second sample will include 516 non-NBCTs. The researcher selected an additional twenty percent since it was expected that the response rate of the non-NBCT group would be lower.

Next, the researcher will generate a stratified random sample of non-NBCTs within the district by using lists of teachers supplied by the school district. This list was current as of May, 2005, and therefore may not reflect personnel changes that have occurred in recent months. A more current list of personnel would not be available until late fall. Only schools that have NBCTs will be used in the stratified sample in order to ensure that the teachers responding to the survey have experienced similar organizational characteristics and stressors, which can assist in controlling for the various workplace related issues that may influence burnout. The researcher will also utilize a database of teachers within this district who have been candidates in the NBPTS certification process in the past when compiling the stratified samples in order to exclude individuals who have entered the NBPTS certification process, but have not yet achieved certification. This will be necessary to prevent the potential confounding influence that someone who has experience with NBPTS and the certification process may have on the data. For

example, someone who is still awaiting their results from NBPTS may feel be feeling higher levels of anxiety and stress, which may influence their burnout scores. A second possibility is that these candidates in waiting may be more similar to the NBCTs than the control group. As a result, they will not be included in the research sample. A random sample of non-NBCTs will be selected using the SPSS software package after the list has been stratified.

The procedure for distributing the survey to these teachers will be similar to phase one, in which the NBCTs received the survey.

Instrumentation

The primary instrument being utilized in this study is the Maslach Burnout Inventory developed by Maslach, Jackson, & Leiter (1996), an instrument which assesses burnout among human service professionals. Studies of the burnout construct frequently employ one of the three versions of the MBI, which has become the standard instrument for measuring burnout in individuals (Barnett, Brennan, & Gareis, 1999). The MBI has three different forms, one of which, the MBI-Educators Survey (MBI-ES) is designed specifically for education professionals.

Due to the complexity of the burnout construct and its multidimensional nature, the MBI in all three of its forms views burnout as a continuous variable which is present on a continuum from low to high rather than a dichotomous variable in which burnout is either present or not (Maslach et al., 1996). The personal accomplishment is reverse ordered so that high scores on this dimension indicate low levels of experienced burnout. The other two dimensions, emotional exhaustion and depersonalization, are reflected as a positive

relationship, such that high scores on these dimensions indicate a high level of experienced burnout. As a result, a high level of experienced burnout as noted by the MBI-ES has high totals on the emotional exhaustion (≥ 27) and depersonalization components (≥ 14) and a low score on the personal accomplishment component (≤ 30) (Maslach et al., 1996). A low level of experienced burnout is comprised of low score on the emotional exhaustion (≤ 16) and depersonalization components (≤ 8) and a high score on the personal accomplishment component (≥ 37).

Reliability and Validity of the MBI

As a result of its popularity, the MBI has several studies verifying the reliability and validity of the instrument. The MBI was developed using numerous large samples across a variety of helping professions, including teachers. Its validity and reliability has been tested multiple times by a variety of researchers. Arthur (1990) notes that reliability coefficients and standard error of measurements have been calculated for each of the three dimensions of burnout as measured on the MBI, with high levels of reliability being demonstrated using a test-retest method.

Convergent validity has been established in several ways (Arthur, 1990; Maslach, et al., 1996). First, a comparison of MBI scores with behavioral ratings completed by significant others such as peers and family was conducted. Second, the MBI scores were correlated with certain aspects of job traits that are believed to be lead to the development of burnout in helping service professionals. Finally, the MBI scores were compared to various outcomes that researchers have connected to the burnout phenomena. All three

methods have provided considerable corroboration of the validity of the instrument (Arthur, 1990; Maslach et al., 1996).

Maslach et. al (1996) have a version of the MBI designed specifically for educational professionals, called the Maslach Burnout Inventory-Educators Survey (MBI-ES). The wording of questions on the original MBI was altered from “recipient”, meaning those who received the services provided by the respondent, to read “student”. Two subsequent studies by Iwanicki & Schwab (1981) and Gold (1984) using factor analysis have supported the three dimensional structure of the MBI-ES, and have verified the validity and reliability of the MBI-ES and its modifications of the original MBI (see table below) (Maslach, et al., 1996). Iwanicki and Scwab’s 1981 study specifically found that the MBI-ES measured the same constructs as the original study and instrument developed by Maslach and Jackson (Arthur, 1990).

Table 1: Comparison of Cronbach Alphas Between the Original MBI and the MBI-ES

	Maslach et. al N=3727 Original MBI	Iwanicki & Schwab N=469 MBI-ES	Gold N=462 MBI-ES
Depersonalization	.80	.76	.74
Emotional Exhaustion	.89	.90	.88
Personal Accomplishment	.76	.76	.72

Modifications of the Instrument

Additional questions regarding demographics and other potential control variables related to the Maslach-Leiter model of the development of burnout will be added to the MBI-ES in order to monitor extraneous influences on this research model.

Pilot Study

As stated earlier, the research plans to utilize a small pilot study to identify any potential issues inherent in the questionnaire. The pilot group will consist of NBCTs and non-NBCTs in neighboring districts. The pilot study will consist of concurrent think aloud interviews, in which the participant will talk through the questionnaire as the researcher records their thoughts. The researcher will then attempt to refine any points or concerns noted in the think aloud process, and will integrate the feedback into the final instrument utilized for this study. As a result of the minor modifications to the instrument, a pilot is necessary, despite the fact that the MBI has already been found to be valid and reliable (Maslach et al., 1996).

Data Collection

The data will be collected via a self-administered questionnaire, the Maslach Burnout Inventory-Educators Survey (modified). Dillman's Tailored Design Method will be utilized in order to reduce potential survey error and enhance the survey's response rate.

The instrument will be sent out via U.S. mail. The instrument will be sent along with a pre-addressed return envelope. The return of the surveys via the U.S. mail can be done with complete anonymity, providing the respondents the opportunity to keep their responses confidential if they so desire. Dillman (2000) recommends a minimum of four contacts in order to improve response rate. After the initial survey is sent to respondents the researcher will wait for three weeks for questionnaires to be returned. An email reminder will be sent after three weeks to encourage respondents to complete the

questionnaire. The targeted school district has approved the use of its email system to send this reminder. If necessary, a second set of questionnaires will be sent to respondents via U.S. mail.

Treatment of the Data

The researcher will begin data analysis by testing internal consistency through the Cronbach's coefficient alpha. These coefficients can then be compared to those found in the MBI Manual 3rd Edition, as well as to those found in studies by Iwaniki and Schwab (1981) and Gold (1985).

The data will be analyzed using the SPSS software package. The researcher will be conducting three independent samples t-tests to compare the scores of the NBCTs to the non-NBCTs across each dimension of the construct as identified by the Maslach Burnout Inventory including emotional exhaustion, depersonalization, and personal accomplishment. A one sample t-test will also be conducted to compare the means of the entire sample in each burnout dimension to the norms published by Maslach et. al (1996).

A t-test compares the differences between groups by examining the variance that is shared to determine if the two groups being compared are statistically different from one another. In this case the researcher is using independent samples t-test to compare scores of the two groups, NBCTs and non-NBCTs, on each of the three dimensions of burnout. Independent samples t-tests have several assumptions: (1) the data must be random, (2) there must be a normal distribution, (3) the data must conform to an interval or ratio scale, (4) the error terms must be uncorrelated with each other, (5) there must be similar

sample sizes, and (6) population variances should be equal. A violation of any of these assumptions makes it more difficult to find a statistically significant result.

The t-tests will be run individually for each dimension because the subscales are not summative. Some research has indicated a potential relationship between the Emotional exhaustion and depersonalization dimensions, however the personal accomplishment dimension is often unrelated (Leiter, 1993). In other words, there is no overall burnout measure that can be derived from adding the scores of the three subscales, so it is necessary to use three separate tests to compare levels of burnout between the two groups.

Table 2: Data Analysis Model: T-tests

	Dependent Variables		Independent Variable
Y1	Emotional Exhaustion	X1	National Board Certification
Y2	Depersonalization		
Y3	Personal Accomplishment		

Multiple control variables will be included in the analysis. The first group of controls variables is comprised of demographic factors, including years of experience, subject area taught, and grade level. The second group of control variables includes workplace factors such as organizational characteristics, task qualities, and social support. As noted in chapter 2, these factors have been found by various researchers to impact burnout levels in various Public Affairs professions. As a result, a linear regression will be run in order to determine if these control variables are confounding the results noted through the t-tests. The linear regression models will allow the researcher to evaluate the influence of the control variables and provides a method to limit the extraneous influences of these factors. If the inclusion of the control variables in a linear regression

model do not result in a level of statistical significance that allow the researcher to reject the null hypothesis, we can conclude that the control variables may have a confounding influence on the data and may need further evaluation before any conclusions can be reached.

Nominal level variables are data that can be classified into mutually exclusive and exhaustive categories. In this study, the independent variable of National Board Certification and the control variables of subject area taught and grade level are nominal variables. Nominal data used in predictive models such as t-tests and OLS regression must be dummy coded, as they are not quantitative in nature. As a result, the nominal level variables in this study will be dummy coded so that they can be included in an OLS regression equation and the various t-tests.

Table 3: Variables

Variable	Type	Definition	Primary Range of Possible Values	Secondary Coding Variable Values	Secondary Coding
Dependent					
Emotional Exhaustion	interval	Feeling emotionally fatigued, debilitated, or worn out (Maslach, 1999).	<u>X to Y</u>	Low ≤ 16 Medium 17-26 High ≥ 27	1 2 3
Depersonalization	interval	Act of being detached or uncaring, with frequently high levels of irritation with clients and the work itself (Maslach, 1999).	<u>X to Y</u>	Low ≤ 8 Medium 9-13 High ≥ 14	1 2 3
Reduced Personal Accomplishment	interval	A decline in one's feelings of accomplishment in the workplace (Maslach, 1999).	<u>X to Y</u>	Low Medium High	1 2 3
Independent					
National Board Certification	nominal	Achievement of certification by NBPTS	0 1	No Yes	N/A

Variable	Type	Definition	Primary Range of Possible Values	Secondary Coding Variable Values	Secondary Coding
Control					
Years of experience	interval	Years of Fulltime Experience in Classroom as a Instructor	0-30 years	N/A	N/A
Subject area taught	nominal	Teacher Involved in Exceptional Educational Programming	Regular Education Exceptional Education	0 1	N/A
Grade level taught	nominal	Grade Level Teacher Currently Assigned to	Elementary Middle High	1 2 3	N/A
Organizational characteristics	ordinal	Factors that include the level of decision-making authority that teachers have and the levels of burnout that are experienced by administrators (Friedman, 1995; Maslach & Leiter, 1999).	Strongly disagree Disagree Undecided Agree Strongly Agree	1 2 3 4 5	N/A
Task qualities	ordinal	Task qualities involve the nature of the work itself, in this case the nature of teaching, and include role conflict, role ambiguity, and workload. (Maslach & Leiter, 1999).	Strongly disagree Disagree Undecided Agree Strongly Agree	1 2 3 4 5	N/A
Social support	ordinal	Information that indicates to the individual that they are loved, respected, cared for, and valued (Cobb, 1976; Farber, 1991).	Strongly disagree Disagree Undecided Agree Strongly Agree	1 2 3 4 5	N/A

The intent of these regression equations is to isolate the independent variable, certification by the National Board for Professional Teaching Standards, from other factors that may be related to burnout. The burnout construct has a complex development. The regression model may be able to pinpoint other influences on the model outside of certification by the National Board for Professional Teaching Standards.

Table 4: Data Analysis Model: Regression Model 1-Demographic Controls

Dependent Variables	Independent Variables
Y1 Emotional Exhaustion	X1 National Board Certification
Y2 Depersonalization	X2 Years of experience
Y3 Personal Accomplishment	X3 Subject area taught
	X4 Grade level

Table 5: Data Analysis Model: Regression Model 2-Workplace Controls

Dependent Variables	Independent Variables
Y1 Emotional Exhaustion	X1 National Board Certification
Y2 Depersonalization	X2 Organizational characteristics
Y3 Personal Accomplishment	X3 Task qualities
	X4 Social support

Summary tables will be generated to show the direction and robustness of the regression models and of the various t-tests. Tables detailing the Cronbach's alpha will also be included to address questions of reliability.

CHAPTER FOUR: DATA ANALYSIS

The nation is facing a dilemma in teacher recruitment and retention. A combination of factors, including rising student enrollments, the approach of retirement age for over a million teachers, and high attrition rates are leading to a projected shortfall of nearly 2 million new teachers in the next ten years (National Education Association, 2005). The National Education Association notes that while there is a need to bring new teachers into the profession, there is also a pressing need to retain quality teachers once they are already hired.

A potential way of tackling the problem of teacher retention is to address the issues that are associated with burnout, one of the factors causing some teachers to leave the profession. Research indicates that one of the consequences of burnout is attrition, which will only accentuate the teacher shortage crisis currently facing the nation (Byrne, 1999; Farber, 1984; Farber, 1991; Hock, 1988). As a result, tackling the challenge of burnout amongst education professionals may in fact be a logical base from which school districts can begin to build effective retention strategies to keep teachers in the classroom and alleviate the looming teacher shortage crisis.

One retention method that addresses some of the factors related to burnout is financial support for teachers who become certified by the National Board for Professional Teaching Standards, or NBPTS. Some preliminary studies by the North Central Regional Educational Laboratory show that receipt of support for NBPTS certification was identified as a successful retention strategy by seventy-six percent of the school districts in a region covering nine states (North Central Regional Educational Laboratory, n.d.). In addition, the NBPTS certification process itself may have the ability to directly impact

the dimensions of professional self-concept, which has been shown to have a negative relationship with burnout (Friedman & Farber, 1992; Villa & Calvete, 2001). If this can be demonstrated empirically, the NBPTS certification process may serve as a tool for policy makers in addressing the impending teacher shortfall.

The purpose of this study was to explore the relationship between National Board Certification (NBC) and the three dimensions of burnout identified by the Maslach-Leiter burnout model. These dimensions include: emotional exhaustion, depersonalization, and personal accomplishment. Other variables of interest are included in this analysis. These include demographic characteristics such as grade level, subject area taught, and years of experience. Organizational characteristics, task qualities, and social support are also included in the analysis as control variables as these are elements of the Maslach-Leiter burnout model that serves as the conceptual framework for this study. By examining these control variables, this study is better able to determine the influence that NBPTS certification has on the dimensions of burnout without extraneous influences impacting the model.

Response Rates

The final response rate for the survey from both groups was 52%, with 476 returned. Of these, 255 are NBCTs and 221 were the non-NBCT control group. The questionnaire was initially sent out to 433 NBCTs and 516 non-NBCTs that were working for the target school district as of May, 2005. Subsequent to the initial mailing, the researcher was able to determine that 30 of the NBCTs were no longer working in the target district. In addition it was found that of the 516 non-NBCTs that were sent questionnaires, 61 no

longer work for the district as of August 2005². Response rates are reported based on original numbers of questionnaires distributed, though when those individuals who were no longer available for the study are removed the response rate increases from an overall total of 52% of all respondents to 55%.

Table 6: Response Rates

	Initial Contact	Left District's Employment	Total Contact	Total Responses	Response Rate
NBCTs	433	30	403	255	59%
Non-NBCTs	516	61	455	221	43%
Totals	949	91	858	476	52%

Of the initial 516 randomly selected respondents included in the non-NBCT portion of the sampling frame, 140 (27%) responded to the first mailing. Respondents were sent a reminder via email. A second mailing was then conducted, which resulted in an additional 81 surveys being returned from the non-NBCT group, for a total response rate of 43% for that subgroup. The initial mailing to NBCTs yielded 222 responses (53%). After a second contact with the NBCT group, 33 more responses were received, for a total response rate of 59% for that subgroup. It is likely that some respondents failed to answer all survey questions most likely due to their sensitive nature of the topic of burnout, despite the anonymity of the questionnaire.

² The researcher sent an email reminder to the school based email addresses of all study participants. The 91 teachers in question no longer had email accounts with the district, which indicates that they are no longer employed there.

Descriptive Statistics

Several factors served as control factors in the study and are included in Table 7 below. The researcher evaluated these variables to ensure that they were not acting as an extraneous influence on the onset of burnout. The sampling frame was also compared to the population from which it was drawn to determine how representative the sample was.

Table 7: Descriptive Statistics of NBCT Sample and Control Group

Variable	NBCT Sample			Control Sample		
	Value	Frequency	Pct	Value	Frequency	Pct
Age	20-30	13	5.2	20-30	44	20.8
	31-40	80	31.7	31-40	44	20.8
	41-50	77	30.6	41-50	64	30.2
	51-60	80	31.7	51-60	49	23.1
	Over 60	<u>2</u>	<u>0.8</u>	Over 60	<u>11</u>	<u>5.5</u>
		252	100.0		212	100.0
			T=2.244 *			
Gender	Female	225	88.2	Female	179	81
	Male	<u>30</u>	<u>11.8</u>	Male	<u>42</u>	<u>19</u>
		255	100.0		221	100.0
			Chi=4.834 *			
Teaching Level	Elementary	127	50	Elementary	100	45.7
	Middle	39	15.4	Middle	41	18.7
	High	<u>88</u>	<u>34.6</u>	High	<u>78</u>	<u>35.6</u>
		254	100.00		219	100.0
			Chi=12.81			
Primary Teaching Assignment	Generalist (Elementary)	89	34.9	Generalist (Elementary)	76	34.4
	Math	20	12.0	Math	16	11.0
	Science	16	9.6	Science	13	9.0
	Physical Education	6	3.6	Physical Education	5	3.4
	Exceptional Educ.	24	14.5	Exceptional Educ.	18	12.4
	Language Arts	26	15.7	Language Arts	17	11.7
	Social Studies	16	9.6	Social Studies	23	15.9
	Career/Technical	7	4.2	Career/Technical	11	7.6
	Art/Music/Dram	20	12.0	Art/Music/Dram	15	10.3
	^a Other	<u>31</u>	<u>18.7</u>	^a Other	<u>27</u>	<u>18.6</u>
	166	99.9		145	99.9	
			Chi=5.345			

Variable	NBCT Sample			Control Sample		
	Value	Frequency	Pct	Value	Frequency	Pct
Educational Level	Bachelor's	96	37.8	Bachelor's	130	59.4
	Master's	140	88.6	Master's	82	92.1
	Specialist	10	6.3	Specialist	4	4.5
	Doctorate	<u>8</u>	<u>5.1</u>	Doctorate	<u>3</u>	<u>3.4</u>
		158	100.0		89	100.0
			Chi=22.65**			
Experience	0-5	3	2.8	0-5	20	19.6
	6-10	22	22	6-10	25	24.5
	11-15	24	24	11-15	14	13.7
	16-20	20	20	16-20	11	10.8
	21-25	15	15	21-25	14	13.7
	26-30	10	10	26-30	9	8.8
	31-35	4	4	31-35	6	5.9
	36-40	2	2	36-40	2	2.0
	41-45	<u>0</u>	<u>0</u>	41-45	<u>1</u>	<u>1.0</u>
	100	100.0		102	100.0	
			T=2.468*			
Class Size	0-10	14	5.6	0-10	14	6.9
	11-20	100	40.0	11-20	82	40.4
	21-30	113	45.2	21-30	87	43.1
	31-40	11	4.4	31-40	15	7.4
	41-50	11	4.4	41-50	3	1.5
	51-65	0	0.0	51-65	1	.5
	Over 100	<u>1</u>	<u>0.0</u>	Over 100	<u>2</u>	<u>1.0</u>
Totals	250	99.6		203	100.3	
			T=1.02			

* Difference is significant at the .05 level
** Difference is significant at the .01 level

The mean age of the respondents was consistent across groups. The average age of the respondents to the questionnaire was 43 years of age, with a standard deviation of 10.3. The mean age of the NBCT group was 44 years of age, with a standard deviation of 9.3. The average age of the non-NBCT group was 42, with a standard deviation of 11.3. A t-test revealed a statistically significant difference ($P < .05$) between these two groups. The slightly higher average age of the NBCT group is likely a result of the requirement of at least three years of experience for teachers who decide to pursue NBPTS certification.

Overall, there were far more females than males that responded to the questionnaire. Again, this was consistent across both subgroups. The difference between the research

and control groups in terms of gender was found to be statistically significant at the .05 level through a Chi-square test.

The teaching level is the academic level of student the teacher works with, elementary middle or high. As Table 2 demonstrates, the results are again fairly consistent across the subgroups. The slightly higher percentage of elementary teachers in the NBCT subgroup at 50.0% is probably due to the fact that the first certificates offered through NBPTS were those in elementary education, so there are naturally more individuals who have certified in those areas. The difference between the two segments of the sampling frame was not found to be statistically significant for this demographic characteristic ($\chi^2 = 12.81$; $P > .05$).

The primary teaching assignment is the main subject area that the teacher is assigned to. As Table 2 indicates, the subgroups are similar across the various subject areas included in the study, allowing for comparison and a control over the possibility of the subject area taught acting as an extraneous influence on burnout levels in teachers. A Chi-square test indicates that there is no statistical difference between these two groups ($\chi^2 = 5.345$; $P > .05$), an indication that they come from the same population.

The educational level of the respondents refers to the degrees they have received from a college or university. A Bachelor's degree is the minimum requirement in order to obtain a Florida teaching license. Forty-one percent of the non-NBCT sample has advanced degrees (degrees beyond the Bachelor's, including Master's, Specialist, and PhDs). The NBCT sample had a much higher level of advanced degrees at 62%, resulting in a statistically significant difference between the NBCTs and the control group ($\chi^2 = 22.65$; $P < .01$). This might be due to the fact that NBPTS certification is as a process

to identify master teachers, many of whom already hold advanced degrees. The certification process itself is also seen as a rigorous method of professional development which will lead to higher salary once completed, just as a Master's degree can. For those teachers who already have obtained a Master's degree, NBPTS certification is the next step to take in order to secure higher pay and professional development, so it is logical to find a larger number of teachers with advanced degrees that have pursued NBPTS certification.

The level of professional experience of the respondent was also a demographic factor included in the study. The overall sample had a mean of 16.09 years of experience. The non-NBCT group had a mean of 14.96. The NBCT sample had a group mean of 17.06, which is markedly higher than both the non-NBCT sample and the district and state averages. A t-test showed a statistically significant difference ($t=2.648$; $P<.05$) between the two portions of the sampling frame. This is likely because a teacher cannot pursue National Board certification until after they have successfully completed at least three years of teaching. Therefore the non-NBCT sample would not include any teacher who has less than three years of experience, which would impact the mean.

The final demographic variable considered in the study was the average class size. Class size is a measure of work overload, an aspect of the task qualities component of the Maslach-Leiter burnout model. The average class size in the study was 23.93. The control group displayed a mean of 25.25, while the NBCT group had a lower class average at 22.82. The difference in these means was found not to be statistically significant through an independent samples t-test ($t=1.02$; $P>.05$). The slight difference in the means is likely due to the larger percentage of elementary teachers in the NBCT

group, as elementary classes are required to be smaller than secondary classes as a result of Florida's classroom size amendment to the state constitution.

The Sampling Frame vs. the Population

Table 8 compares the sampling frame drawn from the target school district to the population of teachers within that district.

Table 8: Descriptive Statistics of Research Sample and Population

Variable	Research Sample			Research Sample		
	Value	Frequency	Pct	Value	Frequency	Pct
Gender	Female	404	84.9	Female	7805	79.4
	Male	72	15.1	Male	2032	20.6
		Chi=8.55	p=.0034*			
Teaching Level	Elementary	227	48	Elementary	3943	40.1
	Secondary	244	52	Secondary	3721	37.8
	Other	0	0	Other	2173	22.1
		Chi=134.18	p=.000*			
Primary Teaching Assignment	Generalist (Elementary)	165	34.7	Generalist (Elementary)	2756	33
	Math	36	7.6	Math	482	5.8
	Science	29	6.1	Science	441	5.3
	Physical Education	11	2.3	Physical Education	312	3.8
	Exceptional Education	42	8.8	Exceptional Education	939	11.4
	Language Arts	43	9.0	Language Arts	588	7.2
	Social Studies	39	8.2	Social Studies	411	5
	Career/Technical Education	18	3.8	Career/Technical Education	307	3.7
	Art/Music/Drama	35	7.4	Art/Music/Drama	354	4.2
	Other	58	12.2	Other	1654	20.3
		Chi=43.06	p=.000005*			

The gender breakdown of both the sampling frame and the population demonstrate a large discrepancy between males and females. The population of the targeted school district contains 79% females and 21% males, whereas the sampling frame has 85% females and 15% males. The field of education has long been a female dominated

profession, so the large proportion of women in the population and in the sampling frame is not surprising.

Forty percent of the instructional staff in the target school district were identified as elementary teachers, well below the 48% of the sampling frame. This is in part because the district breaks down instructional staff into elementary, secondary (including middle and high school teachers), exceptional education, and other. The categories of exceptional education and other can be a part of the elementary or secondary setting. The questionnaire did not identify these as separate categories, so each respondent self identified themselves into the category of elementary, middle, or high. Therefore a direct statistical comparison for this demographic variable between the research sample and the population is not possible.

Most of the subject areas demonstrate similar percentages between the research sample and the population. The largest difference was in the category of “Other”. The research sample had 12.2% in this category, while the population had 20.3%. This is likely because the NBCT portion of the sample has specified content areas in which they offer certification, which does not include some types of instructional personnel found in the population of the target school district. For example, there is no NBPTS certification available in agriculture, though the district offers this course. As a result, there are far more teachers in the “Other” category in the population than in the research sample.

The overall sample had a mean of 16.09 years of experience, as shown in Table 9 below. This is significantly higher than the district average of 12.8 years, as well as the state average of 12.2 (Florida Department of Education, 2005). It is very likely that the NBCT portion of the sample skewed the mean of the research sample. Since NBPTS

certification requires a minimum of three years of experience, it is logical that the mean of that subgroup would be higher. NBPTS certification is designed to recognize mastery in the teaching profession, so it is also logical that NBCTs are more likely to have more teaching experience, again skewing the mean of the research sample in comparison to the population.

Table 9: Comparison of Experience Levels

	Research Sample	Population	
Experience	16.09	12.46	T = 8.66**

*Difference is significant at the .05 level

**Difference is significant at the .01 level

According to the Florida Department of Education (2005), 35.1% of the teachers within the target school district have an advanced degree. Advanced degrees include a Master’s, Specialist, or Doctoral degree. In comparison, 52.2% of the research sample has an advanced degree. The NBCT portion of the sample had 20% more teachers with advanced degrees than did their non-NBCT counterparts, a fact which is skewing the mean for the overall research sample. NBCTs have a higher frequency of advanced degrees in part because the NBPTS certification process is one of the only ways to increase the base pay of a teacher who has already obtained an advanced degree, so it is logical that there would be a greater proportion of teachers with advanced degrees within the research sample.

As a result of Florida’s classroom size amendment, the target school district reports average class sizes in three ranges; pre-K through grade 3, with an average of 17.99; grades 4-9 show a mean of 20.97; and grades 9-12 have an average of 25.13 students (Education Information and Accountability Services, 2005). Since the data from the

questionnaire does not allow for an identical grouping of class size, a direct statistical comparison of the two groups is not possible.

Table 10: Comparison of Educational Level and Class Size

		Research Sample		Population
Educational Level	Bachelor's	47.8	Bachelor's	64.9
	Advanced Degrees	52.2	Advanced Degrees	35.1
Class Size		23.93	PreK-3	17.99
		-	4-9	20.97
		-	9-12	25.13

-District level data is reported in grade level ranges. The study questionnaire did not ask for specific grade levels, so the data from the research sample cannot be grouped into similar categories for comparison.

Reliability Analysis for the Burnout Models

Reliability is an important consideration for any research project in order to determine if the outcomes are consistently measuring the same construct. Measures of internal reliability are used specifically to verify that items are adequately interconnected to substantiate the items being grouped together. This is critical with the MBI since there are three separate subscales present, one for each dimension of burnout. A measure of internal reliability will show us how consistently the various questions within each subscale measure the dimensions of burnout.

Cronbach's alpha was used in order to determine the internal reliability of the instrument by the authors of the MBI as well as by the researcher in this study. The values of the Cronbach's alpha statistic for both the research sample and the MBI norming sample are included in Table 6. In this case we have three separate indexes, one for each dimension of burnout. Cronbach's alpha should be above .70 to demonstrate internal consistency within a subscale (Carmines & Zeller, 1979; Robinson, Shaver, & Wrightsman, 1991). Cronbach's alpha can be interpreted as the correlation of the scale

with all other potential scales that gauge the same construct and utilize an identical number of questions in the instrument (Norušis, 1985).

Table 11: Cronbach's alpha of MBI Norming Sample and Research Sample

	MBI Norming Sample	Research Sample
Emotional Exhaustion	.89	.89
Depersonalization	.80	.72
Personal Accomplishment	.76	.78

The MBI has published measures of internal consistency derived from its norming samples. As shown in Table 11, the Cronbach's alpha scores found in the North American sample of 3, 727 individuals are very similar to those found in this study. The Cronbach's alpha for depersonalization for this study is somewhat lower than the normed sample. However, it is still within the acceptable range at .72. Depersonalization does have the smallest number of items in the scale. Cronbach's alpha increases as the number of items in the scale increases, operating on the assumption that questionnaires with a larger number of items tend to more reliable. Therefore it is logical that the subscale with the smallest number of items in the questionnaire would have the lowest Cronbach's alpha score.

The Cronbach's alpha for emotional exhaustion was identical between this study and the national sample. The emotional exhaustion scale contained nine of the twenty-one questions on the MBI-ES, the largest number of the three dimensions. As a result there is a high Cronbach's alpha found in both studies.

The personal accomplishment dimension also demonstrates very similar Cronbach's alphas. This dimension contained eight of the twenty-two questions on the MBI, resulting in a higher Cronbach's alpha.

Methods of Analysis

The primary modes of parametrical statistical analysis conducted in this study are t-tests and multiple regression. Given the levels of measurement present in the variables studied, t-tests and multiple regression are appropriate forms of analysis. T-tests are a method of statistical analysis that is used to evaluate if two samples come from the same population (Hair, 2006; Spatz & Johnston, 1984). In running this analysis, the formula compares the center of two distributions that are assumed to be normal and then adjusts its analysis on the dispersion scores of each. This analysis is more commonly referred to as a test of means. This study will include both one sample t-tests and independent samples t-tests. A one sample test is a comparison of a published mean (distribution) to a mean (distribution) of a research sample (Babbie, Halley, & Zaino, 2000). An independent samples t-test compares the means (distribution) of two different groups that are independent of one another.

The first t-test will be a one sample test that compares the means of the whole sample to the normative samples compiled by Maslach, Jackson, and Leiter (1996). Separate one sample t-tests will be run for each of the three dimensions of burnout. The second series of t-tests will be independent samples t-tests that compare the means of the NBCT group to the non-NBCT group on each dimension of burnout in order to determine if the difference is statistically significant, allowing for the test of the stated null hypotheses.

A linear regression analysis will also be conducted. Regression models can tell us if any of the variables identified as controls have an extraneous influence on the model. If the t-tests show a significant difference between the mean values in our comparison

groups, but the difference appears or disappears when we add additional control variables to the model, it is a clear sign that the controls have a direct and significant impact on the models presented. Should this occur, further analysis and statistical investigation is required.

Model One: One Sample T-tests

A series of one-sample t-tests were conducted in order to compare the means of the sampling frame across each dimension of burnout to the published means found in the MBI manual. Three separate one-sample t-tests were run to compare the mean of the entire sample frame against the published means for each burnout dimension. The purpose of these tests was to see how comparable the sample drawn for this study to the national representative sample conducted by Maslach, Leiter, and Jackson. The published or population means used for comparison were derived from a norming sample of 4,163 teachers.

The three dimensions under study include emotional exhaustion, depersonalization, and personal accomplishment. These dimensions are not necessarily interrelated, meaning that it is possible to show signs of burnout in one or two dimensions, but not all three (Maslach, Leiter, & Jackson, 1996). However, some research does indicate that there might be a sequential relationship between the development of emotional exhaustion and depersonalization (Leiter, 1993; Kittel and Leynen, 2003). As a result, each dimension must be evaluated separately.

As Table 12 demonstrates, the one sample t-test for emotional exhaustion which compared the entire sampling frame to the published mean found no significant

difference between the national sample and the one collected in this study. This finding indicates that the two samples have similar distributions on this dimension of burnout.

As a result, the sampling frame appears to be similar to the national sample used to norm the MBI.

Table 12: One Sample T-tests

	T	Significance	N
Emotional Exhaustion	1.15	.265	468
Depersonalization	-26.01	.000*	395
Personal Accomplishment	21.43	.000*	461

* Difference is significant at the .05 level

The mean values of the other two dimensions were found to be statistically different than the national sample using the one sample t-test, which indicates that teachers within the research sample may be different than the national sample in some way. There are several possible reasons for this. The national sample used was reported in the third, and most recent, edition of the MBI Manual, which was published in 1996. There are several things that have changed in education since the norming sample was conducted. For example, the pressures and constraints of the No Child Left Behind Act (NCLB) have introduced new stressors to the educational environment which might be impacting the research sample. NCLB has introduced a new era of accountability for educators that includes high stakes testing, which many in the field of education believe has shifted the focus of education to teaching to a test. In the case of the research sample, that is the Florida Comprehensive Assessment (FCAT). The FCAT is a graduation requirement in the state of Florida, and also may influence decisions on promoting students from one grade level to the next. For teachers, administrators, and schools it is high stakes in the sense that each school is given a grade determined by student performance on the FCAT.

This school grade impacts things from funding to community perception of the school and teacher, and has introduced a great deal of pressure into the educational culture. Eighty-three percent of those responding to the research questionnaire indicated that pressure to increase standardized test scores conflicted with other educational goals. Sixty-seven percent of respondents indicated that compliance with government rules and policies was stressful. These two questions seem to support the notion that pressure from compliance with the aspects of NCLB is providing added stressors to the current educational climate, and may account for the difference between the research sample and the norming sample on the burnout dimensions of depersonalization and personal accomplishment.

Model Two: Independent Samples T-tests

The purpose of the independent samples t-tests in this study was to determine if there was a significant difference between the levels of perceived burnout between NBCTs and non-NBCTs across the three dimensions of the burnout construct. The results of these t-tests are reported in Table 13.

Table 13: Independent Samples T-tests

	NBCT Sample			Control Sample		
	Mean	SD	N	Mean	SD	N
Emotional Exhaustion	19.99**	9.92	248	23.85	11.26	220
Depersonalization	4.41**	.351	205	5.90	.390	190
Personal Accomplishment	40.58**	435	243	38.83	475	218

***Difference is significant at the .05 level**
**** Difference is significant at the .01 level**

The independent variable in this series of tests was National Board Certification, and the dependent variable in each test was the dimension of burnout being evaluated. No

violations of the assumptions of t-tests, such as normality and homogeneity of variance were observed for emotional exhaustion. However a transformation of the data was required for the composite indices of depersonalization and personal accomplishment. A test of normality revealed that the depersonalization dimension demonstrated a positive skew in the distribution. The personal accomplishment dimension demonstrated a negative skew. Parametric tests such as t-tests rely on the mean being in the center of the distribution. Therefore, in order to analyze the data using parametric tests, it was necessary to transform the data in these two dimensions. The depersonalization dimension was transformed using the logarithm method, or log 10. This method of transforming data is recommended for data sets that are positively skewed (Hair et. al., 2006). The personal accomplishment dimension was transformed by squaring the variable value, a method that eliminates bimodality.

Once the transformation of the depersonalization and personal accomplishment dimensions was concluded, several steps were taken to ensure that there was a normal distribution that could support the use of parametric tests. A visual inspection of the distributions revealed that the data now approximated a normal distribution. The visual inspection included examining histograms and boxplots. The skewness statistic was also compared to its corresponding standard error, which affirmed that the transformed distributions approximated a normal curve.

Emotional Exhaustion

The first of the independent samples t-tests compared the means of the NBCT and non-NBCT groups on the emotional exhaustion dimension of burnout. The NBCT group

mean was reported as 19.99, compared with a group mean of 23.85 for the non-NBCT group. Both of these means fall into the moderate range of experienced burnout on the emotional exhaustion dimension, which ranges from scores of 17 to 26. The means were found to be statistically different, with a significance level at the .000 level. The non-NBCT sample showed higher levels of emotional exhaustion than the NBCT sample. As a result, the null hypothesis that no difference exists between perceived levels of burnout in the emotional exhaustion dimension between NBCTs and non-NBCTs may be rejected.

The results indicate that NBCTs experience less emotional exhaustion. Emotional exhaustion is typically associated with feelings of frustration. These feelings may be alleviated by some of the benefits of attaining NBPTS certification, such as increased pay, increased leadership opportunities in the workplace, and recognition by colleagues and the community. These proposed benefits of certification directly coincide with a number of the common teacher frustrations that are associated with burnout. NBCTs may be displaying a greater degree of professional self-concept, or confidence in their abilities that assuages feelings of frustration, resulting in lower levels of perceived burnout in the emotional exhaustion dimension. The heightened degree of professional self-concept may be a result of the recognition of accomplishment by their peers and by the community as a whole that occurs when a teacher attains certification in spite of the rigors of the process. The lack of respect accorded to the teaching profession by society has long been cited as a major contributor to burnout. The NBPTS certification process allows excellence in teaching to be recognized. These teachers feel like their hard work is being rewarded, and will likely feel lower levels of burnout as a result. Lower levels of

burnout in turn may increase retention rates among teachers. As a result, support of the NBPTS certification process may be a viable policy tool for legislators looking to address the teacher shortage crisis.

Depersonalization

The second dimension of burnout is depersonalization. The mean of the NBCT subgroup was 4.4. The mean of the non-NBCT subgroup was 5.9³. Both of these means fall into the low range of experienced burnout on the depersonalization dimension, which includes scores below 8. The means of the two subgroups were found to be statistically different at the .012 level.

NBCTs also demonstrate significant lower levels of depersonalization. Teachers have to demonstrate their outreach to parents, students, and the larger community in the portfolio required for certification. As a result, the emotional distancing that takes place when a teacher experiences depersonalization is possibly alleviated because the portfolio process encourages teachers to reach out to various support networks that may prevent the onset of depersonalization. In some cases this might be a renewal, or rejuvenation, of connections to the students and parents as well as the larger community, which may lessen the distance the teacher has with their clients. The portfolio also requires extensive reflection by the teacher, which may allow them to “rediscover” their interest in the profession and working with students, which brought them to teaching initially.

³ The data were transformed in order to achieve normality. Table 8 reports the original means. The transformed means for depersonalization were .589 (NBCT) and .683 (control). The data was transformed through the logarithm method.

The NBPTS certification process stresses that teachers are members of a learning community, and many NBPTS candidates find themselves working closely with their peers going through the process, as well as mentors who are coaching them and helping them refine their teaching practice. This connection to their professional community can alleviate the feeling of isolation that many educators feel. Respect from their peers and the larger community have the potential to ease the feelings of depersonalization seen in teachers and may improve teacher retainment.

Personal Accomplishment

The third and final dimension of burnout is personal accomplishment. The mean of the NBCT subgroup on this dimension was 40.58, as compared to the mean of the non-NBCT subgroup at 38.33⁴. The personal accomplishment dimension is reverse ordered on the MBI, with lower numbers indicating higher levels of perceived burnout. Both subgroups fall into the low range of perceived burnout in this dimension. The two groups were found to be statistically different at the .003 level. Consequently, the third null hypothesis that no difference exists between perceived levels of burnout in the personal accomplishment dimension between NBCTs and non-NBCTs may also be rejected. As with the other two dimensions, the reported benefits of achieving NBPTS certification help us understand the lower levels of burnout in the personal accomplishment dimension. The feeling of professional pride, of professional self-concept, is critically

⁴ The data was transformed in order to achieve normality. Table 8 reports the original means. The transformed means for personal accomplishment were 1679 (NBCT) and 1551 (control). The data was transformed by squaring the value of the variable in order to eliminate bimodality.

important to anyone in a helping services profession, such as education. These individuals often enter their chosen field out of a desire to help and assist others. If they do not feel that they are doing a good job, or that their efforts are not making an impact, feelings of frustration, depression, and burnout may set in. The difficult nature of NBPTS certification clearly indicates that those who attain certification have demonstrated mastery within their chosen field. That level of mastery was recognized by a body of their peers. It is only natural that such recognition would bolster an educator's confidence in their work in the classroom and enhance their professional self-concept, leading to lower levels of burnout in this dimension. Here again, teachers who have confidence in their abilities are more likely to be retained in the classroom.

Comparing the frequencies of teachers in each range of experienced burnout portrays an additional picture of the differences between these groups across the burnout dimensions. As Table 14 demonstrates, the NBCT group shows higher levels of teachers in the lower ranges of perceived burnout across all three dimensions. The differences between the two groups seems most pronounced in the emotional exhaustion dimension, in which the largest grouping of the control group was found in the high range of perceived burnout, while the largest proportion of NBCTs were in the low range of experienced burnout.

Table 14: Ranges of Experienced Burnout

	Low	Moderate	High
Emotional Exhaustion			
NBCT (N=248)	42%	33%	25%
Control (N=220)	28%	32%	40%
Depersonalization			
NBCT (N=205)	84%	13%	3%
Control (N=190)	73%	14%	13%
Personal Accomplishment			
NBCT (N=243)	80%	12%	8%
Control (N=218)	66%	21%	13%

Overall, the results of the independent samples t-tests provide a preliminary indication that all three of the null hypotheses can be rejected. Before the null hypotheses are rejected, a multiple regression model which includes NBPTS certification as a correlate must be conducted in order to verify that these findings are a result of becoming a NBCT, and not a result of other extraneous factors.

Model 3: Multiple Regression Analysis of the Overall Model

This regression model included the control variables from the Maslach-Leiter burnout model and the independent variable, NBPTS certification. This analysis was completed in order to determine whether or not NBPTS certification is a correlate of the three dimensions of burnout. A multiple regression analysis was completed for each of the three dimensions. Each regression was completed twice, once without the dummy-coded independent variable of NBPTS certification included and once with NBPTS certification included. The purpose was to compare the change in the Adjusted R Square statistic when this independent variable was added to the regression.

In addition to NBPTS certification, two other demographic variables were dummy-coded. Teaching level and primary teaching assignment were dummy-coded since they

are nominal level variables, and their inclusion without dummy-coding would violate the assumptions of regression.

This regression model also provided a check for a common problem with regressions, multicollinearity. Tolerance statistics were computed for each of the regression models. None of the variables included in any regression equation in these models had a tolerance value below a .10. Additionally, analysis of the variance inflation factors (VIF) confirm that there are no issues with multicollinearity. A VIF of over 10 indicates potential multicollinearity (Norušis, 1985). No variable included in these regression equations produced a VIF over 10. As a result, it would appear that multicollinearity is not a major concern in these models.

Table 15: Model Summaries

	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
	With NBPTS	Without NBPTS	With NBPTS	Without NBPTS	With NBPTS	Without NBPTS
R Square	.264	.254	.204	.200	.154	.147
Adj. R Square	.222	.213	.151	.149	.105	.100
F	6.24*	6.20*	3.81*	3.90*	3.12*	3.10*
N	248	220	205	190	243	218

* Difference is significant at the .05 level

As Table 15 (above) demonstrates, both the R Square and Adjusted R Square statistics were higher for the models that include NBPTS certification in each of the three dimensions. This demonstrates that the inclusion of NBPTS certification helps explain a greater proportion of the variability in the dimensions of burnout when included in a regression model. Adjusted R Square is critical to examine in a model which includes this many variables. As more variables are added to a model, each variable will explain a portion of the variance, but it also introduces the chance that the greater predictability of

the model is simply due to chance. The Adjusted R Square statistic takes this into consideration. For example, when a predictor is dropped from a given regression equation the R-square value does not increase. However, the Adjusted R-Square may in fact increase if a variable is removed, which would indicate that the model is actual stronger in its ability to predict without the addition of more variables (Spatz, 2001). By evaluating the Adjusted R Square we can be certain that we are evaluating the true explanatory power of the model.

While the Adjusted R Square does increase with the addition of NBPTS certification into the regression equation in all three dimensions, the difference in Adjusted R Square is most telling in the emotional exhaustion dimension (.222 with NBPTS certification; .213 without NBPTS certification). This dimension also had the strongest levels of significance in the other statistical models used to evaluate the relationship between certification and burnout. The personal accomplishment dimension also showed a change in Adjusted R Square (.105 with NBPTS certification; .100 without NBPTS certification), which helps to support the initial findings of statistical significance using t-tests.

Conversely, the difference in Adjusted R Square was negligible in the depersonalization dimension when the independent variable NBPTS certification was added (.151 with NBPTS certification; .149 without NBPTS certification). In addition, NBPTS certification was not a significant variable when added in the depersonalization regression equation conducted in model three. This indicates that the preliminary finding of statistical significance from the independent samples t-test may need to be examined more carefully.

Overall, the results of the independent samples t-test were confirmed by the regression analysis for both emotional exhaustion and personal accomplishment dimensions. As Table 16 below indicates, the NBPTS certification status of an educator was found to be a significant variable in predicting their level of emotional exhaustion ($p=.019$) controlling for the other variables thought to be correlates of burnout. An examination of the Beta coefficients in this model can also be helpful. Beta scores are standardized to allow some comparison of the influence of independent variables on the model. The Beta value of NBPTS certification in emotional exhaustion (-.111) is among the highest of any of the variables included in the model. The negative Beta value indicates that as NBPTS certification is added, emotional exhaustion tends to decrease.

Table 16: Examination of NBPTS Independent Variable

	Emotional Exhaustion	Depersonalization	Personal Accomplishment
Beta	-.111	-.069	.092
Significance	.019*	.201	.072**
N	248	205	243

*Difference is significant at the .05 level
 ** Difference is significant at the .10 level

NBPTS certification also proved to be a predictor of the development of personal accomplishment dimension of burnout at the .05 level for a two-tailed solution.⁵ The Beta coefficient (.092) is again among the highest of all of the variables included in this model, though there are several variables that demonstrate statistical significance that do exhibit a stronger influence. In this case the Beta value is positive because the personal accomplishment dimension is reverse ordered, with higher scores on the scale indicating

⁵ The customary significance level of .05 for a two-tailed solution is often equated to the .10 level since SPSS statistical test results are customarily reported for two-tailed tests.

lower ranges of perceived burnout. As with emotional exhaustion, this shows that NBPTS certification is negatively associated with the onset of burnout. This solidifies the rejection of the null hypothesis for each of these dimensions of burnout.

However, the regression analysis did not support the results of the independent samples t-test for the depersonalization dimension. The significance level for NBPTS certification in this regression equation was .201, beyond acceptable ranges of significance for either a one or two tailed test. In addition, a comparison of the R Square statistic in the model that included NBPTS certification (.204) and the model that excluded NBPTS certification (.200) shows minimal differences between the explanatory power of the regression model when this variable is included. One possible explanation is that there were only a small number of questions on the MBI-Educators Survey that target depersonalization, which may make it more difficult to accurately identify. Another possibility is that depersonalization involves emotional distancing between the teacher and their clients, the students. For many educators this is a difficult thing to admit, even to oneself, as most individuals enter a helping services profession such as education out of the desire to make a difference in the lives of others. To admit that you have feel emotionally distant from your students and that you “don’t really care what happens to some students” (MBI question 15) would likely be extremely upsetting to the teacher, and would certainly be looked at as unacceptable to others within the profession. As a result, respondents may have had difficulty responding to the questions regarding depersonalization. In fact, there were 50 NBCTs that did not respond to some or all of the depersonalization questions, as well as 30 non-NBCTs. In comparison, there were only 7 missing cases among NBCTs in emotional exhaustion, as 12 in personal

accomplishment, along with 1 member of the control group in emotional exhaustion and 3 members in personal accomplishment. Clearly the depersonalization questions were difficult to respond to, which may be impacting the statistical analysis.

As a result, despite the demonstrated statistical difference between the means of the NBCT and control groups on the depersonalization scale of the MBI-ES, the regression analysis demonstrates that the relationship of NBPTS certification to depersonalization is not clear. While NBPTS certification does appear to be a factor, when other explanatory variables enter the model its influence appears confounded. Further research is necessary before the null hypothesis for depersonalization can be rejected.

The null hypotheses for the remaining dimensions, emotional exhaustion and personal accomplishment, can be rejected. The research hypotheses, which state that there are statistically significant differences between NBCTs and a control group of non-NBCTs across each the individual dimensions of burnout measured by the MBI-ES can be accepted for these two dimensions. In both of these dimensions, certification has an influence on burnout that is independent of the control variables.

The t-tests provided our initial finding of significance, indicating that NBPTS certification might have an influence on the onset of burnout. The multiple regression models were conducted to confirm these findings. There are a large number of variables in these regressions as we are trying to gauge the influence of the various components of the theoretical framework, the Maslach-Leiter burnout model, on the research sample. It was expected that some of these variables would indeed influence the onset of burnout, just as the Maslach-Leiter model predicts. The addition of NBPTS certification in this regression model was made to determine if it influenced the onset of burnout, and it was

in fact a significant variable for both emotional exhaustion and personal accomplishment. It was not intended as an additive model, but instead the variation that we see in the Adjusted R Square is shared among all of the variables. The change in Adjusted R Square between these models is not large (.009 change in emotional exhaustion; .005 change in personal accomplishment), which might seem to indicate that the influence of NBPTS certification disappears. However, since this variable is being added to an extensive theoretical model which explains the onset of burnout, it is logical that the difference in Adjusted R Square would be small as there are a large number of other variables which are influencing the burnout construct. The fact that there is some degree of change in the Adjusted R Square value indicates that the addition of NBPTS certification provides a unique contribution to the explanation of the variance in levels of burnout in the emotional exhaustion and personal accomplishment dimensions.

This is exciting news for policy makers, teacher leaders, community members, and other supporters of the NBPTS certification process as it indicates that the NBPTS certification process does indeed make a difference in educating students. If a process such as this can alleviate burnout, it is logical that it will also increase retention rates in teachers. Alleviating burnout will also improve the quality of education provided to students by reenergizing teachers and keeping them focused on why they entered the profession-teaching children.

An analysis of the variables present in the Model 3 regressions broken down by burnout dimension follows. This break down can allow us to look at the relative strength of the significant influences on the onset of each dimension of burnout that derive from the Maslach-Leiter burnout model, as well as NBPTS certification.

An Analysis of Model 3 Variables-Emotional Exhaustion

An examination of variables that demonstrated significance in these regression equations can help complete the picture of the development of burnout in each dimension. It is not entirely surprising that there would be variables that showed significance in addition to NBPTS certification. These variables are derived from the Maslach-Leiter burnout model, the theoretical framework for this study, and will clearly shape the development of burnout in each dimension. A detailed breakdown of the regression models is found in Table 17 (next page).

Table 17: Multiple Regression Analysis of Emotional Exhaustion

	Without NBPTS Certification Variable				With NBPTS Certification Variable			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
NBPTS	N/A	N/A	N/A	N/A	-.111	1.01	-2.36	.019*
Gender	-.034	1.46	-.692	.489	-.047	1.46	-.960	.338
Years of Experience	-.016	.084	-.232	.817	-.005	.084	-.073	.942
Age	-.033	.710	-.463	.644	-.033	.706	-.472	.637
Elementary Teacher	.004	1.87	.041	.968	.015	1.86	.171	.865
High School Teacher	.110	1.46	1.71	.089**	.120	1.46	1.86	.064**
Educational Level	-.017	.750	-.358	.720	.006	.762	.131	.896
Class Size	.043	.019	.928	.354	.042	.019	.896	.371
Elementary	.098	1.71	1.28	.201	.094	1.70	1.23	.219
Math	.028	2.04	.564	.573	.032	2.02	.633	.527
Science	.075	2.18	1.50	.135	.077	2.17	1.55	.121
Exceptional Education	.013	1.96	.244	.807	.008	1.95	.164	.869
English	.041	1.99	.767	.443	.041	1.98	.788	.431
Social Studies	.037	2.02	.696	.487	.036	2.01	.693	.489
Disciplinary issues	.190	.421	3.88	.000*	.179	.421	3.66	.000*
Standardized test pressure	.072	.535	1.47	.142	.066	.533	1.36	.176
Academic support	-.109	.610	-1.68	.093**	-.103	.607	-1.60	.110
Disciplinary support	.017	.581	.291	.772	.022	.578	.368	.713
Compliance with rules	.240	.473	4.92	.000*	.243	.470	5.01	.000*
Conflicting messages	.138	.469	2.75	.006*	.135	.466	2.70	.007*
Decisions at appropriate levels	.012	.634	.211	.833	.015	.631	.259	.796
Access to principal	-.105	.597	-1.69	.092**	-.103	.593	-1.66	.097**
	Without NBPTS Certification Variable				With NBPTS Certification Variable			
R Square	.254				.264			
Adj. R Square	.213				.222			
F	6.20*				6.24*			
N=468								
* Difference is significant at the .05 level								
** Difference is significant at the .05 level for a one-tailed solution								

NBPTS certification, as mentioned earlier, was found to be significant when added to the regression model ($p=.019$). The negative Beta score (-.111) indicates that NBPTS certification is negatively associated with the onset of emotional exhaustion.

With one exception, the remaining variables found to be significant in the regression model that did not include NBPTS certification were also significant in the model that included this independent variable. A demographic variable, educational level, was found to be significant at the .10 level for high school teachers in both regression runs. The Beta scores indicate that high school teachers are more prone to burnout in the emotional exhaustion dimension. This demographic factor was one of the weaker influences on the model as determined by Beta scores.

The strongest influence on emotional exhaustion in both runs was related to the role ambiguity aspect of task qualities, a key factor in the Maslach-Leiter theoretical model. The positive Beta scores (.240 without NBPTS certification; .243 with NBPTS certification) were the highest for any variable in the regression, and indicate that educators feel that compliance with governmental rules interferes with learning, leading to higher instances of emotional exhaustion. A second question measuring role ambiguity, which dealt with the receipt of conflicting messages received by teachers, was also significant and was the third most influential factor in both runs as measured by Beta scores.

The feeling that disciplinary issues interfere with learning, a measure of the role conflict aspect of task qualities, was significant as well (.000). This was the second most influential variable on the onset of emotional exhaustion as indicated by Beta scores in both runs. The positive Beta scores indicate that as disciplinary issues increases, so does the onset of the emotional exhaustion dimension of burnout.

The weakest influence on these regression runs was the level of access the teacher has to the principal, a measure of the organizational characteristics component of the

Maslach-Leiter theoretical model. The Beta scores (-.105 without NBPTS certification; -.103 with NBPTS certification) indicate that as a teacher has greater access to their principal, they are less likely to be burned out.

An Analysis of Model 3 Variables-Depersonalization

Depersonalization demonstrated confounding results once these regression runs were completed. The initial independent samples t-tests indicated a significant difference between NBCTs and non-NBCTs in this dimension. However, when these regression analyses were completed, the picture becomes unclear. The variable of NBPTS certification was not found to be a significant influence on the model. Therefore we cannot reject the null hypothesis in the case of depersonalization. There are, of course, several variables that were significant in these models, which are detailed on the next page in Table 18.

Table 18: Multiple Regression Analysis of Depersonalization

	Without NBPTS Certification				With NBPTS Certification			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
NBPTS	N/A	N/A	N/A	N/A	-.069	.041	-1.28	.201
Gender	.082	.057	1.49	.137	.073	.058	1.32	.187
Years of Experience	.088	.004	1.03	.305	.102	.004	1.18	.241
Age	-.131	.029	-1.55	.122	-.138	.029	-1.63	.104**
Elementary Teacher	-.152	.074	-1.54	.124	-.144	.074	-1.46	.146
High School Teacher	.110	.057	1.51	.132	.114	.057	1.56	.121
Educational Level	-.001	.029	-.013	.990	.011	.030	.197	.844
Class Size	.048	.001	.909	.364	.046	.001	.880	.380
Elementary	.159	.070	1.80	.073**	.153	.070	1.74	.083**
Math	.023	.079	.405	.685	.026	.079	.459	.646
Science	.088	.082	1.56	.121	.089	.082	1.58	.116
Exceptional Education	-.010	.081	-1.67	.867	-.012	.081	-2.06	.837
English	-.056	.075	-.945	.345	-.056	.075	-.942	.347
Social Studies	.011	.076	.177	.859	.011	.076	.175	.861
Disciplinary issues	.128	.017	2.33	.021*	.117	.017	2.10	.037*
Standardized test pressure	-.029	.022	-.512	.609	-.036	.022	-.633	.527
Academic support	.010	.025	.130	.896	.016	.025	.213	.831
Disciplinary support	-.030	.023	-.454	.650	-.028	.023	-.417	.677
Compliance with rules	.151	.019	2.75	.006*	.153	.019	2.79	.006*
Conflicting messages	.205	.018	3.68	.000*	.205	.018	3.68	.000*
Decisions at appropriate levels	.031	.025	.465	.643	.035	.025	.524	.600
Access to principal	-.094	.023	-1.34	.182	-.096	.023	-1.36	.174
	Without NBPTS Certification				With NBPTS Certification			
R Square	.200				.204			
Adj. R Square	.149				.151			
F	3.90*				3.81*			
N=395								
* Difference is significant at the .05 level								
** Difference is significant at the .05 level for a one-tailed solution								

The first is a demographic variable related to the subject area that the educator teaches. This is a variable that was dummy-coded in order to breakdown the various areas. One group, elementary educators, seemed prone to develop depersonalization burnout. This was the second most influential factor on both regression runs (.159 without NBPTS certification; .153 with NBPTS certification). No other subject area was significantly associated with burnout in this dimension.

The three remaining variables that demonstrated a significant influence on the onset of depersonalization were also factors in the development of emotional exhaustion, as seen in Table 12 above. The strongest influence (Beta=.205 for both regression runs) came from the feeling of receiving conflicting messages about their job, a measure of the role ambiguity component of the task quality element of the Maslach-Leiter theoretical model. The other question measuring role ambiguity, the stress germinating from compliance with government rules, was also a significant factor in the development of depersonalization, just as it had been with emotional exhaustion.

The weakest influence on depersonalization as measured by Beta scores amongst those variables found to be significant was the interference of disciplinary issues on learning, a measure of the role conflict aspect of task qualities (.128 without NBPTS certification; .117 with NBPTS certification). This variable was also significant in the emotional exhaustion regression runs.

An Analysis of Model 3 Variables-Personal Accomplishment

As with the depersonalization and emotional exhaustion dimensions, there were several variables found to have a significant influence on the onset of the personal accomplishment dimension of burnout. NBPTS certification was found to be significant when added to the regression model ($p=.072$). The Beta score (.092) is positive since the personal accomplishment dimension is reverse ordered on the MBI-ES. This indicates that NBPTS certification does impact the onset of the personal accomplishment dimension of burnout, and supports the findings of the independent samples t-test. We can therefore reject the null hypothesis for this dimension of burnout.

The variables in this series of regression runs for personal accomplishment are described in Table 19 (below). The demographic variable of subject area had been dummy-coded in order to be included in the regression runs. Two of the subject areas, elementary and English, were found to be significant. The Beta score for elementary as a subject area (.178 without NBPTS certification; .181 with NBPTS certification) indicates that this was the strongest influence on this model. Teaching English had the third strongest influence (Beta=.121 for both runs).

Table 19: Multiple Regression Analysis of Personal Accomplishment

	Without NBPTS Certification				With NBPTS Certification			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
NBPTS	N/A	N/A	N/A	N/A	.092	47.3	1.81	.072**
Gender	.047	69.6	.884	.377	.059	70.0	1.12	.264
Years of Experience	.013	3.9	.164	.869	.004	3.92	.056	.956
Age	.108	33.1	1.42	.156	.107	33.0	1.41	.160
Elementary Teacher	-.001	87.2	-.010	.992	-.010	87.0	-.102	.919
High School Teacher	-.090	68.3	-1.29	.198	-.098	68.2	-1.40	.161
Educational Level	.027	35.2	.547	.585	.010	35.7	.192	.848
Class Size	-.020	.891	-.399	.690	-.019	.889	-.375	.708
Elementary	.178	80.8	2.13	.034*	.181	80.6	2.17	.031*
Math	.038	95.4	.708	.480	.037	95.2	.684	.494
Science	.036	101.2	.662	.508	.034	100.9	.629	.529
Exceptional Education	.045	92.0	.806	.421	.049	91.7	.882	.379
English	.121	93.4	2.13	.034*	.121	93.2	2.13	.034*
Social Studies	.000	93.6	-.006	.995	-.002	93.3	-.034	.973
Disciplinary issues	-.092	19.4	-1.76	.079	-.084	19.4	-1.61	.108
Standardized test pressure	.096	25.0	1.84	.067**	.102	25.0	1.95	.052*
Academic support)	-.003	28.3	-.044	.965	-.113	28.2	-.008	.910
Disciplinary support	.136	27.1	2.14	.033*	2.05	27.1	.130	.041*
Compliance with rules	-.040	21.8	-.770	.442	-.803	21.8	-.042	.422
Conflicting messages	-.119	21.7	-2.20	.028*	-2.17	21.7	-.117	.031*
Decisions at appropriate levels	.059	29.3	.943	.346	.889	29.2	.056	.375
Access to principal	.020	27.6	.302	.763	.281	27.5	.019	.779
	Without NBPTS Certification				With NBPTS Certification			
R Square	.147				.154			
Adj. R Square	.100				.105			
F	3.10*				3.12*			
N=461								

* Difference is significant at the .05 level

** Difference is significant at the .05 level for a one-tailed solution

As with the previous dimensions, there were also elements of the Maslach-Leiter theoretical model that were found to be significant. The receipt of conflicting messages, a measure of role ambiguity, was again found to be an influence, as it had been with both depersonalization and emotional exhaustion. In this dimension it was one of the weaker influences on the model as determined by Beta scores (-.119 without NBPTS certification; -.117 with NBPTS certification). The negative values indicate that as the teacher receives conflicting messages, they are less likely to have a sense of personal accomplishment, and are therefore more prone to burnout.

Two other variables were significant in these runs that did not appear to be significant for the other two dimensions of burnout. That is not entirely surprising as the dimensions are not interrelated. However, Leiter (1993) has postulated that there may be a relationship between emotional exhaustion and depersonalization, though reductions in feelings of personal accomplishment were found to develop separately because it is a reaction to different features in the work environment. This finding was empirically validated by studies of Belgian teachers conducted by Kittel and Leynen (2003). This would explain why the variables that were found to be significant between emotional exhaustion and depersonalization were virtually identical, whereas the variables influencing personal accomplishment differ.

The first of these variables involves disciplinary support, a measure of the social support component of the Maslach-Leiter theoretical model. This was the second most influential variable based on Beta scores (.136 without NBPTS certification; .130 with NBPTS certification). Standardized testing was also an influence on the personal accomplishment dimension of burnout. The question, which read “At times I feel that the

need to improve student standardized test scores conflicts with other educational goals”, was intended as a measure of role conflict. The positive Beta scores (.096 without NBPTS certification; .102 with NBPTS certification) indicate that there might be a positive relationship between the reduced personal accomplishment dimension and standardized testing. This might be because that as the goals of a school to improve tests scores are adequately articulated in schools, teachers know that they must focus on the knowledge, skills and abilities focused on in testing, and therefore there is no role conflict. In other words, the organizational goal of improved student performance as measured by standardized tests is clear and articulated, so there is no role conflict as measured in the question. A question about standardized test pressure that is worded differently might very well yield different results, and show that a curriculum that is driven by standardized testing is a stressor for educators. Further research would be needed to clarify this issue.

*Model Four: Multiple Regression Analysis of the Maslach-Leiter Burnout Model
By Group*

The fourth model used in the data analysis was a series of multiple regression equations that included control variables, such as teaching level, primary teaching assignment, age, and gender, as well as questions that attempt to control for the various components of the Maslach-Leiter model of burnout, which served as the theoretical framework for this study. Now that the full model has been analyzed with and without the dummy-coded independent variable of NBPTS certification, we can take a more detailed look at the other variables that had a significant influence on the onset of burnout

in each dimension. NBPTS certification was a grouping variable in this series of equations, allowing us to compare NBCTs and non-NBCTs utilizing these variables. As with model three, two of these variables, teaching level and primary teaching assignment, were dummy-coded in order to be included in the multiple regression models since these are nominal level variables.

These runs were conducted in order to identify any influence that factors other than NBPTS certification might be having on levels of burnout in each of the three dimensions for both the experimental and control groups. These models are important because it is conceivable that there are different causal factors that influence burnout between the experimental and control groups, particularly those found in the theoretical framework for the study. The three models contained in this section attempt to disentangle the relationships within each dimension across the two groups.

Included in each of these models are the demographic characteristics of the respondents as well as the elements of the Maslach-Leiter burnout model, including task qualities, social support, and organizational characteristics. The task qualities component is comprised of three separate parts, including work overload, role ambiguity, and role conflict. The intent of these additional questions to the MBI was to attempt to identify how much of an influence these factors from the theoretical model were having on the development of burnout in each dimension within the research sample.

Emotional Exhaustion

This series of models use emotional exhaustion as the dependent variable and the series of controls mentioned above to see what items or factors assist us in predicting this latent concept in both the control and experiment groups.

As Table 20 (below) demonstrates, the NBCT sample (.346) exhibited a stronger R Square score than the control sample (.257). This would indicate that the addition of NBPTS certification provides more explanatory power for the variation in the development of burnout in the emotional exhaustion dimension.

Evaluating the Adjusted R Square confirms that the NBPTS certification has more explanatory power in determining the variation found in emotional exhaustion with this regression equation. As more variables are added to a model, each variable will explain a portion of the variance, but it also introduces the chance that the greater predictability of the model is simply due to chance. By evaluating the Adjusted R Square we can be certain that we are evaluating the true explanatory power of the model. The NBCT sample had an Adjusted R Square of .275, compared to the .164 Adjusted R Square for the control group.

Table 20: Model Summary-Emotional Exhaustion By Groups

	NBCT Sample	Control Sample
R Square	.346	.257
Adj. R Square	.275	.164
F	4.87	2.77
N	248	220

* Difference is significant at the .05 level

This model included 21 variables identified as potential contributors to the development of the emotional exhaustion dimension of burnout. The results of the regression analysis are found in Table 21 (next page). Since there were a large number of variables included in this model, it was necessary to test for multicollinearity in order to ensure that there the results of regression analysis are not a result of interrelationships among the variables. Tolerance levels of less than .10 are an indication that multicollinearity is a problem (Norusis, 1985). No tolerance levels were below .10. Variance inflation factors (VIF) are another test of multicollinearity. A VIF of over 10 indicates a potential multicollinearity issue. No variable included in these regression equations produced a VIF near to or over 10. As a result, it would appear that multicollinearity is not a major concern in these models.

Table 21: Multiple Regression Analysis of Emotional Exhaustion by Control Variables

	NBCT Sample				Control Sample			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
Gender	-.050	1.94	-.807	.420	-.126	2.31	-1.55	.123
Years of Experience	.056	.112	.622	.535	-.049	.127	-.437	.662
Age	-.089	.913	-1.02	.310	.055	1.09	.478	.633
Elementary Teacher	.084	2.31	.721	.472	-.029	3.06	-.214	.831
High School Teacher	.099	1.92	1.08	.284	.123	2.36	1.24	.218
Educational Level	-.061	.889	-.965	.336	.058	1.36	.831	.407
Class Size (workload)	-.073	.034	-1.16	.247	.126	.025	1.75	.082**
Elementary	.060	1.99	.619	.537	.094	3.02	.728	.467
Math	.097	2.49	1.39	.167	-.025	3.36	-.332	.741
Science	.040	2.70	.590	.556	.119	3.61	1.52	.130
Exceptional Education	-.083	2.49	-1.20	.233	.097	3.16	1.21	.229
English	.092	2.44	1.28	.201	.025	3.29	.311	.757
Social Studies	-.055	2.63	-.815	.416	.148	3.14	1.73	.085**
Disciplinary issues	.096	.520	1.45	.149	.253	.692	3.44	.001*
Standardized test pressure	.067	.608	1.02	.310	.084	.980	1.11	.267
Academic support	-.263	.767	-3.02	.003*	.038	.999	.380	.704
Disciplinary support	.096	.746	1.26	.210	-.049	.912	-5.29	.598
Compliance with rules	.273	.581	4.23	.000*	.212	.792	2.71	.007*
Conflicting messages	.186	.573	2.83	.005*	.076	.792	.940	.348
Decisions at appropriate levels	.050	.800	.639	.524	.004	.990	.040	.968
Access to principal	-.163	.748	-2.01	.046*	-.067	.951	-.693	.489
		NBCT Sample				Control Sample		
R Square		.346				.257		
Adjusted R Square		.275				.164		
F		4.87*				2.77*		
N		248				220		

* Difference is significant at the .05 level
 ** Difference is significant at the .05 level for a one-tailed solution

Emotional Exhaustion: The NBCT Sample.

As illustrated in Table 21 above, the NBCT sample had four items that demonstrated a significant influence on the development of emotional exhaustion. These included the level of support (Beta=-.263; P=.003) the teacher receives in academic areas, which is an indicator of social support. The negative Beta value demonstrates that teachers that feel that they have adequate levels of support demonstrate lower levels of emotional exhaustion as they perceive that they have the backing of their administration in academic areas. This was the second most influential predictor for the NBCT group.

The level of access (Beta=-.163; P=.046) the teacher has to the principal to share ideas, which is a measure of organizational characteristics, was also found to be significant at the .05 level using a one-tailed solution. Teachers who perceive that their voices are being heard by those in charge are likely to feel less frustration from their work, and consequently are less likely to burn out. This is even more pronounced in NBCTs than in the control group as many NBCTs find themselves in leadership positions within their schools once they become certified. Florida NBCTs are paid an additional bonus to share their expertise with their colleagues through mentoring. Providing services such as these to their schools thrust NBCTs into roles of leadership, and may at times lead to a stronger relationship with their principal and the school administration as a whole. Therefore it is logical that this variable would influence the development of burnout in NBCTs, but was not significant in the non-NBCT group.

Both of the questions measuring role ambiguity, an aspect of task qualities, were also significant; the degree to which compliance with state and federal rules conflicts with teaching and the feeling that conflicting messages are received about their work. Compliance with government rules was found to be a stressor for both the NBCT (P=.000) and control groups (P=.007). This was the most influential factor on the onset of burnout for NBCTs (Beta=.273) and the second most influential factor for non-NBCTs (Beta=.212). As teachers in both groups feel increased pressure to comply with mandates from all levels of government, they are more prone to emotional exhaustion. Many teachers enter the field of education out of a desire to work with students as well as a genuine interest in their subject matter. In an era of high stakes testing and increasing

calls for accountability, teachers are finding their curricular choices more limited by strict guidelines from various entities both inside of their school and outside.

The receipt of conflicting messages about the work of the teacher, a second measure of role ambiguity, was also found to be a significant predictor of burnout among NBCTs ($B=1.62$; $P=.005$). This may be due to the perceived contradiction between being recognized as a master teacher through the NBPTS certification process, while at the same time having the quality of the work they do measured primarily through student performance on a high stakes test. The other components of task qualities, including role conflict and work overload, were not found to be significant in any way.

Emotional Exhaustion: The Control Group.

The control group of non-NBCTs also included some questions that were found to be significant influences on the emotional exhaustion dimension of burnout. As previously mentioned, compliance with government rules was found to be a stressor for both the NBCT and control groups.

Class size, a measure of the workload component of task qualities, was found to be significant for the control group ($P=.082$). Of the four factors found to be significant, class size had the smallest influence on the onset of emotional exhaustion ($Beta=.126$). The number of clients, in this case students, which a helping services professional serves can impact their ability to cope with the stressors of their position. Emotional exhaustion has been described as feeling emotionally fatigued, debilitated, or worn out (Maslach, 1999). It is logical that the larger the number of students a teacher has, the more likely the teacher is to experience a lack of energy, or the feeling that they are used up, which are common descriptors from individuals suffering from emotional exhaustion.

Social studies teachers in the control group exhibited a greater likelihood to develop emotional exhaustion (Beta=.148, P=.085). This variable had the second smallest influence on the development of emotional exhaustion. The target school district in this study has placed a major emphasis on increasing literacy instruction within specific content areas, particularly in the social studies, in order to increase FCAT Reading scores. Social studies is a major focal point for this effort as it is the only major content area that does not have a specific FCAT test associated with it. Teaching reading skills typically has not been a part of the training of social studies teachers until fairly recently. As a result, many social studies teachers find themselves having to infuse reading skills into their instruction, a task for which they may feel unprepared. This frustration may lead to feelings of burnout.

There has been nothing in the literature that points to social studies as being more prone to burnout than other fields. This finding might be an outgrowth of the addition of literacy instruction to the curriculum, or it may be the result of a spurious relationship. Consequently, future research studies should examine this variable further.

A question regarding role conflict, an aspect of the task qualities component, (P=.001) was also found to be significant. This question dealt with the feeling that the time spent dealing with disciplinary issues interferes with teaching and learning. This variable had the single greatest influence on emotional exhaustion in this model (Beta=.253). Emotional exhaustion involves feelings of frustration, which are common in cases where a teacher is dealing with disciplinary issues frequently.

Additional questions measuring these aspects were not found to be significant, so the influence of these aspects may not be powerful. In addition, questions regarding the

other influences on the Maslach-Leiter burnout model, including work overload, the third aspect of the task qualities component, as well as organizational characteristics and social support were all found to not have a significant influence on the development of the emotional exhaustion dimension of burnout.

As with the previous regression runs, there were no tolerance levels below .10, nor any VIFs that approached the cutoff of 10. There seems to be no issues with multicollinearity, despite the large numbers of variables.

Depersonalization

The depersonalization dimension demonstrated mixed results. The independent samples t-test indicated that a significant difference existed between the NBCT and control sample. The overall regression model run to confirm these results did not show NBPTS certification to be a significant factor in the onset of burnout.

Table 22: Model Summary-Depersonalization By Groups

	NBCT Sample	Control Sample
R Square	.238	.293
Adj. R Square	.140	.188
F	2.43*	2.80*
N	205	190

* Difference is significant at the .05 level

As the model summary in Table 22 (above) demonstrates, the findings are further confounded with the finding that the model containing the control sample (Adjusted R Square=.188) had more explanatory power than did the NBCT sample (Adjusted R Square=.140). The Adjusted R Square for the NBCT sample, a measure of how well this model would fit another sample from this population, shows a large drop off, from .238

to .140. This would seem to indicate that the addition of variables in this model significantly reduces the ability of the model to predict variability in depersonalization. Overall, the comparison of these regression models again shows mixed results for the depersonalization dimension.

Table 23 (next page) details the regression equations for both segments of the sampling frame for the depersonalization dimension of burnout for each variable. Like the table, the analysis is split by the experimental and control groups since it was hypothesized that different variables may play a pivotal role in the contribution of depersonalization depending on whether or not a respondent had gone through the process of certification through NBPTS.

Table 23: Multiple Regression Analysis of Depersonalization by Control Variables

	NBCT Sample				Control Sample			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
Gender	.152	.084	2.08	.040*	-.033	.083	-.377	.707
Years of Experience	.003	.006	.024	.981	.248	.005	2.00	.047*
Age	-.055	.044	-.466	.642	-.220	.040	-1.76	.080**
Elementary Teacher	-.037	.100	-.262	.794	-.273	.113	-1.89	.060**
High School Teacher	.217	.080	2.01	.046*	-.073	.086	-.682	.496
Educational Level	.062	.038	.828	.409	-.009	.049	-.117	.907
Class Size	.010	.001	.135	.893	.064	.001	.829	.408
Elementary	.090	.090	.751	.454	.243	.110	1.80	.074**
Math	.085	.104	1.03	.305	-.042	.123	-.531	.596
Science	.009	.111	.113	.910	.210	.125	2.51	.013*
Exceptional Education	-.022	.111	-.271	.787	-.011	.124	-.135	.893
English	.019	.099	.220	.826	-.107	.117	-1.23	.220
Social Studies	-.061	.106	-.748	.456	.182	.113	1.96	.052*
Disciplinary issues	.138	.023	1.75	.082**	.102	.028	1.32	.188
Standardized test pressure	.030	.026	.388	.699	-.143	.038	-1.72	.088**
Academic support	-.027	.034	-.256	.799	-.021	.039	-.186	.853
Disciplinary support	-.110	.032	-1.20	.230	.192	.034	1.91	.058**
Compliance with rules	.104	.025	1.37	.172	.209	.029	2.52	.013*
Conflicting messages	.150	.024	1.91	.057**	.232	.028	2.82	.005*
Decisions at appropriate levels	.111	.035	1.17	.242	-.052	.036	-.555	.579
Access to principal	-.066	.031	-.688	.492	-.148	.036	-1.40	.164
		NBCT Sample				Control Sample		
R Square		.238				.293		
Adjusted R Square		.140				.188		
F		2.43*				2.80*		
N		205				190		

* Difference is significant at the .05 level
 ** Difference is significant at the .05 level for a one tailed solution

Depersonalization: The NBCT Sample.

The NBCT group showed significant influences on the development of depersonalization in four of the fifteen questions included in the regression model. Two of these questions, the gender of the respondent (P=.040) and the teaching level (P=.046), were demographic questions. The Beta scores of gender (.152) and teaching level (.217) indicate that these variables also had the greatest influence on the model. In this group it appeared that males seem to report higher levels of perceived depersonalization then did

females. Depersonalization involves the emotional distancing between the respondent and their client. Societal norms often discourage males from displaying strong emotional ties, making it more likely that males would find themselves holding their students at an emotional distance, leading to depersonalization. It is also logical that teaching level may also lead to depersonalization. The regression equation showed that secondary teachers were more likely to be burned out. Most secondary teachers see over 100 students per day, versus the twenty to thirty students the average elementary teacher may see daily. As a result, secondary teachers may find it more difficult to make the types of personal connections with their students that might otherwise stave off the development of depersonalization.

A third question, a feeling that the time spent dealing with disciplinary issues (Beta=.138; P=.082) interferes with teaching, is a measure of role conflict, one of the three aspects of the task qualities component of the Maslach-Leiter burnout model. This question reflects the frustration that nearly all teachers have with amount of instructional time and resources that must be used to deal with disciplinary issues. As a result, this variable approached significance at the .05 level for a one-tailed solution in the experimental group and attained the desired level in the overall regression model as well. The other questions gauging role conflict were not found to be significant predictors in this regression equation.

The question regarding the receipt of conflicting messages about the respondent's work (Beta=.150) addresses the role ambiguity aspect of task qualities and is the third strongest variable included in the model. This question was also found to be significant for the control group (Beta=.232) as well, and was the fourth strongest predictor in the

model as determined by Beta scores. Teachers seem to become more disconnected from their students and their work as they get mixed signals about their performance from key stakeholders, such as students, parents, administrators, other teachers, or the larger community. It seems that educators may tend to withdraw when they have difficulty gauging their own professional worth in the face of mixed signals from these critical groups. Again, the other questions regarding task qualities were not found to be significant.

Questions regarding work overload, a third aspect of task qualities, as well as those related to the social support and organizational characteristics components were not found to be significant influences on the regression model for the NBCT group. As with earlier regression models, there were no tolerance levels that fell below the .10 level nor any VIFs near 10. Therefore it appears that multicollinearity is not an issue.

Depersonalization: The Control Group.

The control group also included demographic questions that served as significant predictors within the regression equation. The level of experience of the respondent was found to be significant at the .05 level for a one-tailed solution for this group. The Beta score (.248) indicates that this variable is the second strongest variable in the regression model for the control group. This seems to indicate that as teachers gain more experience, they are more likely to disconnect from their students. It is possible that these teachers find it harder to relate to students of a different generation that may have different values and interests than their own. For example, the current generation of students is typically extremely comfortable with technology and highly visual. Teaching these types of students requires educators to seek out methods that are at times very

different than the ways that they themselves were taught when they were K-12 students. This disconnect may make it more difficult for some more experienced teachers to relate to their students, leading to depersonalization.

The respondent's age was found to be a significant factor (Beta=-.220.; P=.080), but demonstrated a negative relationship with depersonalization. In other words, this variable seems to indicate that as age increases depersonalization decreases. This seems to contradict the finding related to years of experience and depersonalization, which showed a positive relationship between the variables. Since these relationships are contradictory, more research is needed to clarify the influence of age and experience on depersonalization.

Another demographic variable, teaching level, proved to be significant. Elementary teachers seemed to demonstrate lower levels of depersonalization as demonstrated through a negative Beta score (Beta=-.273; P=.060). Elementary teachers typically have smaller class sizes, and therefore can have a more personal relationship with their students than secondary teachers. Therefore it is logical that a negative relationship would exist here. However, a second demographic characteristic, primary teaching assignment, contradicts this finding. The primary teaching assignment variable refers to the subject matter a teacher is responsible for. Elementary teachers are considered generalists as they are responsible for instruction in all major content areas. When the primary teaching assignment variable is broken down there is a positive relationship between elementary teachers and depersonalization (B=.243; P=.074). Clearly there are some confounding influences at work, and this relationship must be explored further.

Science and social studies also demonstrated significant influences on the regression model. Science (Beta=.210) is a content area that has recently seen an increase in standardized test pressure in Florida. There is now a Science FCAT exam, which will be a factor in the calculation of a school's grade beginning in 2006-2007. It will become a graduation requirement for high school students within the next few years as well. The Science FCAT has seen a great deal of change in its initial stages in terms of the standards and content that is being evaluated. As a result sequences of courses are being revamped to ensure that students have received all of the skills prior to the test, particularly at the secondary level. In addition, science teachers are considered responsible for assisting with the Reading and Math portions of the FCAT that are currently the heart of the high stakes testing environment in Florida. This pressure from high stakes testing, compounded by the many changes in the scope and sequence of the science curriculum, makes it logical that science teachers might exhibit a greater degree of burnout.

Social studies teachers also exhibited significant levels of depersonalization (P=.052). This variable demonstrates the second weakest influence on the development of the depersonalization dimension of burnout (Beta=.182). This was also the case with the control group in the emotional exhaustion dimension of burnout. As mentioned in relation to emotional exhaustion, social studies teachers are not expected to incorporate reading instruction into their curriculum. Many experienced social studies teachers have not had training to properly teach these techniques, and therefore may feel a great deal of frustration with this added expectation. There is nothing in the literature that specifically identifies social studies as an area that is particularly prone to burnout. Therefore,

additional research may be needed to explore the relationship between the content area of social studies and various dimensions of burnout to determine whether literacy instruction has been an influence on the development of burnout or if this is a spurious relationship.

The degree to which the focus on standardized tests interfere with teaching and learning, a measure of the role conflict aspect of task qualities, was also found to be significant at the .05 level for a one-tailed solution and had the weakest influence on the regression model (Beta=-.143). The emphasis on standardized testing as a measure of teacher quality has grown exponentially over the last several years, and this emphasis is likely impacting the perceptions of teachers.

Compliance with government rules was shown to have a significant influence on the control group as well, though it is one of the weaker influences as determined by Beta scores (.209). The current high stakes testing environment that has developed in the wake of the No Child Left Behind Act may be contributing to this stressor among the control group. NCLB requires that all teachers be considered highly qualified by July 2006. NBCTs are often considered highly qualified as a result of the participation in the NBPTS certification process. However, non-NBCTs with extensive experience have found that they are not considered highly qualified because they have not passed a subject area examination. This has particularly effected experienced elementary school teachers who began teaching in Florida prior to 1989 as there was no requirement to take a subject area exam before that time. As a result, many experienced teachers were told fairly recently that they would have to pay for and pass a subject area exam in order to be highly qualified and keep their positions after the 2005-06 school year. This is one

example of federal, state, or local rules that may prove to be stressors on the control group and may contribute to the onset of burnout.

Finally, the adequacy of administrative support in disciplinary areas was shown to have a significant influence on the development of depersonalization (Beta=.192). The positive Beta value indicates that as teachers feel that they receive adequate administrative support in discipline, they are more likely to suffer from depersonalization. This finding seems to contradict the literature on social support, which indicates that administrative support is negatively associated with burnout (Jackson, et al., 1986; Russell, Altmaier, and Van Velzen, 1987; Sarros and Sarros, 1992; van Dick and Wagner, 2001). Classroom control is a common frustration for educators, and any support that is provided in that area would logically seem to be positively received. The response to this question seems to indicate otherwise in the control group. This might be due to a perception that a need for administrative support for discipline translates into a failure on the teacher's part to fully control their classroom. This finding might also be the result of a spurious relationship. As a result, future research studies should examine this question further.

As with all earlier models, multicollinearity does not appear to be a significant problem. Tolerance levels for all variables were above the .10 cut off. VIF values did not approach 10, which is an indicator of multicollinearity.

Personal Accomplishment

The personal accomplishment dimension also features some items that appear initially to have an influence on the development of burnout. The Adjusted R Square value of the

experimental group (.127) is higher than the control sample (.077). This finding is similar to the results for the emotional exhaustion model. As with emotional exhaustion, this helps support the initial findings from the independent samples t-test for this dimension, which noted a significant difference between the sample and experimental groups in the personal accomplishment dimension. It also confirms the findings of the overall regression model which saw a rise in the R Square value when the variable NBPTS certification was added to the model.

Table 24: Model Summary-Personal Accomplishment By Groups

	NBCT Sample	Control Sample
R Square	.214	.181
Adj. R Square	.127	.077
F	2.45*	1.75*
N	243	218

* Difference is significant at the .05 level

This regression analysis, like the others, is split across the research and control samples to explore if the correlates that comprise the personal accomplishment dimension are different across the two groups. The results are reflected below in Table 25 (next page).

Table 25: Multiple Regression Analysis of Personal Accomplishment by Control Variables

	NBCT Sample				Control Sample			
	Beta	Std Error	T	Sig	Beta	Std Error	T	Sig
Gender	.066	103.4	.947	.345	.132	102.8	1.53	.127
Years of Experience	-.030	5.64	-3.01	.764	.029	5.67	.244	.808
Age	.111	45.87	1.15	.253	.067	48.31	.554	.580
Elementary Teacher	-.073	115.6	-.566	.572	.017	135.0	.118	.907
High School Teacher	-.147	96.84	-1.43	.154	-.071	105.2	-.668	.505
Educational Level	.027	44.89	.391	.696	.021	60.08	.280	.780
Class Size	.009	1.69	.130	.897	-.052	1.10	-.675	.500
Elementary	.056	102.1	.507	.613	.296	133.4	2.19	.030*
Math	-.032	125.8	-.418	.677	.130	148.2	1.63	.104**
Science	-.014	134.0	-.191	.848	.047	159.6	.567	.572
Exceptional Education	-.071	127.6	-.907	.366	.143	139.7	1.69	.093**
English	.144	123.4	1.81	.071**	.071	145.1	.834	.406
Social Studies	.006	128.1	.078	.938	-.068	143.1	-.745	.457
Disciplinary issues	.053	25.89	.731	.466	-.201	29.91	-2.61	.010
Standardized test pressure	.124	30.55	1.73	.086**	.047	43.50	.586	.559
Academic support	-.030	38.27	-3.07	.759	.013	43.94	.118	.906
Disciplinary support	.267	37.55	3.13	.002*	-.003	40.49	-.029	.977
Compliance with rules	-.013	28.53	-.181	.856	-.059	35.08	-.714	.476
Conflicting messages	-.168	28.46	-2.30	.023*	-.066	34.99	-.777	.438
Decisions at appropriate levels	-.007	39.89	-.079	.937	.108	43.43	1.16	.248
Access to principal	.068	37.26	.766	.445	-.015	41.48	-.153	.878
		NBCT Sample				Control Sample		
R Square		.214				.181		
Adjusted R Square		.127				.077		
F		2.45*				1.75*		
N		243				218		

* Difference is significant at the .05 level

** Difference is significant at the .05 level for a one tailed solution

Personal Accomplishment: The NBCT Sample.

One of the questions that was shown to have a significant influence on the development of burnout in the personal accomplishment dimension dealt with the adequacy of administrative support in the realm of discipline (Beta=.267; P=.002). The Beta value indicates that as the level of administrative support in discipline increases, the burnout level in the personal accomplishment dimension also decreases (since personal accomplishment is reverse ordered), and that this is by far the most powerful influence on this regression model. This finding is consistent with the literature in education as well

as other Public Affairs fields, which shows that support from administrators is closely associated with the onset of burnout (Jackson, et al., 1986; Russell, Altmaier, and Van Velzen, 1987; Sarros and Sarros, 1992; van Dick and Wagner, 2001).

A second question measuring role conflict was also found to be significant. Pressure due to standardized testing ($P=.086$) was found to be significant in the personal accomplishment dimension. The Beta score (.124) indicates that this variable had the weakest influence on the development of burnout in this dimension. Standardized tests are the primary mechanism for evaluating teacher performance in many cases. Consequently, it is logical that the more pressure that a teacher feels to increase performance on these tests, the more their feelings of personal accomplishment are tied to the outcomes of the tests. English teachers were also significantly associated with the personal accomplishment dimension of burnout (Beta=.144; $P=.071$). This is logical when examined in light of the findings for standardized test pressure as English teachers at the secondary level are associated with the FCAT Reading and FCAT Writes scores of their students. While the skills tested by the FCAT Reading test and FCAT Writes are supposed to be addressed in all courses, it is the English teacher who is viewed as having the primary responsibility for teaching these skills. In many cases the student scores on FCAT Reading and Writes are organized based on their English teacher. Therefore it is reasonable that standardized test pressure and being an English teacher would both be associated with the onset of the personal accomplishment dimension of burnout.

As with depersonalization, the receipt of conflicting messages about teacher performance ($P=.023$) was also shown to have an influence on the development of burnout in the personal accomplishment dimension for NBCTs. The Beta score (-.168)

indicates that this is the second most influential factor on the onset of personal accomplishment burnout. Since personal accomplishment involves the evaluation of self, it is natural that teachers who receive differing messages about their professional ability would suffer from greater levels of burnout in this dimension. The other question measuring role ambiguity was not significant, indicating that there is not a clear influence by these factors on the development of the personal accomplishment dimension of burnout. In addition, the items measuring demographic characteristics and organizational characteristics were not found to be significant in any way.

Personal Accomplishment: The Control Group.

The control group had several items that were found to be statistically significant within the regression equation. Three out of the four items are related to the teaching assignment of the respondent. Elementary teachers (Beta=.296; P=.030), math teachers (Beta=.130; P=.104), and exceptional education teachers (Beta=.143; P=.093) were all found to be significant predictors of the onset of the personal accomplishment dimension of burnout. The emphasis placed on standardized test performance may be a factor. Student achievement on these high stakes tests are used to evaluate teacher performance, both formally and informally. This is even more pronounced in content areas that are directly tied to the FCAT, such as math. Elementary educators are seen as solely responsible for the FCAT scores of their students in reading, writing, and math, and perhaps not surprisingly the Beta score indicates that this is the most powerful predictor of the onset of burnout in this dimension. This stressor is likely to become more pronounced as Florida has recently decided to tie teacher bonuses to student learning gains on the FCAT. This could have a negative impact on the sense of personal

accomplishment in all teachers, but particularly with the control group. NBCTs have been identified as accomplished teachers through the certification process, and therefore have another outside measure of their effectiveness. Non-NBCTs may not have the same validation of their performance. As a result, the subject area taught could become a factor in the teacher's sense of personal accomplishment.

Exceptional education teachers were also significantly more burned out in this dimension. Exceptional education students are often in the lowest quartile of student performance on standardized tests. When teacher performance is scrutinized via standardized test scores, these teachers are likely frustrated and may even question their own abilities as an educator. In addition, exceptional education teachers face a great deal more paperwork and red tape than do regular education teachers. Exceptional education students have Individual Education Plans (IEPs) that must be reviewed and updated annually for each and every student. There are a comprehensive series of accommodations that are identified in these IEPs and must be implemented by the exceptional education teachers throughout the year. These factors combined increase the likelihood of the development of burnout in the personal accomplishment dimension.

The fourth question that was found to be significant was a question measuring role conflict (Beta=-.201; P.010), part of the task qualities component of the Maslach-Leiter burnout model. The feeling that disciplinary issues interfere with learning seems to lead to higher levels of burnout in the personal accomplishment dimension. There is likely a great deal of frustration that a teacher feels at the distraction that time spent dealing with disciplinary issues can cause. That frustration over lack of control over their teaching environment may lead the teacher to question their abilities as an educator. The result

may be a lower level of perceived personal accomplishment, resulting in burnout. Again, the other items measuring role conflict were not found to be significant. The other aspects of task qualities, work overload, and role ambiguity were not significant. The other two components of the burnout model, social support and organizational characteristics, were also found to not have a statistically significant influence on the development of this dimension of burnout in the control group.

As with the regression models for the other dimensions, the personal accomplishment regression equation was examined for indications of possible multicollinearity. Again there were no tolerance levels found to be below the .10 level, nor any VIF values near 10. This would seem to indicate that multicollinearity was not an issue in this case.

Another Look at the Impact of NBPTS Certification

A series of questions gauging respondent feelings about National Board certification were also included on the NBCT questionnaire. This section was designed to provide context to the regression analysis that was run in the previous section. The analysis of these questions is based on reviewing the frequencies of responses in each of the Likert-scale categories.

The intent of these questions was to provide some further information about how attaining NBPTS certification impacts the perceptions of teachers regarding their students, the community, their schools, and the perceptions that others have of the educator as a professional. These perceptions may very well have an impact on the development burnout, and therefore on teacher turnover, which are at the heart of the impending teacher shortage crisis. These questions, combined with data from the t-tests

and regression analyses, can provide an indication of the potential of NBPTS certification to be utilized as an intervention to alleviate burnout. If NBPTS certification is indeed an appropriate burnout intervention, then state, federal, and/or district level support for NBPTS candidates may be a logical policy option for lawmakers to address the retention crisis.

These questions, found below in Table 26, seem to indicate that NBPTS certification has had a positive impact on the perceptions of NBCTs. The overwhelming majority of NBCTs agree or strongly agree that their certification has impacted their commitment to their students (76.7%) and to their school (62.2%). As earlier studies have indicated, most of the NBCT respondents in this sample (72.3%) felt that NBPTS certification has renewed their interest in teaching and has improved their outlook on teaching (70.7%).

Table 26: NBCT Additional Questions

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Becoming an NBCT has made a difference in my commitment to my students.	5.8%	14.7	2.7	43.4	33.3
Becoming an NBCT has made a difference in my commitment to my school.	7	18.8	11.7	35.2	27
Becoming an NBCT has renewed my interest in teaching.	1.3	15.6	7.8	39.5	32.8
I feel that my status as an NBCT has provided me with additional rewards and recognition.	4.7	11.3	8.2	41	34.8
Recognition of my accomplishments in the classroom through the NBPTS certification process has improved my outlook on teaching.	5.1	12.5	11.7	44.5	26.2
I am still in the field of education because of my participation in the NBPTS certification process.	16	27.3	11.7	29.3	15.2

Researchers have cited the lack of respect accorded to educators by the community as a factor leading to burnout (Farber, 1991). This lack of respect is manifested in the low salaries associated with the teaching profession. Seventy-five percent of the NBCTs in this study agreed or strongly agreed that the NBPTS certification process has provided them with additional rewards and recognition. This may serve as an indicator that the problems associated with the perceived lack of respect for the education profession may be addressed through support of the NBPTS certification process for teachers.

Despite the fact that most of the questions gauging the perceived impact of NBPTS certification by the respondents showed a positive attitude toward the influence that the process has had on their professional lives, only 44.5 % of respondents agreed or strongly agreed that they were still in the field of education as a result of their participation in the NBPTS certification process. This might be because NBCTs do not associate the certification process with those factors that lead to burnout and attrition.

Summary

The various statistical tests conducted in the course of this study have revealed a great deal about the relationship between the onset of the various dimensions of the burnout construct and the attainment of National Board certification.

The independent samples t-tests conducted in model two demonstrated that there was a significant difference between the research and control groups in each of the burnout dimensions. This provided an early indication that the null hypotheses might be rejected in each dimension. The MBI groups respondents into three ranges of experienced burnout, including low, moderate, and high. A comparison of the frequencies across

these ranges showed that there more NBCTs prevalent in the low range of burnout in each of the three dimensions. This strengthens the argument that NBPTS certification has the potential to alleviate the onset of burnout.

Model three involved a multiple regression model that included all control variables, as well as the independent variable used in model two, NBPTS certification. The purpose of including NBPTS certification was to confirm the results of the independent samples t-tests. All three of these t-tests had indicated that there was a statistically significant difference between the research and control groups. The regression equations included in model three had mixed results. The regression analysis confirmed that NBPTS certification was a significant factor in the development of burnout in the emotional exhaustion and personal accomplishment dimensions. This confirmed the rejection of the null hypotheses for these two dimensions. However, the regression analysis of depersonalization revealed that NBPTS certification did not play a significant role in the development of burnout. As a result, further analysis is needed in order to determine what role, if any, NBPTS certification has on the development of burnout in educators.

Table 27: Multiple Regression Analyses of the Overall Model by Burnout Dimension

	Without NBPTS Certification			With NBPTS Certification		
	R Square	Adj. R Square	F	R Square	Adj. R Square	F
Emotional Exhaustion	.254	.213	6.20	.264	.222	6.24
Depersonalization	.200	.149	3.90	.204	.151	3.81
Personal Accomplishment	.147	.100	3.10	.154	.105	3.12

An additional series of multiple regression analyses was conducted in model four to specifically examine the influence of demographic characteristics of teachers and the elements of the Maslach-Leiter burnout model on the development of burnout in all

respondents. Each of the regression equations revealed significant relationships that influenced the development of burnout in the three dimensions other than NBPTS certification. Burnout is a complex phenomenon. There has been extensive research in a variety of fields trying to pinpoint the causal factors that lead to burnout. The Maslach-Leiter model has managed to capture the varied factors that seem to influence burnout. Therefore it is logical that some of the factors identified in the theoretical model would present a significant influence on the development of burnout in the sampling frame.

Several demographic variables proved to have an influence on the dimensions. However, only one, teaching level, was significant in more than one dimension. One demographic characteristic, educational level, did not prove to be significant in any dimension.

One of the components of the Maslach-Leiter burnout model is organizational characteristics. This proved to be significant through one question in the emotional exhaustion dimension with the NBCT group only. There were no other instances of organizational characteristics having a significant influence.

A second component of the Maslach-Leiter model is social support. Social support in terms of academics proved to be significant in the emotional exhaustion dimension within the NBCT group. Disciplinary support was also significant for the control group within the depersonalization and personal accomplishment dimensions.

The third component of the theoretical model is task qualities. This component is itself comprised of three parts, including role conflict, role ambiguity, and workload. This component of the model seemed to have the most influence on the development of burnout in the study, outside of the independent variable National Board certification.

One element, workload, was found to be significant in the emotional exhaustion dimension for the control group, but did not influence any other dimension. The other two elements, role ambiguity and role conflict, proved to be significant influences in both the research and control groups across all three dimensions to varying degrees.

Only one question demonstrated a significant impact on the onset of burnout in all three dimensions. This question, whether or not teachers receive conflicting messages about their work, is a measure of the role ambiguity element of task qualities. This was a significant factor for the NBCT sample in the emotional exhaustion and personal accomplishment dimensions, and for both segments of the sampling frame in the depersonalization dimension.

Overall the multiple regression analysis conducted in model four did show that there were some extraneous influences on the development of burnout outside of the independent variable of NBPTS certification. These influences all come from various elements of the theoretical model that guided the research study. However, there was no one control variable that seemed to profoundly influence the onset of burnout in all three dimensions. There were only two questions, both within the task qualities component, that were significant in both the research and control groups. The remaining questions that demonstrated a significant influence acted on only one of the two groups in the study. National Board Certification was the one variable that seemed to consistently impact burnout levels in two of the three dimensions.

When examining all of the models, it seems evident that NBPTS certification has a significant influence on the onset of burnout in the emotional exhaustion and personal accomplishment dimensions. Unfortunately, the results in the depersonalization

dimension are not as clear and would need further review. The greatest variation between the research and control groups was found in emotional exhaustion. In this dimension the largest proportion of NBCTs were in the low range of experienced burnout, while the largest grouping of the control group was found in the high range of perceived burnout.

Finally, the examination of the questions looking at perceptions of NBCTs provides additional insight into the influence of the NBPTS certification process on burnout and the potential policy implications that these findings have. The NBCTs seemed to feel positively about the certification and the impact that it has had on their professional self-concept. The vast majority felt that the process had renewed their outlook on teaching. This improved outlook, along with a renewed commitment to their students and their schools, would indicate that many of these teachers may be able to avoid the onset of some of the dimensions of burnout.

CHAPTER FIVE: CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to examine the influence of the NBPTS certification process on the development of burnout in educators. Burnout, as described by the Maslach-Leiter theoretical model that served as a framework for this study, is comprised of three separate dimensions—emotional exhaustion, depersonalization, and (reduced) personal accomplishment (Maslach, Leiter, & Jackson, 1996).

The study of burnout is of incredible importance in an era of increasing teacher shortages. Researchers have projected a need for at least two million new teachers within the next ten years to meet the ever increasing demand for teachers in the United States (Olson, 2000). The recruitment of new teachers is only part of the answer. In most subject areas our universities are generating more education graduates than are needed; however, only 50% of these graduates enter the classroom, and of these, 46% leave the education profession within their first five years (Ingersoll, 2001). Therefore, retaining teachers once they enter the profession is critical to resolving the teacher shortage crisis. Consequently, researchers and policymakers need to focus their attention on the reasons that teachers leave the classroom. Many of these reasons, including low teacher pay, the declining respect afforded to teachers by society, the attitudes of students and parents, the inadequacy of administrative support, the increasingly violent nature of the school environment, and an inability to advance in the profession, can also be linked to burnout (Byrne, 1999; Friedman & Farber, 1992; Villa & Calvete, 2001).

The instrument used to test the relationship between NBPTS certification and burnout was an adaptation of the Maslach Burnout Inventory for Educators (MBI-ES), a well established instrument to examine burnout levels in teachers that evolved from the

original MBI for all helping service professionals. The MBI-ES was adapted by adding some additional questions developed by the researcher to attempt to control for demographics, as well as the factors that influence the development of burnout that have been identified in the Maslach-Leiter model, which served as the theoretical base for this study. These controls were necessary to ensure that any differences noted between the research and control groups on the three dimensions of burnout are due to the independent variable NBPTS certification, and not solely a result of factors that are part of the Maslach-Leiter framework.

Finally, some questions regarding the impact of NBPTS certification on the careers of teachers who have attained certification were included on the version that was sent to that subgroup. The questionnaire was mailed to a randomly selected control group as well as the entire population of NBCTs in the targeted school district in September, 2005.

Summary of Findings

Evaluating the findings of the various statistical analyses in relation to one another allows the researcher to critically evaluate the hypotheses and research questions and make final determinations as to whether or not to accept or reject the null hypothesis for each of the three burnout dimensions.

The Statistical Models and the Hypotheses

There were three primary hypotheses being tested in this study that stemmed from the three primary research questions. These questions sought to determine the impact of the NBPTS certification process on the level of burnout in each of the dimensions identified

in the Maslach-Leiter burnout model. The hypotheses postulated that there would be a statistically significant difference in emotional exhaustion, depersonalization, and personal accomplishment dimensions as measured by the Maslach Burnout Inventory between National Board Certified Teachers (NBCTs) and their non-certified peers.

Two separate statistical tests were used to evaluate the hypotheses. The mean values of burnout in each dimension demonstrated lower levels of burnout in the NBCT group. An independent samples T-test was conducted in order to determine if the differences in these means were statistically significant in each dimension. These t-tests did in fact demonstrate statistically significant differences between the research and control groups in emotional exhaustion ($p=.000$), depersonalization ($p=.012$), and personal accomplishment ($p=.003$).

The second step in the statistical analysis involved running a series of multiple regression equations in order to attempt to confirm the results of the t-tests. The multiple regressions were conducted to control for the factors that influence burnout, as identified by Maslach and Leiter in their theoretical model. In addition to controlling for these components of the theoretical model, the regression also tested to determine whether or not NBPTS certification was a significant predictor in the onset of burnout.

The Results: Emotional Exhaustion and Personal Accomplishment

In the case of both emotional exhaustion ($p=.019$) and personal accomplishment ($p=.072$), NBPTS certification was found to be a significant influence on the regression model, thus confirming the results of the independent samples t-tests. As a result of the findings of significance in both the independent samples t-tests and the multiple

regression analysis for emotional exhaustion and personal accomplishment, the null hypotheses can be rejected.

In response to the research questions, the researcher can determine that there is a negative relationship between the onset of burnout in the emotional exhaustion and personal accomplishment dimensions and NBPTS certification. In other words, as an individual attains NBPTS certification, there is a tendency to exhibit lower ranges of experienced burnout in these two dimensions.

The negative relationship between NBPTS certification and the emotional exhaustion and personal accomplishment dimensions is confirmed by an analysis of the ranges of experienced burnout in each dimension. The preponderance of NBCTs (42%) were in the low range of experienced burnout in the emotional exhaustion dimension, while the largest segment of the control group (40%) was found in the high range. The personal accomplishment dimension found both the majority of the NBCT (80%) and control group (66%) in the low range of experienced burnout, though the control group still showed far more individuals in the moderate (21%) and high (13%) ranges than did the NBCT sample (moderate 12%; high 8%).

The Results: Depersonalization

Upon completion of the regression analysis, it appeared that the depersonalization dimension had confounding results. The independent samples T-test did find a statistically significant difference between the research and control samples ($p=.012$). It would seem from this test alone that we may be able to reject the null hypothesis that there is no difference between the research and control samples in terms of

depersonalization burnout. However, the multiple regression analysis revealed that NBPTS certification was not a significant factor in the onset of depersonalization burnout. The results from these two separate statistical models clearly conflict with one another.

The multiple regression analysis included a number of additional independent variables that stem from the Maslach-Leiter theoretical model of the burnout construct. This framework conceptualizes burnout as being a result of a multitude of factors, including organizational characteristics, task qualities, and social support, as well as demographics (Maslach, Leiter, & Jackson, 1996). The theoretical framework indicates that some, if not all, of these variables would be significant in a regression equation analyzing the development of burnout. As a result, questions measuring each of these items were included in the study in order to determine if the changes in burnout levels were related to the independent variable NBPTS certification, in addition to one or more of these factors from the Maslach-Leiter model.

In order for the null hypothesis to be rejected, depersonalization would have to be a significant factor in the regression analysis, in addition to the factors identified by the theoretical model. However, the regression analysis demonstrated that NBPTS certification had no significant influence on the onset of burnout. Therefore, the finding of a significant difference between the research and control groups through the independent samples t-test may be the result of a spurious relationship. As a result we cannot reject the null hypothesis for depersonalization.

There was also some findings from the depersonalization regression equations that seemed to conflict. In the control group, the age of the respondent was negatively

associated with burnout, indicating that as a teacher grows older, they are less likely to experience depersonalization. However, a similar measure, years of experience, found a positive relationship existed, indicating that as a teacher gains more experience they are more likely to suffer from depersonalization. These findings clearly contradict one another. In addition, teaching level, an indicator of whether the respondent taught at the elementary, middle, or high school levels, showed a negative relationship with depersonalization. A separate variable, primary teaching assignment, identified the primary subject area responsibility of the respondent. The category associated with elementary teachers was found to be positively associated with depersonalization. These additional contradictions further demonstrate that there is a need to further explore the onset of depersonalization in teachers from this population.

Further research is needed in order to determine if these confounding results are due to spurious influences on the model. Maslach, Leiter, and Jackson (1996) found that the dimensions of burnout are not interrelated, so it is entirely possible that one dimension of burnout might be unaffected by the independent variable NBPTS certification, while the other two are significantly impacted, as is the case in this study. Leiter (1993) did find some evidence of sequential links between feelings of emotional exhaustion and a resulting increase in depersonalization. The current study seems to contradict Leiter's findings. As a result, further research would be needed in order to fully explore any potential linkages among the burnout dimensions.

Secondary Findings

The survey instrument also provided the researcher with secondary findings that relate to the impact of NBPTS certification on educators. A series of questions was included to evaluate how the NBPTS certification process changed educator perceptions in a few key areas. These questions asked the NBCTs to consider how the process had influenced their view of their students, their community, their school, and their belief about how others view their teaching ability. These questions, combined with the statistical analysis of the burnout instrument, can help provide a clearer depiction of the influence of NBPTS certification on burnout, and therefore retention.

For example, Farber (1991) notes that the lack of respect accorded to educators by society is one of the leading factors in the development of burnout. One of the questions asked NBCTs whether they felt that their NBCT status had provided them with additional rewards and recognition. A majority (75.8%) of NBCTs agreed or strongly agreed that they did in fact feel that they had received additional recognition. If Farber is correct, then it would be logical to conclude that the NBPTS certification process may in some way alleviate the lack of respect that many teachers often feel (Farber, 1991), and may therefore reduce burnout levels. This would logically impact the personal accomplishment dimension of burnout.

In addition, these questions indicated that the NBPTS certification process increased the educator's commitment to their school (62.2%) and their students (76.7%). Increased commitment to the school or the students may lead to a reduced chance that the teacher feels emotionally exhausted. A heightened sense of commitment would also seem to

significantly impact depersonalization, or the feeling of detachment. The majority (84%) of the NBCT group reported depersonalization levels in the low range of experienced burnout, which would seem to be in line with the results of these questions. The independent samples t-tests had indicated that there was a statistically significant difference between NBCTs and the control group in this dimension, further confirming these results. However, these findings were not supported by the multiple regression models, leading to conflicting results and a determination to accept the null hypothesis in the case of depersonalization. These secondary findings seem to add support to the T-test results, and make it clear that additional research is needed in this area in particular.

This heightened sense of commitment to students and the school also is relevant to the energy expansion model, which suggests that added roles and responsibilities that may actually expand energy of the individual rather than becoming an added stressor (Marks, 1977). Marks states that the expansion of energy stems from commitment, which may come from loyalty to significant others involved in the role—such as students or the school community. If this heightened sense of commitment can serve as a way to expand energy for an educator, it seems logical that this expansion will reduce stressors that may lead to burnout.

Implications

This study has a major potential impact on policy development as it related to NBPTS certification, as well as burnout and retention. There are additional implications for professional practice that may help administrators at all levels use non-financial rewards

to alleviate burnout and enhance retention. Finally, there are interdisciplinary implications that stem from this study as well.

Policy Implications

The findings of this study would also seem to provide some suggestions for policy at all levels of government. Legislators and policymakers have made a major commitment in resources to support this program. The U.S. Department of Education has been a long time funder of the National Board for Professional Teaching Standards. In addition, many states, including Florida, have provided financial support for pursuing NBPTS certification, and salary bonuses for those who certify. This study, along with a whole host of additional research that is currently becoming available, seems to indicate that there is a positive influence that the NBPTS certification process is having on various aspects of the educational process. As a result, it would seem that research is demonstrating that support of the NBPTS certification process is a logical use of these monies.

At the state and local levels, which are primarily responsible for K-12 public education, this study provides some empirical evidence to suggest that the support of this process is having an impact on the onset of burnout in some educators. While the relationship needs further exploration, it does give these policy makers an indication that their support of this process can begin to address issues related to burnout and attrition in the field. Support for the process can include continued funding for the bonuses paid to those who become NBCTs, as well as steps taken to encourage other teachers to pursue NBPTS certification. By alleviating burnout in teachers, policy makers and

administrators are attacking a whole host of issues in the field of education, including turnover and student achievement, two of the most hot button issues facing the field today.

Professional Practice

This study was based on the premise that some of the potential benefits of NBPTS certification, such as enhanced respect from society, financial rewards, increased professional self-concept, professional renewal, and leadership opportunities for teachers, might counteract the onset of burnout across all of its dimensions. The majority of these factors are intangible, but may be even more important in alleviating burnout than increased salary. This study demonstrated a negative relationship between two dimensions of burnout and NBPTS certification. If NBCTs exhibit lower levels of burnout, enhancing some of these other intangible benefits of the NBPTS certification process through support of NBPTS certification, or through other similar means, may also alleviate burnout.

For example, providing teachers with more opportunities to work as teacher leaders and participate in shared decision making may be found to be a tool to alleviating-or even preventing-burnout. Shapiro (1995) noted an advantage of certification includes new roles and responsibilities, which would seem to enhance the ability of educators to function as teacher leaders without having to leave the classroom. Seeking the expertise of teachers who have been shown to be accomplished practioners through a process such as NBPTS certification would have the dual benefit of tapping the knowledge, skills, and abilities of these teaches, while also enhancing their sense of personal accomplishment.

This would be a strategy that may cost very little, but still yield positive benefits in terms of retaining teachers in our classrooms by alleviating burnout, particularly in the personal accomplishment dimension.

The NBPTS certification process is at its core a professional development experience. Bohlen (2000) found that participants in his study felt that pursuing NBPTS certification was a powerful professional development experience that helped refine their skills and professional judgment. The reflection on practice and analysis of student work that is central to the certification process is something that can be infused in other professional development experiences for teachers. This focus on reflective practice could become a best practice for a wide range of professional development experiences. Consequently, if NBPTS certification can help alleviate the onset of some types of burnout, perhaps utilizing components of the process in other professional development experiences could have a similar impact.

These findings may also have implications for the development of mentoring and coaching programs. Teachers who have lower experienced levels of burnout are more likely to serve as positive role models for beginning teachers. The state of Florida actively encourages NBCTs to participate in mentoring and coaching programs by offering a 10% bonus to NBCTs who commit to mentoring their peers for a predetermined number of hours each year. This financial reward can help alleviate potential burnout. It also prompts teachers who have demonstrated accomplished practice through the certification process to share the expertise with others, and at the same time act as learners as they interact with the beginning teachers. The added support a mentor can provide can add to a sense of social support, which is a factor within the

Maslach-Leiter theoretical model. Finally, mentoring is also a leadership opportunity for the NBCT, which can lead to decreased burnout levels (Friedman & Farber, 1992) and increased job satisfaction (Woods & Weamer, 2002). Therefore, it seems a logical implication for professional practice to enhance leadership opportunities for NBCTs through mentoring, which may be able to alleviate burnout for both the mentor and protégée.

Reexamination of the Theoretical Framework

The Maslach-Leiter theoretical framework served as a solid basis for this research study. The framework itself is organized to describe factors that contribute to the onset of burnout. This study examined the influence of NBPTS certification on the development of burnout in order to determine if the process, or the tangible and intangible rewards associated with the process, may in fact alleviate burnout. The negative relationship found in the study between NBPTS certification and the dimensions of emotional exhaustion and personal accomplishment seems to indicate that it might be appropriate, and even possible, to reexamine the theoretical model to identify not only factors that contribute to burnout, but also what factors might help alleviate it, or even prevent its development.

This slight shift in the focus of the model might allow for a proactive approach to the examination of burnout. It is often too late to delay or prevent the damage done by burnout if we wait for someone to exhibit signs. Even if measures are taken to alleviate burnout, it may not always be successful. At the very least, students tend to suffer academically when their teacher is experiencing burnout. Therefore it is logical to adopt

a more proactive theoretical approach to understanding the concept of burnout rather than waiting for someone to begin to experience the symptoms.

Byrne (1999) noted that academicians have worked backward, from identification of symptoms to the theoretical framework. We may now be able to take that framework and move toward varied recommendations for how to assuage or prevent burnout from occurring. The identified rewards of NBPTS certification may provide a way to begin to recognize those factors which block the onset of burnout. NBPTS certification is not the only method for providing these tangible and intangible rewards. Now that there is some preliminary data that demonstrates that there is a relationship, looking at other ways to provide some of these rewards might help develop a well rounded, theory based strategy to attack the problem of burnout, and perhaps increase retention.

The Maslach-Leiter model itself was tested through the multiple regression equations conducted in order to examine the results of the independent samples t-tests. Factors that Maslach and Leiter predicted would be associated with burnout, such as organizational characteristics, social support, and task qualities, did indeed have influences on the onset of burnout in the research sample. This adds to the empirical evidence by Byrne (1999) and Rudow (1999) that supports this model.

Finally, Leiter's speculation (1993) that there might be a sequential connection between emotional exhaustion and depersonalization needs further examination. The formal theoretical framework had not established this connection. The current study, which found that emotional exhaustion was negatively related to NBPTS certification but depersonalization was not, indicates that a sequential link is questionable and needs to be explored further.

Interdisciplinary Connections

Burnout is an issue that faces nearly all occupations. Cordes and Doherty (1993), in an examination of employees within the health care industry, found that workers who have regular intense or emotionally charged contacts with clients are more prone to burnout. In addition to health care, burnout is also an issue in the social work setting. Mor Barak, Nissly, and Levin (2001) found that burnout was a significant predictor of turnover and intention to leave in various social work fields and in most human service professions. These researchers also determined that high levels of attrition have negative repercussions on the value and stability of services provided to clients of social work services, which can be compared to students in a school setting.

The emotionally charged interactions that Cordes and Doherty (1993) describe in the health care industry, and the link between burnout and attrition noted by Mor Barak, Nissly, and Levin (2001) are also common in other human services professions, such as law enforcement, education, psychology, and ministry. It seems natural that burnout would be a cause for concern for human services professionals as they regularly interact with clients regarding some of the most basic needs for human beings. This area of human service professionals is where Maslach focused her preliminary research on the burnout construct. In fact, the original version of the MBI focused on what Maslach also refers to as helping services professionals, which includes these various categories.

In addition to the MBI-Human Services edition, there are two other editions, a fact which demonstrates how widespread the issue of burnout has become. The MBI-Educators Survey was used for the current study. Teachers are also considered helping

service professionals, and were initially included in the MBI-Human Services edition. However it eventually became clear that there are some slight differences for educators, such as the substitution of the term student for clients. There is also a MBI-General Survey edition for professionals that are not in direct contact with clients.

Overall, the study of burnout is inherently an interdisciplinary one. Employees of all types, and even students, may suffer from burnout at various times in their careers. The intense nature of the direct contact that human services professions, such as those represented in the Public Affairs PhD program at the University of Central Florida, have with their clients makes this a critical area of study for future research.

Recommendations

The current study raises additional questions that are worthy of exploration in future research studies in the fields of education, as well as in other helping services professions. In addition, the study provides insight into other policy options related to the ideal of a rigorous certification process.

Future Research in Education

The current study provided many insights that need to be fully examined through additional study and research. The most obvious area in need of additional research is regarding the depersonalization dimension of burnout. The independent samples T-test indicated that there was a statistically significant difference between NBCTs and non-NBCTs in all three dimensions. However, the regression analyses conducted in model three indicated that NBPTS certification was not a statistically significant variable in

predicting depersonalization. These confounding results need to be explored either through a repetition of this study, or an additional study that examines the depersonalization dimension exclusively.

An examination of the relationship between social support and the burnout dimensions might be appropriate. In the personal accomplishment dimension, NBCTs seemed to have higher levels of burnout as the level of administrative support in discipline increased. This seems to contradict the literature, which has typically found that principal support has a negative relationship with burnout (Jackson, et al., 1986; Russell, Altmaier, and Van Velzen, 1987; Sarros and Sarros, 1992; van Dick and Wagner, 2001). It also seems to contradict finding from other disciplines within the helping services fields. Collins and Long (2003) found in their review of the literature that professional support, as well as support from the organization itself, tends to intervene in the development of compassion fatigue (Collins and Long, 2003). Additional research might be able to determine whether this negative relationship between administrative support and the personal accomplishment dimension of burnout was a spurious finding in the current study, or a result of differences in the perception of social support among the three dimensions.

One of the central issues in need of further research is the relationship between burnout and retention among NBCTs. Researchers have identified a relationship between the reasons educators cite for leaving the classroom and burnout (Bryne, 1999; Friedman & Farber, 1992; Villa & Calvete, 2001). The current study has demonstrated a negative relationship between NBPTS certification and two of the three dimensions of burnout. Therefore, there is potentially a negative relationship between NBPTS certification and

attrition. Further research to see if NBCTs remain in the field of education at higher rates than their non-certified peers would provide policy makers with additional insight as to the value of support of the certification process through legislative initiatives and funding.

An additional possibility for further research would be to expand this study to encompass a national sample of NBCTs to compare to their non-certified peers on this measure of burnout. The current study focuses on a large district in Central Florida only. A national random sampling would provide data that is more generalizable. An alternative approach would be to conduct the study again in another geographic area of equivalent size to the current study, and compare the results of the two.

A similar study could be done in an area in which state support for the NBPTS certification process is not as organized or strong as it is in Florida. The state of Florida does pay the fee for Florida teachers to participate in the process, and provides significant bonuses for those who become certified. In addition, there are strong mentoring networks in place across the state to assist those going through the process. While the majority of states support the NBPTS certification process in some way, not all states provide this level of support. Evaluating the differences between a state with a strong degree of support and one that has little or no could further flesh out the relationship between burnout and NBPTS certification.

Finally, a longitudinal study that tracks NBCTs and their retention would be of particular interest. Such a study could also be used to further analyze the potential benefits of the NBPTS certification process, such as leadership opportunities within the

field, a new measure of accountability, salary enhancements, as well as the relationship these factors have on burnout.

Future Interdisciplinary Research

The current research project demonstrates that a rigorous certification process, such as the one put forth by NBPTS, provides some benefits that seem to alleviate some of the factors that lead to burnout among teachers. Since the theoretical framework that guides the study of burnout is the same for all human services professionals, it seems logical that a similar process could prove to impact burnout levels in these other fields.

An extension of the current study that would develop these interdisciplinary connections would be to examine how certification or licensure programs impact burnout levels in human service professionals. For example, in nursing there are a wide range of certifications available based on specialty areas. A study of nurses who have pursued and attained these certifications, as compared to their non-certified peers, on a burnout measure may demonstrate results similar to this study. There are also professional certifications available in the fields of social work, though they do not always result in an increase in salary. Law enforcement could examine burnout through differences in educational attainment, as well as through certification in specialized fields, such as S.W.A.T. teams to see if these distinctions are significant predictors in relation to burnout. Overall, there are certification programs in place in these fields that can be a basis of study to see if these certification experiences produce similar impacts on the onset of burnout.

Comparisons of workers across educational levels in these fields might prove interesting as well. Similar to the NBPTS certification, the advanced degree for nurses, social workers, or law enforcement professionals might provide some of the benefits, such as leadership roles and enhanced professional self-concept that may alleviate burnout.

An intriguing possibility for further interdisciplinary research would be to see if there are other forms of professional development and enrichment similar to the NBPTS certification process in these other fields. If such professional development experiences do exist, and examination of their influence on burnout would be a useful comparison in future studies. If such experiences do not currently exist, exploratory studies may be appropriate to examine the possibility of developing a rigorous professional development or certification process that could alleviate burnout and perhaps improve retention in fields such as social work, nursing, and law enforcement.

Overall, the NBPTS certification process seems to be one that recognizes and rewards personal accomplishment. This is verified by the significant negative relationship between the personal accomplishment dimension of burnout and NBPTS certification. Further research into any processes which are designed to enhance personal accomplishment by recognizing achievement and competence within any of these helping services professions would be beneficial to fully understanding the role of burnout.

Limitations of the Study

As with many research projects, this study does have limitations. The research sample was drawn from a single school district in the Central Florida area. While this school

district is one of the largest in the nation, and has a high percentage of NBCTs for purposes of comparative analysis, the study is still limited to the experiences and perceptions of educators from a single geographic locale. A national representative sample would be an appropriate extension of this research.

The study is also limited in its ability to explain the relationship among the dimensions of burnout. Though there is not necessarily an interrelationship between the burnout dimensions (Maslach, Leiter, & Jackson, 1996), Leiter (1993) did find a sequential link between emotional exhaustion and depersonalization. This study found evidence of an impact on emotional exhaustion by the independent variable NBPTS certification, but not on depersonalization. The study itself did not set out to explore the interrelationship between these two dimensions, so its findings cannot help determine whether or not there is indeed a sequential link between these two constructs as Leiter has proposed.

Policy Recommendations

The current study has provided a research base that seems to demonstrate that the funding to support the NBPTS certification process at the state and federal levels is providing positive results and should be continued. Lawmakers and policymakers often are forced to make decisions about programs without data to adequately document results. This study is a preliminary indication that we can indeed stem the tide of burnout and its associated issues, such as high rates of turnover and lowered student achievement, through programs that recognize and promote teacher accomplishment and mastery.

Summary

Overall, the analysis of the data demonstrated a negative relationship between two of the three dimensions of burnout and the independent variable, NBPTS certification. Therefore, two of the three null hypotheses can be rejected. The research questions sought to identify what type of relationship existed between each dimension of burnout and NBPTS certification. The study found that the relationships, where they existed with emotional exhaustion and personal accomplishment, were negative in association, meaning that NBCTs experienced lower levels of burnout than their non-certified peers.

One goal of this study was to explore the relationship between NBPTS certification and burnout in order to attempt to provide policymakers with concrete data to use in evaluating how their current support of the NBPTS certification program is impacting Florida classrooms. There is indeed a looming national teacher shortage crisis, which is all that much more problematic in Florida with its surging population growth. In finding a negative relationship between two of the burnout dimensions and NBPTS certification, there are at least preliminary indications that demonstrate that support of this program may help policymakers and administrators deal with the retention issues that they are currently facing.

Though there is still a great deal of research that needs to be completed in order to fully understand the relationship between NBPTS certification, burnout, and retention, this study provides a first step in that direction. Florida, like many states, has been relying heavily on bringing new teachers into Florida classrooms. However, if current trends hold true, many of these new teachers will burn out and leave the profession within

the first five years (Ingersoll, 2001). Clearly, burnout and retention of experienced, highly qualified teachers has to become a major priority if we are going to sustain and improve the American educational system.

APPENDIX A: INSTRUMENT

Part I: Demographic Information

To put your answers in context, we would like to gather some personal and professional information from you. Your answers are anonymous, and therefore will be kept in the strictest confidence.

1. What year were you born? _____
2. Sex (please circle your answer) M F
3. Years of teaching experience _____
4. Current teaching level (please circle your answer):
(1) Elementary (2) Middle School (3) High School
5. Primary teaching assignment (please circle your answer):
(1) Generalist (Elementary) (6) English/Language Art
(2) Math (7) Social Studies/History
(3) Science (8) Career/Technical Education
(4) Physical Education (9) Art/Music/Drama
(5) Exceptional Education (10) Other _____
6. Education: Mark the highest level of education completed. (please circle your answer)
(1) High School (4) Specialist degree
(2) Bachelor's degree (5) Doctoral degree
(3) Master's degree
7. Are you a National Board Certified Teacher? Y N
If yes, what year did you certify? _____
8. Please indicate whether your students are homogenous (meaning that at least 75% of your students share this characteristic), or relatively heterogeneous (meaning that less than 75% of your students share this characteristic) in each of these areas: (please circle your answer)
Ethnicity Homogenous Heterogeneous
Language Homogenous Heterogeneous
Academic ability level Homogenous Heterogeneous
Socio-economic status Homogenous Heterogeneous
9. How many total students do you have in your class(es)? _____
10. What is your average class size? _____
11. Is your school a recipient of Title I funding? Y N
12. Approximately what percentage of students at your school receive free/reduced lunch?

Part II: Maslach Burnout Inventory

*NOTE: Questions 13-34 come from the MBI-ES. The MBI-ES is a copyright protected instrument and cannot be included in published materials. For more information on the MBI-ES, please contact CPP Inc. (www.cpp.com)

Part III: School Environment

Please indicate your level of agreement or disagreement with each of the following statements below as they relate to your current teaching assignment. Circle the number corresponding to your level of agreement or disagreement with the statement.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
35. I feel that the time I have to spend dealing with disciplinary issues interferes with teaching and learning.	1	2	3	4	5
36. At times I feel that the need to improve student standardized test scores conflicts with other educational goals	1	2	3	4	5
37. I feel that the community in which I live and work recognizes me as a professional.	1	2	3	4	5
38. I feel that I receive adequate support from my school level administrators in academic areas.	1	2	3	4	5
39. I feel that I receive adequate support from my school level administrators in disciplinary areas.	1	2	3	4	5
40. Teachers at my school have an effective voice in important educational decisions.	1	2	3	4	5
41. There is a sense of collegiality among teachers at my school	1	2	3	4	5
42. Parents are often very supportive of my classroom decisions	1	2	3	4	5
43. Complying with federal, state, and school rules and policies is very stressful.	1	2	3	4	5

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
44. I find that having to participate in school activities outside of the normal working hours is taxing.	1	2	3	4	5
45. I receive conflicting messages about my work from two or more people/groups in the school setting.	1	2	3	4	5
46. I am uncertain about the criteria for evaluating my professional performance.	1	2	3	4	5
47. I receive enough information from the administration at my school to perform my job effectively.	1	2	3	4	5
48. When asked, I am able to explain exactly what the demands of my job are.	1	2	3	4	5
49. It is easy to get my ideas across to my principal if I have a suggestion.	1	2	3	4	5
50. There are not enough professional development opportunities available to me in my current teaching situation.	1	2	3	4	5
51. At my school, decisions are made at those levels where the most adequate information is available.	1	2	3	4	5

APPENDIX B: INSTRUMENT-NBCT ADDITIONS

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
52. Becoming a NBCT has made a difference in my commitment to my students.	1	2	3	4	5
53. Becoming a NBCT has made a difference in my commitment to my school.	1	2	3	4	5
54. Becoming a NBCT has renewed my interest in teaching.	1	2	3	4	5
55. I feel that my status as a NBCT has provided me with additional rewards and recognition.	1	2	3	4	5
56. Recognition of my accomplishments in the classroom through the NBPTS certification process has improved my outlook on teaching.	1	2	3	4	5
57. I am still in the field of education because of my participation in the NBPTS certification process.	1	2	3	4	5

58. I have considered leaving the teaching profession (please circle your answer).
 YES NO

59. If you answered yes to question 58, have you considered leaving the profession since becoming a NBCT? (please circle your answer)
 YES NO

60. Please rank these reasons for pursuing NBPTS certification below from the most important (1) to the least important (7).

___ salary bonuses

___ increased recognition from administrators

___ increased recognition from parents and the community

___ increased recognition from my peers

___ for professional development

___to demonstrate to myself that I am an accomplished teacher

___other (please specify) _____

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