Teacher Burnout Factors as Predictors of Adherence to Behavioral Intervention

A DISSERTATION
SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL
OF THE UNIVERSITY OF MINNESOTA
BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Jennifer J. McComas, Advisor

December 2009

Acknowledgements

I want to thank the Ed. Psych cohort of 2004 – 2008 for their help and companionship through coursework, exams, field research, and general navigation of the doctoral experience. I could not have come through this with a greater group of people. I am humbly grateful to LeAnne Johnson for her leadership and coordination of the research that made this dissertation possible, for her consultation and expertise with regard to the research process, and for her encouragement and long-suffering through several drafts of the final paper. I offer appreciation to my advisor, Jennifer McComas, for guiding my program and for placing me in projects and assignments that suited my strengths and stretched my limits as a professional and as an individual. Furthermore, I am so very fortunate to have such a supportive and patient family. I thank my children for their patience and willingness to stay the course as this work was completed. Finally, I wish to acknowledge my husband, Gil, for his love, support, and unwavering commitment to me. This accomplishment is not mine. It is ours.

Abstract

It is hypothesized that factors related to teacher burnout influence treatment adherence. This study examines the relation of teacher burnout to the frequency and quality of behavioral intervention implementation. A sample of 45 general and special education teachers were trained to implement the Good Behavior Game, an intervention designed to assist teachers in the management of problem behaviors in the classroom, and asked to implement it each day for 28 weeks. Direct observation data were collected from teacher implementation of the Good Behavior Game. A multiple regression analysis was used to examine the predictive relation between three subsets of the Maslach Burnout Inventory: a) Emotional Exhaustion, b) Depersonalization, and c) Personal Accomplishment, and two indicators of adherence: a) mean frequency of implementation of the Good Behavior Game and b) Likert ratings of quality of implementation. Significant main effects were found for Emotional Exhaustion and Personal Accomplishment on Adherence. A post hoc analysis conducted to explore directional relations between independent and dependent variables resulted in the following conclusions: a) Group membership in low, moderate, or high levels of any single burnout factor was not statistically significant as an individual predictor of adherence and b) group differences exist between factors of Emotional Exhaustion and Personal Accomplishment confirming relation between high levels of exhaustion and low levels of satisfaction with personal accomplishment. Further examination of means plots determined directional relation between high levels of emotional exhaustion and greater adherence.

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CHAPTER I

INTRODUCTION

Teacher burnout is a stress-related condition with the potential for serious implications in classrooms. Left unrecognized, burnout can erode the framework of an effective classroom. While evidence-based classroom management is clearly supported by the literature, interventions are predominately reliant upon student response as a measure of outcome success (Cook & Cook, 2004; Fuchs, Fuchs, & Burish, 2000). The impact of teacher burnout on the outcome of an intervention is a valid line of inquiry when we consider that implementation of an intervention *precedes* student response to an intervention and that teacher implementation behaviors and beliefs, as they relate to an intervention, may significantly influence the way in which an intervention is delivered (Greene, 1995; Guskey, 1988; Sterling, Turner, & Watson, 2002).

Statement of Purpose

The purpose of this study is a) to examine the relation of teacher burnout to the frequency and quality of intervention implementation and b) to question whether teacher beliefs about the value of an intervention will predict how burnout influences the effective use of an intervention. To extend the literature exploring teacher burnout, this study examines how a measure of teacher burnout may predict teachers' adherence to a novel behavioral intervention as evidenced through an outcome measure of frequency and fidelity. Chapter 1 begins with an empirical definition of burnout, followed by a description of the effects of burnout on teacher receptivity to intervention, implementation of intervention, and related activities germane to the role of an educator. Next, we consider determinants of risk factors associated with burnout, the prevalence of

burnout, and the conceptualization of burnout as a developmental process. The chapter concludes with a definition of adherence and a discussion about the monitoring of adherence as an essential feature of successful programming.

Chapter 2 presents a theoretical overview of burnout as it originated from the concept of self-efficacy and the convergent theories of Rotter (1966) and Bandura (1977). The current conceptualizations of burnout and teacher-efficacy will be presented separately, followed by a description of their shared constructs. Next, we will look at evidence drawn from the literature that suggests a link between factors of teacher burnout and adherence to intervention plans.

Chapter 3 presents a research method designed to provide empirical evidence for a relation between burnout factors and adherence to implementation with extended inquiry into the mediating effect of teacher beliefs on adherence to intervention. An analysis of data relevant to the questions addressed by this study is presented in chapter 4, and in chapter five a summary of descriptive characteristics for this sample is followed by a discussion of results, implications, and suggestions for further research.

Rationale for This Study

Fruedenberger first investigated burnout in the 1970s to address the collateral affects of stress-related decompensation among social service workers such as teachers, social workers, policemen, health care professionals, and therapists. Burnout represents a syndrome of affective and physiological responses to the chronic emotional strain of service delivery to others in need (Maslach, 1999) and is defined by three distinct but empirically related factors: Emotional Exhaustion, Depersonalization, and reduced Personal Accomplishment (Byrne, 1999; Maslach & Jackson, 1986).

Emotional Exhaustion is characterized by psychological depletion caused by the constant demands of caring for others. This factor can include physiological illness, chronic fatigue, and decreased stress resistance. Teachers exhibit emotional exhaustion when they feel they can no longer extend themselves to students as they as they once did (Evers, Brouwers, & Tomic, 2002; Maslach & Jackson, 1986; Schwab & Iwaniki, 1982). *Depersonalization* refers to negative disassociation, indifference to students as individuals, and a detached attitude toward individual student needs (Maslach & Jackson, 1986). Satisfaction with *Personal Accomplishment*, a third indicator of teacher burnout, is evidenced by self-evaluation relative to job performance and expectations of future goal attainment. Teacher burnout factors are associated with isolation from colleagues and disassociation from students and other aspects of teacher work. In some cases, burnout factors are related to working harder but with desensitized automaticity. These variables impact selection and implementation of intervention strategies (Farber, 1991; Maslach & Jackson, 1986; Jackson, Schwab, & Schuler, 1986).

Selection and implementation of intervention.

The amount of time spent in structured, well designed, and appropriately prescribed instructional activities is directly related to student achievement (Evers et al., 2002). Highly effective teachers tend to sustain the elements of direct instruction and persist through elements of the instructional process when faced with obstacles in student mastery, behavioral management, or environmental change (Gibson & Dembo, 1984). Conversely, teacher burnout factors adversely affect the sustained implementation of interventions as well as the fidelity with which interventions are implemented. Given that teacher burnout is also related to high rates of attrition (Billingsley, 2004; Carlson &

Thompson, 1995), teacher absenteeism (Rudow, 1999; Wilson, 2002), and lowered expectations of student achievement in regular and special education settings (Tournaki, 2005), student learning can be expected to suffer. Evidence also supports that teachers' beliefs in their ability to teach account for individual differences in effective instructional delivery (Crawford, Brophy, & Evertson et al., 1977; Tournaki, 2005). Effective instruction is first contingent on the teachers' ability to select and implement interventions within their classrooms that are designed to improve student outcomes. Next, teachers must make appropriate referral and placement decisions when students demonstrate the need for specialized instruction. Teacher competence in both cases may be influenced by burnout factors.

Making referral and placement decisions.

Teachers experiencing the symptoms of burnout are likely to associate their perceived lack of control over problem behavior with the need for alternative placement (Gutkin & Hickman, 1988). For example, emotional exhaustion and depersonalization have been linked to the likelihood of inappropriate placement recommendations (Maslach, 1999). When teachers experience infrequent success in the management of students' problem behaviors or academic growth, teacher predictions of student success tend to diminish and can result in precipitous referral and inappropriate placement decisions (Egyed & Short, 2006; Kim & Corn, 1998; Pisecco, Huzinec, & Curtis, 2001; Tournaki & Podell, 2005). The direct and indirect impact on student outcomes that may result from factors related to teacher burnout warrant exploration into the determinants, as well as the prevalence, of the risk for teacher burnout.

Determinants of risk for teacher burnout. A number of work-related factors are consistently related to teacher burnout, but the degree to which these factors precipitate the onset of burnout varies across teacher samples. For example, in the case of role ambiguity, defined as a lack of clarity regarding a teacher's obligations, rights, status, and accountability (Byrne, 1999; Maslach, Schaufeli, & Leiter, 2001) Jackson, Schwab, and Schuler (1986) conducted pre and post surveys of 248 elementary and secondary school teachers. Following a one-year time lag between the first and second administration, the authors found a strong relation between role ambiguity and emotional exhaustion. Pierce and Malloy (1990) reported similar results in a study of 750 secondary teachers in 16 Australian schools that looked at differences between secondary teachers with high and low levels of burnout. However, role ambiguity was found to be a nonsignificant predictor of Emotional Exhaustion in another independent study by Friesen and Sarros (1989).

In a review of the literature conducted by Byrne (1999), several variables are empirically related to the construct of burnout with origins stemming from both organizational and personal levels. Organizational variables include role conflict, role ambiguity, work overload, decision making, and social support. Personal variables include gender, age, years of experience, marital/family status, grade level taught, and type of student taught, in addition to personality factors that include locus of control and self esteem.

Prevalence of Burnout.

The consequences of burnout are severe across all occupational fields, but in comparison, teacher-reported levels of job-related stress may surpass those of health care

professionals with regard to intensity and pervasiveness, perhaps due to the length and nature of the relationships teachers have with students (Travers & Cooper, 1993). Farber (1991) estimates approximately 5% to 21% of all teachers in the United States will be burned out at a given moment in their career. Evers et.al. (2002) report statistics provided by the Dutch State Employees' Pension Scheme (ABP, 1995) which state that in 1995, of all people declared disabled for work in the Netherlands, 44% were teachers who were no longer able to cope with the high work strain and the accompanying stress of teaching.

The statistical prevalence of teacher burnout in the United States has not been published. However, a search of the National Center for Education Statistics (NCES) data base produced results from three nationwide surveys suggesting the presence of known factors related to teacher burnout.

Schools and Staffing Survey (SASS). This survey was conducted by the National Center for Educational Statistics during both the 1993-1994 school year (n = 56,242, 86.4% response rate) and also the 1999-2000 school year (n = 56,354, 81.3% response rate), with final results prepared for dissemination in July 2005. A review of survey questions for content related to the influence of organizational variables on burnout produced response data from the following items (See Figure 1):

Figure 1. NCES Survey Items Related to Teacher Burnout

Table 72. Teachers' perceptions about teaching and school conditions by control and level of school: 1993 - 1994 and 1999 – 2000. *National Center for Education Statistics*	Percentage of teachers somewhat agreeing or strongly agreeing to statement	
	1993-1994 School year	1999-2000 School year
My principal speaks to me frequently about my instructional practices.	44%	45%
In this school, staff members are recognized for a job well done.	67%	68%
I am given the support I need to teach students with special needs (new item for 1999-2000 survey).	No data	61%

I feel it is a waste of time to try to do my best as a teacher.	27%	20%

These data indicate that less than half the nation's teachers reported receiving frequent evaluation of their performance from their principals, just over half reported that teachers in their schools are recognized for excellence, only 61% of all teachers during the 1999-2000 school year felt prepared to teach students with special needs, and approximately one fifth of U.S. teachers reported feeling that it is a waste of time to try to do their best as teachers. Further information provided through the NCES reported that 8.4% of the nation's K-12 teachers left education for alternate careers; an increase from 5.6% in the 1988 – 1989 school year. Organizational support for teachers increases efficacy and reduces the presence of risk factors associated with burnout. Frequent evaluative feedback, recognition, and consulting support are also known contributors to an optimal work environment (Friedman, 1999; Schlichte, Yssel, & Marbler, 2005).

Survey on Professional Development. A second survey conducted in 1998 by the U.S. Department of Education on Professional Development and Training included items that represented teacher-reported feelings of preparedness to do various activities in the classroom. Of those surveyed nationwide; only 21% of teachers with four-to-nine years of experience felt prepared to address the needs of students with disabilities, 70% felt prepared to maintain order and discipline in the classroom, and 44% reported feeling very well-prepared to implement new methods of teaching. These data support the prevalence of risk factors associated with burnout, specifically, negative self-evaluation with regard to preparedness and capacity to teach (Maslach & Jackson,1986; Maslach, 1999).

Burnout as a developmental process.

Burnout can begin in any phase of a teaching career, but is most often seen within three to five years after initial teacher induction. While onset is highly individual and related to multiple variables and risk factors, some teachers are susceptible to burnout in the first year of hire (Fives, Hamman, & Olivarez, 2007; Maslach et al., 2001). Early burnout is related to lack of experience, poor teacher induction, absence of mentoring, and failure of the school culture to provide informal social support. Longitudinal studies extend these findings to suggest three conclusions: a) Role conflict and lack of social support from other colleagues appear to precede the onset of burnout; b) burnout predicts the gradual worsening of physical symptoms and slow, steady disengagement over a five-year period that includes thoughts of job withdrawal, decompensation of job performance, and job dissatisfaction; and c) the level of burnout, once it is established, appears relatively stable over time (Maslach, 1999; Taris, LeBlanc, & Schaufeli et al, 2005). With an expanding knowledge base describing the construct of teacher burnout, it is possible to now explore the impact burnout may have in the classroom and on the manner in which teachers intervene to improve student outcomes.

Impact of Burnout on the Intervention Process.

If teachers are vulnerable to the effects of burnout, students are vulnerable to the consequences of those effects through the intervention process. Greene (1995) observed and coded student-teacher exchanges during teacher implementation of classroom management techniques designed to address problem behaviors and found those exchanges to have reciprocal rather than unidirectional effects. The tendency for students and teachers to bring out the best and the worst in each other implies a shared experience during instruction rather than one in which teachers have sole influence over the success

or failure of an instructional exchange (Greene, 1995; Tournaki, 2005). Teachers experiencing the effects of Emotional Exhaustion and Depersonalization exhibit a decreased capacity and interest in ensuring that instructional exchanges are mediated by meaningful communication and effective implementation. Furthermore, burnout diminishes a teacher's willingness to accept and incorporate revisions to familiar instructional or management techniques (Maslach et al., 2001).

If interventions are perceived as relevant to the needs of students, not only are teachers more likely to implement them, but a higher quality of fidelity is also likely to occur. If interventions are not valued or considered relevant, teachers are less likely to implement the intervention with sufficient frequency or fidelity, thereby limiting the success of the intervention or eliminating it (nonimplementation) and depriving students of needed instruction (Witt & Elliott, 1985). Teacher burnout, though significant, is only one of numerous factors that influence teacher acceptance of an intervention (Sterling-Turner & Watson, 2002). Sparks (1983) found that ratings of the importance of an intervention were significantly related to implementation but that ratings of the degree of difficulty of an intervention were highly individualistic and unrelated to the implementation of new innovations. A number of other factors known to effect implementation include perceived level of utility, cost-benefit ratio in terms of daily effort, teachers' levels of satisfaction with how soon benefits of the intervention become markedly evident, sustainability (persistence and fidelity over time) of the intervention, teacher attitude toward the design, convenience of use, and the compatibility of the intervention with the teacher's beliefs about what efforts are reasonable, given the type of behavioral issue being addressed (Angers & Machtmes, 2006; McConnachie & Carr,

1997). While studying teacher decision making, Doyle and Ponder (1977) found *instrumentality* (the clear and specific presentation of a practice), congruence (how well the practice is aligned with the teacher's present teaching philosophy and practices), and cost (the ratio of benefit to time and effort) to significantly influence a teacher's degree of implementation of a new innovation.

Although the literature on teacher acceptance of intervention reports numerous influences affecting teacher reception to interventions, the gravity of teacher burnout should be considered separately and with critical importance. Teacher burnout implies the breakdown of physical health, emotional well-being, and willingness to consider innovative classroom practices. Teachers who are resilient and confident in their ability to teach tend to modify, accept, or reject innovative intervention for reasons that are constructive, thoughtful, and in the best interest of student need (Patterson, Collins, & Abbott, 2004). Teachers who are significantly affected by the symptoms of burnout often choose to avoid, minimize, and devalue innovations in an effort to conserve energy and divert additional stressors (Guskey, 1988). These consequences warrant the further study of burnout as a determinant of implementation and fidelity.

Adherence to Intervention: Definition and Monitoring. Much of the research on implementation of intervention has been conducted in the area of mental health, specifically in structured treatment programming. Within these studies, fidelity and integrity are used interchangeably and are generally defined as conformity with prescribed elements and absence of nonprescribed elements. Baer, Wolf, and Risley (1987) define treatment integrity as a principle that ensures we are staying within an effective range of whatever it means to remain sufficiently effective. Bramlet (1994)

defines fidelity as the degree to which an intervention is implemented as it was intended to be implemented but goes further to present implementation and fidelity as conceptually different constructs. Using the term *adherence,* Bramlet references the general commitment of a consultant to *both* implementation and fidelity. For example, program models that demonstrate high levels of adherence and include the monitoring of both implementation and fidelity report more favorable outcomes, such as lower staff and client attrition and fewer days of client hospitalization or incarceration. These findings are considered in comparison to treatment programs that provide less vigilant monitoring of adherence and report less favorable outcomes (Henggeler, Melton, & Brondine et al., 1997; Henggeler, Schoenwald, & Liao, 2002). While in past years adherence to intervention has been conceptualized most often in the mental health literature, recently the term has found a place in education as a single reference for two distinct but related constructs.

Implementation and Fidelity as Indicators of Adherence.

Not all instructional interventions need to be implemented for long periods of time to be effective, but structured intervention plans, like prescribed medications, must consider the three elements of dosage: strength, intensity, and duration of treatment, in proportion to student need (Yeaton & Sechrest, 1981). Failure to do so would result in the misapplication of an intervention that logically produces poor outcomes. Strength of treatment refers to the appropriate fit of an intervention to the type and severity of need. In a medical model, once the treatment of best fit has been determined, the elements of intensity and duration are considered. In a classroom-based education model, the intervention of best fit is determined through formal and informal assessment and the

remaining elements of implementation (did the intervention occur) and fidelity (to what degree did it occur as it was intended) are considered. While the two elements of adherence (frequency of implementation and quality of fidelity) are synchronous (both occur in relation to the other and at the same time), they are not synonymous. Differentiation of these two elements within the context of a prescribed educational intervention is critical to the flexible use of an intervention and the teacher's ability to individualize the intervention to accommodate student needs (Telzrow, McNamara, & Hollinger, 2000; Yeaton & Sechrest, 1981).

When implementation and fidelity are not separately accounted for within the construct of adherence, three things may occur: a) Differences in outcomes may be attributed to an arbitrary set of circumstances considered outside of the teacher's control; b) teachers may misuse an intervention and then chose not to implement it because they did not realize the expected benefits, and c) teachers may find it difficult to adjust or calibrate core elements of the intervention to improve student outcomes. In some cases, haphazard instruction, without an effective system of monitoring adherence, may be partially effective, and despite weaknesses in implementation, the majority of students may reach some degree of success, particularly when broad parameters for mastery are tolerated. However, within every classroom there are those students who do not respond to universally applied interventions. These are the students for whom monitoring of the distinctly separate elements of adherence to the intervention plan is essential so that data-based decisions can be made to adjust an intervention to meet individualized student need.

Summary of Research Questions

(1) Do teacher burnout factors predict adherence to implementation?

(2) If so, does preintervention teacher belief mediate the influence of teacher burnout on adherence?

Summary of Key Terms

Burnout: A stress-related syndrome consisting of three empirically separate but related factors: a) Emotional Exhaustion, b) Depersonalization, and c) Lack of Personal Accomplishment.

Efficacy: The extent to which an individual believes he or she has the capacity to organize and execute that which is necessary to produce desired outcomes.

Implementation: The execution of an intervention.

Fidelity: The degree to which a teacher performs an intervention in the way it was intended to be implemented.

Adherence: The "general" commitment of a teacher to *both* implementation and fidelity (Bramlet, 1994).

CHAPTER II

RELEVANT RESEARCH

Self-efficacy and burnout are supported as interrelated factors within the realm of teacher characteristics. Differing theories about which factor precedes or predicts the other are numerous and varied, but virtually all of the literature consulted for this review presents burnout and self-efficacy as malleable and sensitive to contextual and environmental influences (Rowe, 1999). Pervasive evidence in research examining teacher behavior also supports the severe consequences of low self-efficacy and moderate-to-high levels of burnout on teacher performance and student outcomes. The purpose of this chapter is to provide a more detailed discussion of the theoretical development and empirical work that has led to our current understanding of *teacher burnout* and the effects of teacher burnout as it specifically relates to adherence to intervention. The review will begin with the theoretical background of self-efficacy research as it originated from the work of Rotter (1966) and Bandura (1977). Next, an explanation of the current literature-based conceptualizations of *teacher efficacy* and teacher burnout will be presented and followed by evidence that suggests teacher performance behaviors as observable and measurable indicators of teacher efficacy. A discussion of teacher behavior, as it is juxtaposed within the literature to teacher burnout, will then be presented. Finally, the chapter will conclude with empirical support for the hypothesis that teacher burnout may influence adherence to an educational intervention.

Theoretical Background of Self-Efficacy Research.

Some of the first theoretical underpinnings of self efficacy research are found in Rotter's 1966 paper "Generalized expectancies for internal versus external control of

reinforcement." A landmark article for its time and cited over 2,735 times between 1966 and 1981 (Social Sciences Citations Index) Rotter expanded earlier conceptions of internal and external control of human behavior. Much of the work cited in the article was done in collaboration with students and colleagues and served to redefine the fundamental idea of *internal locus of control.* Rotter defined internal control as the degree to which an individual perceives reinforcement to have come about through a direct result of his own actions or relatively permanent characteristics. Conversely, he defined external control as the degree to which an individual perceives that the occurrence of reinforcement following an individual's action is not entirely contingent on his own effort but upon some agent of luck, fate, or random chance. Rotter founded this work on his *Social Learning Theory* (Rotter, 1954), a general background conceiving of the nature and effects of reinforcement. Rotter's theory posited; "reinforcement acts to strengthen the expectancy that a particular behavior or event will be followed by that reinforcement in the future" (James & Rotter, 1958; Rotter, 1966). Once a reinforcement history is established, Rotter posits that the individual differentiates between those situations in which reinforcement was perceived to be contingent on the subject's own behavior or perceived to be the result of forces outside the subject's personal control.

In application, Social Learning Theory would support that teachers who are confident in their ability to influence student learning, regardless of student behaviors and environmental influence, will expect that reinforcement of their teaching activities lies *within their control* and is internal to their control. Teachers who are less confident in their ability to influence student learning perceive that the influence of the environment supersedes their ability to have an impact on the student's learning and expect that

reinforcement of their teaching efforts is *outside their control* or is external to their control.

In 1976, the RAND Corporation, a non-profit research and development organization studied and published the effects of various reading programs on minority students. Interested in Rotter's theory of internal and external locus of control, the researchers utilized a 26-item Lickert-type scale designed by Phares, one of Rotter's students, to examine locus of control as it relates to skill mastery. The measure included 13 items stated as internal attitudes and 13 items stated as external attitudes and was designed to measure individual differences in generalized expectancy within separate chance and skill effects. Individuals were randomly assigned to groups and assigned tasks that were reinforced either by chance with random arbitrary frequency or by skill as the result of individual mastery (Phares, 1957). Results of the study indicated that those individuals with high internal locus of control exerted a greater amount of effort within the chance condition and persisted through higher levels of skill mastery in the skill condition than those with high external locus of control. RAND researchers administered the measure to minority students and found locus of control to be strongly related to individual differences in reading scores.

Just after the period that RAND was expanding on Rotter's theories, Alfred Bandura presented his definition of self-efficacy as the belief in one's own capabilities to organize and execute the courses of action required to produce given attainments. Employing his *Social Cognitive Theory* (1977), Bandura emphasized what he perceived as a gap in Rotter's theory, saying that previous efforts to define the concept of efficacy centered on the acquisition of knowledge or the execution of response patterns and that

Rotter's theory neglected the interrelation between knowledge and action. Bandura suggested "self-referent thought" as the missing link in foundational theories of human behavior and stated that included within those theories must be the consideration of the processes by which people judge their own capabilities, affect their own motivation, and assess their own capabilities. These internal evaluations, according to Bandura, calibrate individual levels of self-efficacy, which, in turn, determine how individuals will behave, how they emotionally respond to stressful situations, and their choice of activities, and preferred environmental settings. Bandura further posited that people will chose activities in which they have sufficient ability and resources, and they will avoid activities that exceed their performance or coping capabilities. Therefore, Social Cognition Theory would support that those individuals with high self-efficacy are more likely to persist in the face of difficulty or aversive experiences, more often able to withstand failures, and are willing to invest higher levels of cognitive energy to learn new problem solving strategies. Those individuals with low self-efficacy are more likely to experience self-doubt, dwell on past failures, judge themselves as inefficacious in coping with environmental demands, and perceive potential obstacles as greater than they, in fact, really may be.

Social Cognition Theory differs from Social Learning Theory in the assessment of individual efficacy. Phare's (1957) measure, influenced by Rotter's work, used skill performance and self-report to study the effects of expectancies on reinforcement. The measure consisting of 26 dichotomous items produced a score indicating high or low levels of internal or external attitudes. The score, when correlated with other measures of performance confirmed Phare's hypothesis and Rotter's theory supporting history of

reinforcement as the determinant of high or low self-efficacy. In comparison to Rotter's definition, Bandura presented teacher efficacy as a future-oriented predictive belief about the level of competence a person expects to have in a given situation. Is this case, the assessment of high and low efficacy is reliant only upon measures of self-report. The scores reflect beliefs influenced by thought patterns that determine future action. (Bandura, 1977).

Teacher Efficacy.

While teacher efficacy is a parsimonious reference to the relation between self-efficacy and teacher behavior, the terms *teacher efficacy* and *self-efficacy* are often used interchangeably within the literature. First used by Berman (1977) and defined as the "extent to which the teacher believes he or she has the capacity to affect student outcome," Berman and colleagues utilized Phare's (1957) measure and conceptualized the resulting scores as a measure of teacher efficacy. Berman determined the scores to be strong predictors of teacher implementation and sustained use of federally funded programs after funding had ended (Berman et. al., 1977). The RAND Corporation launched another study one year later, adopting Berman's term and adding two additional items to Phare's original measure:

#1 When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment.

#2 If I try really hard I can get through to the most difficult or unmotivated students.

The second RAND study found that “teacher efficacy” scores were strong indicators of student performance, project goals achieved, and continued use of project materials and resources.

Over the next decade and within the framework of his Social Cognition Theory, Bandura expanded alternate ideas about teacher efficacy suggesting that determinants of teacher efficacy consist of four sources of information. First, *enactive mastery experiences* are those experiences that heighten self-efficacy and determine the degree to which a teacher will develop a sense of competence within specific contexts of instruction or classroom management. Second, *vicarious experiences* enable teachers to observe and learn indirectly from the experiences of others and then judge whether they too possess the capability to master those same experiences. Third, *verbal persuasion* (essentially, encouragement) is used to convince others that they have the capabilities to achieve what they seek and can contribute to the successful performance of others if it is within realistic bounds. Fourth, *physiological state* relays information to an individual about his or her visceral arousal in stressful and taxing situations (Bandura, 1986, 1997). In summary, Bandura posited that people are more likely to expect success when they are not anxious or agitated. Chronic fatigue, aches, and pain indicate physical vulnerability and contribute to a lowered sense of efficacy (Bandura, 1982; Evers, Brouwers, & Tomic, 2002). In 1984, Gibson and Dembo developed a 30-item scale to measure teacher efficacy and provided construct and discriminate validity to empirically support further efficacy studies. Later in 1998, Tschannen-Moran, Woolfolk-Hoy, & Hoy (1998) created a shortened version of the Gibson and Dembo (1984) Teacher Efficacy Scale (reduced from 30 items to 10 items) and created content specific versions of the scale to

accommodate evidence that teacher efficacy varies within context and situation and in relation to particular academic areas or certain types of students.

There is a distinction between Bandura's theory of teacher efficacy and Rotter's theory of teacher locus of control. Bandura's point that *beliefs* about whether one can produce certain actions through perceived self-efficacy is conceptually different from Rotter's point that it is not one's beliefs, but rather the conditioned *expectancy* that the outcome will be related to either internal or external controls. However, there is agreement between the two theories as both clearly posit that when teachers believe contingencies outside of their control override their attempts to teach or affect student learning, they tend toward more depersonalized and custodial classroom methodologies. This paradigm reduces the chance that teachers will contact desired and expected reinforcement of his or her teaching efforts. When the ability to make a difference in the life of a student seems improbable and remote, whether of belief, expectancy, or perception, teachers acknowledge frequent and intense lack of accomplishment, demoralization, and disillusionment with their careers (Lunenburg, 1992) all of which are consistent with indicators of *teacher burnout*.

Subsequent research in teacher behavior spanning past years reflects the differences and commonalities between the fundamental theories of Social Learning and Social Cognition. Advanced interpretations of those earlier works have resulted in the emergence of new theories that combine ideas from behavioral and cognitive principles. To advance our understanding of teacher behavior, it appears necessary to acknowledge the contributions of both behavioral and social cognitive perspectives. Regardless of theory, terminology, or method of measurement, the conclusions drawn by one researcher

more often confirm than refute those of another. Also, researchers from both theoretical camps report similar methodological limitations as they work to determine what teacher characteristics predict the buoyant resilience of one teacher and the futile despair of another.

Current Conceptualization of Teacher Burnout

Teacher Burnout is defined by Maslach (1976) as a three-component psychological syndrome of emotional exhaustion, depersonalization, and feelings of low personal accomplishment. *Emotional exhaustion* is the most central of the three burnout factors and is characterized as a depletion of emotional and physical resources (Maslach et al., 2001). *Depersonalization* occurs when teachers distance themselves from their students and become indifferent to their needs and qualities as individuals in an attempt to cope with discouragement and cynicism (Maslach et al., 2001). Reduced *Personal Accomplishment* is derived from feelings of inefficacy (Jackson, Schwab, & Schuler, 1986) when teachers no longer believe their actions can affect positive change. Negative self-evaluation and a perceived sense of helplessness accompany the belief that efforts to influence successful outcomes are futile and out of reach (Evers et al., 2002; Jackson et al., 1986). Maslach's theoretical framework for teacher burnout is predominant in the field of occupational burnout.

In a study conducted by Evers et al., (2002) the onset of burnout was studied during the initiation of a novel, broad-scale intervention designed to increase creativity and independent work habits among Dutch high school students. The sample included 490 secondary, general education teachers from the Netherlands. The teachers completed three questionnaires: The Maslach Burnout Inventory, a questionnaire on teachers'

attitudes concerning the usefulness and effectiveness of the intervention, and a self-efficacy questionnaire. The latter questionnaire was designed to measure three domains specific to the study: a) guiding groups of students using differential instruction, b) involving students with tasks, and c) use of innovative educational practices. Teacher efficacy beliefs for domains 1 and 2 were significantly and negatively related to Depersonalization (domains 1,-.16, $p < .01$; domain 2, -.34, $p < .001$). For example, those teachers who reported greater confidence in their ability to implement the instructional intervention and engage students with tasks were less likely to report depersonalization. Teacher efficacy beliefs for domain 3 were significantly and negatively related to Emotional Exhaustion (domain 3, -.60, $p < .001$). For example, those reporting confidence in the use of innovative educational practices were less likely to experience Emotional Exhaustion. In this case, beliefs reflective of high teacher efficacy were negatively related to Depersonalization and Emotional Exhaustion. All three domains were significantly related to Personal Accomplishment with correlations of .32, .13, and .33 respectively. Beliefs reflective of high teacher efficacy were positively related to higher levels of satisfaction with personal accomplishment.

A second study, conducted by Tournaki and Podell (2005), found that teachers with high efficacy are more likely to facilitate inclusion, adapt instruction to the needs of special education students, take greater responsibility for their own actions, and persist when faced with obstacles to student learning. Within a sample of 384 teachers, each was randomly assigned to one of 12 experimental conditions. Each participant read one of 32 versions of a case study developed by the authors. Each example varied the gender and characteristics of a child with learning and behavioral problems. Using a 4-point Lickert

scale, teachers indicated their level of agreement (from strongly agree to strongly disagree) with a statement about the child. Teachers also completed the 16-item version of the Teacher Efficacy Scale (TES) designed by Gibson and Dembo (1984). The TES was designed to measure teacher efficacy using a 6-point Lickert Scale. Results of the study indicated that teachers with greater confidence in their capacity to affect student learning tended to adjust their predictions of student success to the general character and needs of their students. In comparison, their counterparts with less confidence in their professional capacity were prone to focus on single problematic characteristics when predicting future outcomes. Additionally, the authors found that teachers with high efficacy had less custodial views of their classroom role, used more positive methods of student engagement, and focused more often on preventative rather than restorative classroom management techniques. The authors reported internal consistency reliability of .79.

Teacher Efficacy and Teacher Burnout as Related Concepts

The combined traits of low teacher efficacy and teacher burnout have an effect on the confidence teachers have in their ability to carry out effective interventions, their willingness to implement new interventions, and the conditions under which teachers will seek consultation for help in treating problematic student behaviors over alternative student placement (Evers et al. 2002; Friesen & Sarros, 1989; Han & Weiss, 2005; Sparks, 1988). Teachers who carry low expectations that an intervention will produce a desired outcome may not accept or utilize behavior change interventions with close adherence to the procedure, nor will they persist if progress is perceived to be slow (Evers, et al., 2002; Han & Weiss, 2005). In a study with 120 teachers who participated

in a staff development program, Guskey found that teachers who scored low on a measure of teacher efficacy were less likely to rate the practice of mastery learning as valuable or congruent with their philosophies. On the other hand, efficacious teachers tended to rate the practice as important (r = 0.42), more congruent with their current teaching practices (r = 0.36), and less difficult to implement (r = -.33). However, the ratings of cost-to-benefit of the practice were unrelated to the perceptual variables or to ratings of the importance of mastery learning. Teachers who perceived mastery learning as compatible with their present teaching practices rated mastery learning as less difficult to implement (r = -.50), requiring less work (r = -.40), and highly important (r = .37). Those who rated mastery learning as very different from their current practices rated implementation as much more difficult, requiring a great deal of extra work and therefore much less important as an instructional practice (Gusky, 1988). While teacher burnout was not formally measured in this study, traits empirically related to burnout are evident in the author's reported results and specifically include negative teacher attitude toward novel innovations and tendency toward nonimplementation. Brouwers and Tomic (1999, 2000) demonstrated that teachers' beliefs about classroom management were significantly related to their burnout level. In addition, these authors report that teachers with high efficacy are more readily available and willing to implement novel educational practices and less likely to experience burnout than their colleagues with low teacher efficacy (Brouwers & Tomic, 1999; Evers et al., 2002; Jackson et al., 1986).

A qualitative research study that investigated strategies used by urban teachers to build and sustain personal resilience and avoid burnout resulted in four key findings: a) resilient teachers act out of a set of core values that guide their professional decision

making; b) resilient teachers place value and importance on professional development and look for outside opportunities to get what training they need; c) resilient teachers stay focused on students and learning outcomes, and (d) resilient teachers act as mentors to other teachers. Additional commonalities among resilient urban educators included the absence of "victim mentality," a flexible attitude to the exploration of new ideas, and the availability of friends and colleagues who support their work emotionally and intellectually (Patterson et al., 2004).

The literature on teacher efficacy and burnout converges in a common set of teacher characteristics that indicate the effects of work-related stress and emotional depletion. Teachers who have high efficacy and report low levels of burnout are more likely to: a) adapt teaching to special needs, b) take greater responsibility for their own actions, c) persist when faced with obstacles to learning, and (d) tend to value preventative rather than restorative approaches with regard to student behavior (Tournaki, 2005). Teachers who have low efficacy and report higher levels of burnout are more likely to: a) use a one-size-fits-all approach to special needs, b) accept minimal responsibility for a student's lack of achievement (blame lack of success on external factors outside of teacher control), c) implement treatment with low fidelity or resort to nonimplementation, and (d) show preference for consequence over antecedent-based management strategies (Evers, et al. 2002; Mavropoulou & Padeliadu, 2002, Maslach et al., 2001; Pisecco, Huzinec, & Curtis, 2001; Tournaki, 2005) .

Influence of Teacher Burnout on Adherence to Intervention Plans

Adherence to intervention is influenced by a number of variables and begins with the extent to which the teacher receives and is willing to implement the intervention (Han

& Weiss, 2005). In some cases, reception to a new treatment approach is determined by whether the intervention was chosen by the teacher or mandated, the extent to which the intervention is considered valuable and appropriate to the severity of student need, the degree of intrusiveness, the ease of use, and whether the intervention is compatible with the teacher's personal beliefs and values (Guskey & Passaro, 2001; Allinder & Oats, 1997). Acceptance of a new intervention occurs to the extent that a teacher is open to innovation, unthreatened by change, and willing to persist through an initial period of training and trial and error as the treatment becomes familiar and finds a place in the teacher's repertoire. Teachers with high efficacy will exhibit these efforts more often than teachers with low teacher efficacy (Day, Elliott, & Kington, 2005; Evers et al., 2002; DeMesquita & Drake, 1994). Because the literature clearly links beliefs of teacher efficacy with characteristics of burnout, it is assumed that burnout influences teacher acceptance of new interventions (Evers et al., 2002; Guskey et al., 2001). For example, Emotional Exhaustion is linked to the amount of energy and personal resource teachers feel they can afford to invest in new programming. Depersonalization is evident when teachers divest in further efforts to meet individual student needs. At this point of burnout, teachers tend to choose a universal approach and struggle to acknowledge the benefits of trying new ways to improve student learning. Teachers experiencing burnout are often no longer engaged in the types of enactive experiences that create new performance histories and thus restore teacher efficacy. Chances to experience new success are impeded when teachers disengage and perceive that they are no longer effective as teachers. In this state, teachers may either reject new innovations or receive them with low expectations and a low level of commitment (Day et al., 2005).

While empirical evidence linking burnout factors to adherence to implementation is not yet available, the association of burnout with other negative teacher outcomes suggests that teachers who experience burnout are likely to invest low amounts of effort in instructional behavior, with probable consequences for the implementation and sustainability of effective treatment. Furthermore, the effects of burnout appear to be related to the beliefs a teacher may hold regarding the value and utility of an intervention (Day et al., 2005; Yeaton et al., 1981). If continued effort is perceived as futile with respect to student learning, those beliefs can be expected to influence the quality of adherence (Evers, et al. 2002; Gusky, 2001).

The literature calls for further investigation into the effects of teacher burnout on student learning. Several studies support the critical relation between successful student outcomes and program adherence that includes ongoing feedback and monitoring of procedural fidelity (Han & Weiss, 2005; Telzrow, McNamara, & Hollinger, 2000; Kovaleski, Gickling, & Morrow, 1999; Henggel, Melton, & Brondine et al., 1997). In a study conducted by McGrew, Bond, & Dietzen et al., (1994) the authors found that only 49% of teachers who were trained to carry out a community-based intervention actually implemented the program any more than one to two times, due to reported conflicts with job duties and time constraints. Without support provided through coaching and procedural monitoring, the teachers deviated from the intervention to accommodate environmental conditions that hindered the implementation and fidelity of the intervention. In another example, the use of Multi-Systemic Therapy, which incorporates empirically based treatments with a rigorous quality assurance system, indicated a

positive relation between high level of support for therapists and high levels of adherence and treatment outcomes (Schoenwald, 2000).

Because teacher burnout is a known deterrent to ideal instructional behavior, the relation between teacher burnout and adherence to intervention is warranted. Furthermore, investigation into the possible influence of burnout on preintervention teacher beliefs regarding the value and utility of a new intervention will contribute to our current understanding of the effects of teacher burnout on teacher receptivity and commitment to adherence.

Summary of Research Questions

1. Does teacher burnout predict adherence to intervention?
2. If so, does preintervention teacher belief about an intervention mediate the influence of teacher burnout on adherence?

CHAPTER III

METHODS

The methods used within this study were designed to address the following primary questions: Do teacher burnout factors predict adherence to intervention? If so, do preintervention teacher-reported beliefs about an intervention mediate the relation between burnout and adherence?

Participants

This sample included 45 elementary teachers from general and special education classrooms who had previously volunteered to participate in a larger longitudinal experiment, the Vanderbilt Behavior Research Center (VU-BRC; sponsored by the Institute of Education Sciences, #H324P040013), being conducted in three major metropolitan areas. Teachers were recruited from urban school districts in the states of Virginia, Tennessee, and Minnesota. District demographics for participating schools across the three sites reported an overall average enrollment of 409 students per school (Black, 60%; White, 21% ; Asian/Pacific Islander, 4%; American Indian, 3%), 78% of which qualified for free or reduced lunch (See appendix A for a breakdown of data by site). Criteria for teacher participation in the VU- BRC included the presence of one or more classroom students who met the eligibility criteria for being at risk for severe behavior problems as identified by the Systematic Screening for Behavior Disorders (Walker & Severson, 1992). From the original sample of 120 classrooms with qualifying students, with school as the unit of random assignment, 45 classrooms were randomly assigned to a treatment condition designed to test the effects of a multicomponent

intervention package on the academic performance and social behavior of K-4th grade students, when compared to same age controls. All 45 teachers in the treatment group of the larger project were included in this complementary study. Demographic data for this sample contain information for years of service (range, 1 – 32; median, 5.5; μ = 10.12), gender (male *n* = 7, 15.5%; female *n* = 36, 80%; no response or missing data *n* = 2, .04%), and professional role (general education *n* = 15, 33%; special education *n* = 20, 44%; other *n* = 9, 20%, no response or missing data *n* = 2, .04%).

Measures

To address the relation between teacher burnout and adherence to intervention, individual factors of burnout were identified as predictor variables and measured through use of the Maslach Burnout Inventory – Educators Survey (MBI-ES). This inventory was administered prior to starting treatment. Outcome variables that comprise treatment adherence are based on data that were gathered across a 29-week treatment phase. Weekly observations and consultations were used to calculate the percent of total weeks of implementation and total quality of fidelity scores summed across weeks. Also addressed was the possible mediating effect of teacher beliefs on the relation between burnout and adherence through quantified responses gathered from a specially designed Teacher Survey, administered during the pretreatment phase.

Predictor Variables: Emotional Exhaustion, Depersonalization, and Personal Accomplishment

The Maslach Burnout Inventory- Educator Survey (MBI-ES) was distributed in October of the 2006 school year to participating teachers who were asked to complete the inventory and return it to their consultants within a two-week period. Scores for

Emotional Exhaustion, Depersonalization, and Personal Accomplishment represent levels of burnout at the initial point of implementation and stand, therefore, as hypothesized predictors of the outcome variables. The MBI-ES is an alternate version of the original Maslach Burnout Inventory (MBI) and measures the same three burnout dimensions as the MBI. The MBI-ES is nearly identical to the MBI except that the use of the word *recipient* has been changed to *student*. This inventory is a 22-item measure using self-report along an ordinal seven-point rating scale anchored with a 0 – 6 rating scale (see Appendix B for measurement protocol). Scores are orderable-discrete with higher ratings indicating more frequent occurrences of feelings described for each item (every day, once per week, once per month, etc.). The inventory, previously selected for use in the larger experimental study, measures three burnout factors identified by Maslach as: a) Emotional Exhaustion (EE), b) Depersonalization (DP), and c) Personal Achievement (PA). In the published MBI manual (3rd edition, 1996) Maslach cites two studies that substantiate the validity and reliability of the MBI-ES. In the first, a 1981 study with 469 Massachusetts teachers, Iwanicki and Schwab report Chronbach alpha estimates of .90 for Emotional Exhaustion, .76 for Depersonalization, and .76 for Personal Accomplishment. The second study, conducted by Gold (1984) with a sample of 462 California teachers, reported estimates of .88, .74, and .72 respectively. Factor analyses conducted during both studies support the three-factor structure of the MBI-ES. Although the three burnout factors are individual indicators of burnout, Maslach reported a positive and significant intercorrelation between the MBI subscales of Emotional Exhaustion and Depersonalization (.52) and negative and significant intercorrelations between Emotional

Exhaustion and Personal Accomplishment (-.22), and Depersonalization and Personal Accomplishment (-.26) (Maslach et al., 1996).

The scoring key for this inventory directs the user to cluster items specific to each of the three burnout factors and then to calculate summative scores for each factor (subscale). Scores for Emotional Exhaustion are considered low within the range of 0 – 16, moderate within the range of 17 – 26, and high if they are over 27. Scores for Depersonalization are considered low within the range of 0 – 6, moderate within the range of 7 – 12, and high if they are over 13. The scale is reversed for Personal Accomplishment. This yielded a range of possible scores for Personal Accomplishment from 0 to 48, with scores considered low (minimal *dissatisfaction with* personal accomplishment) if they are over 37, moderate within the range of 31 – 36, and high within the range of 0 – 30 (see Table1). To examine descriptive group characteristics of this sample, raw scores for each participant were averaged to report a group mean for each subscale: Emotional Exhaustion (M = 19.476, SD = 10.899), Depersonalization (M = 3.190, SD = 3.528), and Personal Accomplishment (M = 41.428, SD = 6.231).

Table 1.

Maslach Burnout Inventory for Educators Interpretation of Scores.

Subscale	Low Burnout	Moderate Burnout	High Burnout
Emotional Exhaustion (EE)	0 – 16	17 – 26	27+
Depersonalization (DP)	0 – 6	7 – 12	13+
Personal Accomplishment* (PA)	37+	31 – 36	0 –30

* Scale is reversed for Personal Accomplishment. Low Burnout category scores indicate low levels of dissatisfaction with Personal Accomplishment.

Reliability coefficients using Chronbach's Alpha estimates for this sample are .87 for Emotional Exhaustion, .62 for Depersonalization, and .87 for Personal Accomplishment.

Outcome Variables: Adherence to the Good Behavior Game (GBG)

Of primary interest in this study is the relation between the predictor variables of teacher burnout and outcome variables of percent of total weeks of implementation (Implementation) and quality of fidelity (Quality of Fidelity), which, for the purposes of this study, are considered to constitute Adherence. Data supporting the outcome variables were collected through weekly observation during implementation of the Good Behavior Game (GBG), yielding a) documentation of observed implementation or nonimplementation and b) summative scores derived from ratings of quality of fidelity per instance of implementation. Consultants visited each teacher during a regularly scheduled time each week to perform primary tasks relevant to the larger study. Tasks relevant to this study required that consultants observe weekly implementation of the GBG, provide support and feedback to teachers regarding aspects of basic classroom management, and monitor the effective use of the GBG procedure. The GBG is designed to be compatible within a variety of instructional contexts; therefore daily use for a minimum of 10 minutes was determined to be a reasonable request. Approximately 26 direct observations were possible during the 29-week period of observation with allowances recognized for holidays, school breaks, and state testing.

Percent of total weeks of implementation. During weekly direct classroom observation, evaluation of GBG implementation was conducted through use of a checklist documenting observations of core elements of the intervention for each week of

implementation. Weekly observation times were arranged to accommodate reports from the classroom teacher as to when the GBG would be implemented and to maximize the likelihood of capturing actual implementation each week. To accommodate natural fluctuations in the daily schedule, the observer also planned to be present in the classroom at least 10-15 minutes before the teacher's reported start time of GBG. To calculate percentage of weeks implemented for each teacher, the number of observed weeks of implementation was divided by the expected number of weeks of implementation.

Ratings of Quality of Fidelity. Quality of Fidelity for each item was rated on a rating scale with a range of 1-5, with 1 for "not implemented" and 5 for "implemented with full fidelity." Ratings were assigned to each core element listed on the implementation checklist. A summative fidelity score was calculated by adding the rating scores for quality of fidelity across all 18 items on the fidelity rating scale for each observation of implementation. Fidelity scores for each observation were then added to confirm a total Quality of Fidelity score for each teacher.

When evaluating the quality of the fidelity of implementation with an ordinal rating scale, the resulting score is considered a discrete variable as it is always reported as a whole number. In this case, the observer indicates which number, ranging from 1 to 5 best describes the teacher's quality of fidelity in comparison to a predetermined standard. Through use of the rating scale, we have essentially ranked each teacher's quality of fidelity for each core element on a scale that will allow for a more detailed analysis of factors related to implementation. If implementation occurs, fidelity is always present to some degree. Use of the rating scale creates an opportunity to begin to objectify the

quality of implementation. Use of discrete data implies that there may be a nonsymmetrical distribution of scores across observations and a restricted range of scores. For this reason, a summative score was used to maximize the range of distribution. As a final note, while Implementation and Quality of Fidelity comprise Adherence, scores from each were intended to stand alone and were not combined to create a total score for Adherence.

Beliefs about utility of intervention.

Our secondary research question was addressed through the use of an online survey designed to investigate attitudes toward intervention among our participating teachers. Of interest was whether teacher belief regarding the value and utility of an intervention would mediate the relation between burnout and adherence. The 14-item survey consisted of three initial questions asking for teacher ID, information about years of service, and educator role. Of the 14 items used for the survey, two were selected for this study addressing teacher beliefs regarding the value and utility of the intervention.

11. *With what parts of the program (Reading Tutoring, Good Behavior Game, tape recording of lessons, COMP, consultant support) do you have the GREATEST confidence as you anticipate meeting your student's specific needs this year? Please explain.*

12. *Based on your experience so far, if the project ended today, what components are you likely to continue implementing on your own and what components will you likely discontinue implementing (Good Behavior Game, tape*

recording of lessons, COMP, or some type of Reading Tutoring)? Please explain.

These attitudes are supported in the literature as being relevant to the study of teacher burnout, implementation, and fidelity (Fuchs, Fuchs, & Bishop, 1992; Gusky, 1988).

The online teacher survey was administered in October of the 2006 school year following teacher orientation to treatment components and resulted in a 71% response rate (32 out of 45 participants). Each survey was identified by an ID number accessible only to the primary investigators of this study. The survey was presented through a secured Internet-based survey tool (www.surveymonkey.com), which enabled the contained management of all data and ensured confidentiality for participating teachers. Teacher responses to question 11 and 12 were coded using a dichotomous score of either 1, statements indicating lack of confidence with the GBG, or 2, statements indicating confidence in the GBG. In the event that the GBG was not referenced in a response, a score of 0 was given as there was no way to infer teacher confidence in the GBG if no reference was made in the response. The scores from each item were combined to create one final score of either 1 or 2. When a score of 1 was paired with a second score of 1, the final score was recorded as 1. When a score of 2 was paired with a second score of 2, the final score was 2. If a score of 0 for no reference was paired with a second item score of 1, indicating lack of confidence in the GBG, or 2, indicating confidence in the GBG, the score of 0 was cancelled and the value of the second item score was determined as a final score. Within the 32 sets of teacher responses, four such instances (when no

reference indicating confidence or lack of confidence with the GBG in one of the two items) occurred. Interobserver agreement (IOA) was calculated by dividing the number of scores observers agreed upon by the number of scores possible. Graduate students trained to code and score teacher responses achieved IOA of 100%. All teachers received a small stipend for participation in the survey.

Procedures

At the start of this study, each of the 45 participants along with the project consultants completed two hours of training for implementation of the Good Behavior Game (GBG), a classroom intervention designed to prevent and reduce the frequency of class wide problem behaviors (Barrish, Saunders, & Wolf, 1969). The GBG is supported in the literature as an evidenced-based tool that requires little or no set-up time, utilizes resources commonly present in any classroom, and can be used flexibly to accommodate the needs of individual classrooms (Darveau, 1984; Embry, 2002; Kellam, Ling & Merisca, 1998). Though the GBG is simple in design, full implementation ideally includes 18 procedural components that are itemized in a one-page checklist (e.g. announce game before beginning, announce group members before beginning). Once per week, consultants used the checklist to record whether each component was implemented and to rate the teacher's procedural fidelity of the GBG (see appendix C). In addition to weekly observations, consultants informally interviewed teachers to monitor effective use of the GBG. For the purpose of this study, effective use was considered to be occurring when there was: a) a sustained pattern of implementation of the GBG, b) ongoing dialogue between the teacher and consultant about the components of implementation c) evidence of teacher satisfaction with intervention outcomes, and d) evidence if necessary

of flexible modification of the intervention to meet specific needs of a particular classroom. Though data collected during informal interviews were not relevant to the study, monitoring for effective use was employed to ensure greatest possible benefits of the intervention for students in participating classrooms. Consultants were trained to identify the breakdown and failure of implementation procedures and conferred with project managers to assure the provision of appropriate and sensitive assistance to participating teachers. After initial training for the intervention, teachers completed the MBI-ES and the online Teacher Survey.

Intervention: Good Behavior Game (GBG)

As part of a larger intervention package, teachers were asked to implement the GBG for 10 minutes each day. A consultant was assigned to each teacher to assist the teacher with initial setup and ongoing troubleshooting of implementation for the 26-week duration of the project. Each teacher was encouraged to individualize the GBG to meet the needs of their classroom while maintaining the core elements of the intervention. To ensure that teachers were aware of and understood the core elements, a checklist was used as the basis of the training teachers received, and each teacher was given a copy for reference (see Appendix C). The same checklist of core elements used to train teachers was also used by consultants to conduct weekly observations of implementation.

With initial implementation of the GBG, teachers identified and operationalized specific target behaviors and a period of the school day during which the problem behaviors were likely to occur. The teacher then worked with the consultant to create a maximum of three rules that would support a decrease of the problem behaviors.

For the first three weeks, the teacher and consultant recorded baseline data on the frequency of the targeted behaviors during the time of day they planed to eventually implement the game. This information was used to divide the classroom into two teams with a balanced representation of those students who struggled least and most with the targeted problem behaviors. In week three, the rules and procedures of the game were introduced, and students were told that if a member of their team broke a rule during the designated time period, a check or visual reminder of the rule would be publicly displayed on a scoreboard. The game ran for a minimum of 10 minutes for each session. Accumulation of three or fewer checks was required to win the game. A fourth check indicated that the team had lost the game for that day. Both teams were able to win, therefore eliminating competition, and the emphasis was placed instead on working as a team to manage personal behavior. Students who consistently broke the rules of the game, causing their team to lose, were put on a team of their own with individual goals until they were ready to rejoin their team.

Data Analysis

The independent variables of Emotional Exhaustion, Depersonalization, and Personal Accomplishment, which comprise teacher burnout, are considered in the literature to be three distinct but empirically related constructs. As well, the dependent variables of Frequency of Implementation and Quality of Fidelity, which comprise Adherence, are considered in the literature as two distinct but related constructs (Bramlet, 1994). Of primary interest to this study were the significant relations between three variables of burnout measured by the Maslach Burnout Educators Survey: *i* = Emotional Exhaustion (EE), *ii* = Depersonalization (DP), and *iii* = Personal Achievement (PA), and

the variables of Adherence, β_1 = Percent of total weeks of implementation (Frequency of Implementation, a continuous variable) and β_2 = Total fidelity summed across weeks (Quality of Fidelity, an orderable discrete variable). Multivariate Analysis of Variance (MANOVA), a method well suited for the examination of multivariate relations with interval and discrete data, was utilized to examine the predictive influence of three teacher burnout factors on Adherence to intervention. To address the primary research question, several steps were completed through use of SPSS 16.0. First, an analysis of correlation was conducted to examine the relations between the three predictor variables and two outcome variables. This information contributes to understanding and interpretation of variance accounted for in a predictive model. Further, examination of the relations between variables enables comparability of findings within this sample to previously reported studies. Next, a Multivariate Analysis of Variance (MANOVA) was conducted to explore the predictive utility of the three teacher burnout factors, Emotional Exhaustion, Depersonalization, and Personal Accomplishment entered as covariates on two conceptually related dependent variables of Adherence; Frequency of Implementation, and Fidelity. The use of MANOVA in this study is a special case of what is commonly referred to as the general lineal model. The language and equation used to present the results of this analysis of variance are identical to the language and equations used to present results of multiple regression as both are concerned with the same general type of question (Howell, 1997). Last, a post hoc analysis was conducted to explore directionality of main effects discovered for the burnout factors of Emotional Exhaustion and Personal Accomplishment on Adherence. The statistical expression for MANOVA is presented in Equation 1.

Equation 1. Multivariate Analysis of Variance (MANOVA)

Where $Y_1 =$ Frequency of Implementation

$Y_2 =$ Fidelity

$X_1 =$ Emotional Exhaustion

$X_2 =$ Depersonalization

$X_3 =$ Personal Accomplishment

$\beta_{10} =$ Frequency of Implementation x constant term (intercept)

$\beta_{11} =$ Frequency of Implementation x Emotional Exhaustion

$\beta_{12} =$ Frequency of Implementation x Depersonalization

$\beta_{13} =$ Frequency of Implementation x Personal Accomplishment

$\beta_{20} =$ Fidelity x constant term (intercept)

$\beta_{21} =$ Fidelity x Emotional Exhaustion

$\beta_{22} =$ Fidelity x Depersonalization

$\beta_{23} =$ Fidelity x Personal Accomplishment

$e_1 =$ error/Frequency of Implementation

$e_2 =$ error/Fidelity

$$\begin{pmatrix} Y_1 \\ Y_2 \end{pmatrix} = \begin{pmatrix} \beta_{10}\beta_{11}\beta_{12}\beta_{13} \\ \beta_{20}\beta_{21}\beta_{22}\beta_{23} \end{pmatrix} \begin{pmatrix} 1 \\ \chi_1 \\ \chi_2 \\ \chi_3 \end{pmatrix} + \begin{pmatrix} e_1 \\ e_2 \end{pmatrix}$$

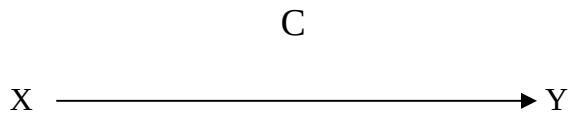
Matrix type: (2 x 1) (2 x 4) (4 x 1) (2 x 1)

To address the secondary research question, a test of mediation using a four-step process outlined by Frazier, Tix, & Baron (2004) and illustrated in Figure 2 was used to investigate the mediating effects of preintervention teacher belief on the relation between teacher burnout and adherence.

Figure 2. Diagram of Test of Mediation (Baron & Kenny, 1986)

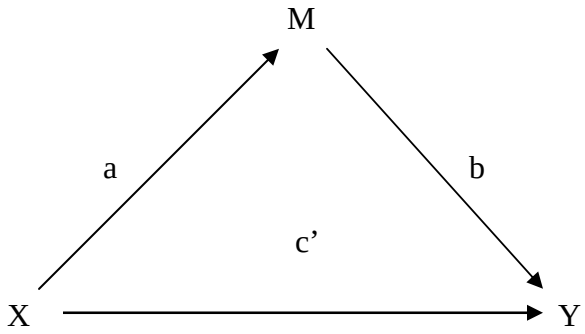
Where variable X is assumed to affect variable Y, the variable X is called the *initial* (or predictor) *variable* and the variable that it causes or Y is called the *outcome*.

In diagrammatic form, the *unmediated* model is:



The effect of X on Y may be mediated by a process or mediating variable M, and the variable X may still affect Y. Path C is called the *total effect*.

In diagrammatic form, *mediated* model is:



Path c' is called the *direct effect*. The mediator has been called an *intervening* or *process* variable. Complete mediation is the case in which variable X no longer affects Y after M has been controlled and so path c' is zero. Partial mediation is the case in which the path from X to Y is reduced in absolute size but is still different from zero when the mediator is controlled.

CHAPTER IV

RESULTS

This is a nonexperimental group study of multiple predictor and outcome variables designed to address the following questions: a) Do teacher burnout factors predict adherence to intervention, and b) do pre-intervention beliefs about the value of an intervention mediate the relation between burnout and adherence? Examination of main effects for the independent variables of teacher burnout factors on dependent variables of adherence was conducted using Multivariate Analysis of Variance (MANOVA). A test of mediation was conducted to evaluate the influence of teacher beliefs about an intervention on the relation between burnout and adherence.

Descriptive analysis of individual variables

Prior to analysis, assumptions were checked to ensure the valid interpretation of a multivariate analysis: a) independence of observations, b) homogeneity of variance, and c) multivariate normality. While there is no direct test for multivariate normality, this assumption can be adequately satisfied through tests of univariate normality on each variable. These univariate tests do not guarantee overall multivariate normality, but departures from univariate normality are usually inconsequential. In larger sample sizes, violations of this assumption will have little effect. However, with consideration to the sample size of this study (n = 45), normality of each variable was examined, leading to the discovery of extreme outliers within the burnout factors of Depersonalization and Personal Accomplishment.

Table 2 contains the means, standard deviations, linear transformations, and ranges of obtained scores for the three predictor variables, EE, DP, and PA.

Table 2. Characteristics of Predictor Variables Including Linear Transformations

Source	*N*	*M*	*SD*	*min.*	*max.*
EE	42	19.48	10.90	1	47
DP	42	3.19	3.53	0	16
DP_sqr	42	1.87	.80	1	4.12
PA	42	41.43	6.23	10	48
PA_ref_log	42	.77	.33	0	.57

Note. Range of raw scores possible for burnout factors

EE 0 – 54 High scores indicate higher levels of Emotional Exhaustion.

DP 0 – 30 High scores indicate higher levels of Depersonalization.

PA 0 – 48 High scores indicate higher levels of *satisfaction* with Personal Accomplishment.

With discovery of an extreme outlier in the DP variable and a positive skew of 1.56, it was determined that this variable failed to satisfy the assumption of normality (see Table 3). Caution is suggested when skewness exceeds an absolute value of .80 (Wuensch, 2005). Because the DP variable included a large number of scores with zero value, a value of one was added to each value along the distribution using the transform-compute command in SPSS. A subsequent square root transformation was applied, thus

replacing each adjusted value in the DP variable with the square root for each individual score. The transformed variable achieved normality with a positive skew of .68 (< .8).

A second outlier appeared to contribute to an extreme negative skew of (-3.27) in the distribution of Personal Accomplishment (PA). Individual raw scores for this variable were obtained through use of a scoring protocol provided by the authors of this instrument. Unlike scores obtained on the Emotional Exhaustion and Depersonalization factors, low scores (0 – 30) on the Personal Accomplishment factor, for interpretive purposes, suggest low levels of *satisfaction* with Personal Accomplishment rather than high levels of *experienced* Personal Accomplishment. For example, as high levels of Emotional Exhaustion (scores of 27 or higher) are reflective of greater frequency of negative symptoms related to Emotional Exhaustion, higher levels of Personal Accomplishment are reflective of greater satisfaction with Personal Accomplishment. Skewness for this variable fell within a cautionary range (> .80); therefore a log-10 transformation with reflection (by subtracting each value of PA from 49; one value higher than the highest raw value) of the negative skew (creating a positive skew) was conducted. The log-10 transformation decreased skewness from -3.27 to -.53 for Personal Accomplishment, thus satisfying the assumption of normality. This transformed variable was used for subsequent analysis, noting that the transformed PA variable must now be interpreted opposite from the nontransformed PA variable. In this case, high scores for Personal Accomplishment (scores of 37 or higher) suggest higher levels of dissatisfaction with Personal Accomplishment. Aside from correcting skewness, the log-10 transformation aided with uniform interpretation of the three subscales as scores for all three burnout factors were then directionally related. Table 3

contains distributional statistics for transformed and nontransformed variables for Burnout factors.

Table 3.

Univariate Distributions for Burnout Factors (n = 45)

Source	EE	DP	DP_sqr	PA	PA_ref_log
Skewness	.56	1.56	.68	-3.27	-.53
Kurtosis	-.20	3.06	-.07	15.46	.95

Table 4 provides descriptive statistics for dependent variables; *summed* scores for quality of fidelity (Quality of Fidelity), and *percent* of total weeks of implementation (Frequency of Implementation), which, for the purpose of this study, represents Adherence (see Appendix D) for chart of raw scores for independent and dependent variables).

Table 4.

Characteristics of Dependent Variables of Adherence

Source	*N*	*M*	*SD*	*min.*	*max.*
Quality of Fidelity	45	409.27	333.44	1	1224
Frequency of Implementation	45	.25	.17	0	.58

Question 1: Does teacher burnout predict adherence to intervention?

With each individual variable adjusted to satisfy assumptions, a regression model was designed to examine the primary question: Do teacher burnout factors predict adherence to intervention? Several steps were completed to fully examine this question.

First, correlational analyses were conducted to evaluate relations between individual predictor variables and the relations between individual outcome variables. Second, a Multivariate Analysis of Variance (MANOVA) was performed to examine the main effects of each predictor variable on multiple outcome variables (Adherence). Third, a post hoc analysis was conducted to explore directionality of the relation between variables of interest.

Step one: Analysis of Correlations.

Table 5 contains correlation coefficients resulting from the evaluation of relations between individual predictor variables.

Table 5.

Intercorrelation of Individual Factors of Teacher Burnout

Measure	EE	DP_sqr	PA_ref_log
1. EE	---	.43**	.34**
2. DP_sqr		---	.42
3. PA_ref_log			---

Note. Spearman's rho correlations. ***p* <.01.

Maslach, Jackson, & Leiter (1996), authors of the Maslach Burnout Inventory – Educators Survey, reported significant intercorrelations between EE and DP (.52), EE and PA (-.22), and DP and PA (-.26). Similarly, the correlation between EE and DP_sqr (transformed from original DP variable) for this sample was r (42) .43, p = .00. This suggests that within this sample, there was a positive and significant relation between the

frequency with which teachers experienced emotional exhaustion and the frequency with which they experienced detachment from the individual needs of their students. Intercorrelation was also similar to that reported by Maslach et al. for EE and PA_ref_log where r (42) .34 p = .03. Interpretation of this correlation is directionally congruent with the authors in that the frequency with which teachers experience emotional exhaustion increases as their satisfaction with personal accomplishment decreases. Intercorrelation in this sample for DP_sqr and PA_ref_log r (42) .13 p = .42 was statistically dissimilar from Maslach et al. with no significant relation between the frequency with which teachers experienced depersonalization and their perceptions of personal accomplishment.

Implementation and Quality of Fidelity were also examined to evaluate their relation as outcomes of a similar construct: adherence to intervention. Given that the quality of fidelity to intervention was based on discrete ordinal ratings, Spearman's rho was used to determine the correlation between summed scores for quality of fidelity ratings and the percent of total weeks of implementation that were derived for each participant. A significant correlation was found between the two dependent variables, Quality of Fidelity and Implementation r (42) = .97, p = .00. The relation between Quality of Fidelity and Implementation theoretically supports the recognition of quality of fidelity and frequency of implementation as combined constructs of adherence.

Step two: Multivariate Analysis of Variance.

A Multivariate Analysis of Variance (MANOVA) was conducted to explore the predictive utility of three teacher burnout factors (see Table 6): Emotional Exhaustion (EE), Depersonalization (DP_sqr), and Personal Accomplishment (PA_ref_log), entered

as covariates on two conceptually related dependent variables of Adherence; Frequency of Implementation and Quality of Fidelity.

Table 6.

Multivariate Analysis of Variance (MANOVA)

Predictors	*df*	*F*	(*p*. <05)	n^2 *(Partial Eta squared)*
EE	2, 37	5.19	.01	.22
DP_sqr*	2, 37	1.37	.27	.07
PA_ref_log*	2, 37	4.56	.02	.20

* Indicates transformed variables

Dependent variables: Quality of Fidelity + Frequency of Implementation = Adherence

Significant low-to-moderate main effects were found for Emotional Exhaustion on Adherence F (2, 37) = 5.19, p = .01, n^2 = .21, with Emotional Exhaustion accounting for 21% of the variance in Adherence. Significant low-to-moderate main effects were found for Personal Accomplishment on Adherence F (2, 37) = 4.56, p = .017, n^2 = .20, with Personal Accomplishment accounting for 20% of the variance in Adherence. These findings suggest that Emotional Exhaustion and Personal Accomplishment were somewhat reliable predictors of Adherence. A nonsignificant main effect was found for Depersonalization on Adherence F (2, 37) = 1.37, p = .27, n^2 = .07, suggesting that for this sample of teachers, Depersonalization was not a reliable predictor of Adherence.

Step three: Post hoc analysis

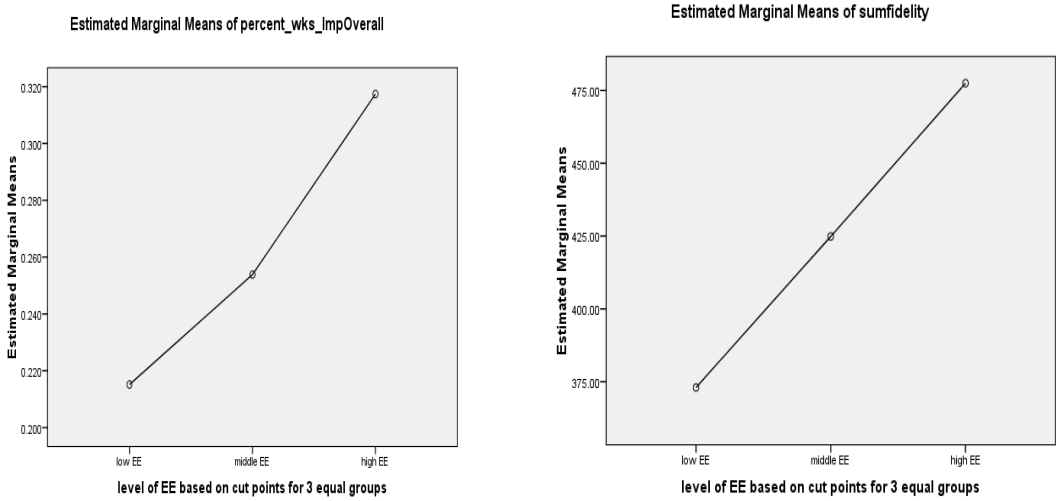
Key research in the field of teacher burnout supports the notion that burnout negatively affects teacher performance. Results from the MANOVA conducted with this

sample suggest outcomes that run contrary to results of prior studies investigating the impact of burnout on implementation behaviors. In this study, higher levels of Emotional Exhaustion and reduced Personal Accomplishment were found predictive of higher levels of adherence; therefore a post hoc analysis was determined necessary to further examine the directionality of relations within and between the independent and dependent variables.

Low, middle, and high group membership. To explore the directionality of relations between independent and dependent variables, three levels of group membership (low, middle, and high) were developed for predictor variables EE and PA, based on percentile rankings of *nontransformed* raw scores. Separate MANOVAs were conducted for group membership for EE and for group membership for PA. Each was run as a single, independent variable (with group entered as a fixed factor in SPSS) on the dependent variables of a two-factor model for treatment Adherence (Quality of Fidelity and Frequency of Implementation). Group membership for EE was not significantly related to Adherence F (4, 76) = 1.82, p = .13, η^2 = .09, nor was group membership for PA significantly related to Adherence F (4, 76) = 2.27, p = .070, η^2 = .11. Descriptive examinations of profile plots for group membership of EE, however, demonstrate a positive directional relation between high EE and higher levels of adherence (see Figure 3). For example, though statistically nonsignificant, separate profile plots for group membership in Emotional Exhaustion on estimated marginal means for percent of weeks implemented (Frequency of Implementation) and Emotional Exhaustion on estimated marginal means for fidelity scores (Quality of Fidelity) suggested that teachers with

lower levels of emotional exhaustion also tended to implement with lower frequency and with lower quality of fidelity. Teachers with higher levels of emotional exhaustion tended to implement with higher frequency and with higher quality of fidelity.

Figure 3.Relation between group membership in Emotional Exhaustion and levels of Adherence



Question 2: Does pre-intervention teacher belief about intervention mediate the influence of teacher burnout on adherence?

Assumptions for a test of mediation are twofold: a) confirmed significant predictive utility of the independent variables on the mediating variable and b) confirmed significant predictive utility of the mediating variable on the outcome variables. To explore each of these relations, analyses of variances were conducted using a subset of data collected from teachers (n = 32) within our adjusted sample. Teacher responses produced dichotomous scores of 1 or 2 (1 = .38; 2 = .63). Analysis of variance is appropriate for analyses with dichotomous, dependent variables as long as the proportion of the smaller response category is equal to or greater than .2 and degrees of freedom are at least 20 for error (Lunney, 1970). Significant main effects were not evidenced for

Emotional Exhaustion on Teacher Belief F (1, 28) = .01, p = .93, Depersonalization on Teacher Belief F (1, 28) = .28, p = .64, nor for Personal Accomplishment on Teacher Belief F (1, 28) = .15, p = .70. Main effects were also nonsignificant for Teacher Belief on Frequency of Implementation and Fidelity (thus 2 degrees of freedom) F (2, 29) = 2.05, p = .15. The lack of significant main effects among these variables suggests that teacher belief about the utility of the intervention was not empirically related to the predictor nor to the outcome variables and hence did not function as a mediator of the effects evidenced between those variables, using the methods and sample described for this study.

Summary of Primary Findings.

From these findings, the following conclusions are reported:

1. Within this sample of teachers, significant main effects were found for the burnout factors of Emotional Exhaustion and Personal Accomplishment on Adherence.
2. Main effects for Depersonalization on Adherence were nonsignificant.
3. A post hoc analysis was conducted to explore the directional relation between the independent and dependent variables and resulted in the following conclusions; first, group membership in low, middle, or high levels of any single burnout factor was not statistically significant as an individual predictor of adherence. However, examination of means plots determined a directional relation between higher levels of emotional exhaustion and higher scores for separate elements of adherence. Second, group differences exist between the burnout factors of Emotional Exhaustion and Personal

Accomplishment, confirming a relation between high levels of emotional exhaustion and low levels of satisfaction with personal accomplishment.

4. Teacher Belief was eliminated as a mediator of Teacher Burnout on Adherence due to nonsignificant relations between a) the predictor variables on the mediating variable and b) the mediating variable on the outcome variables.

CHAPTER V

DISCUSSION

Teacher burnout is a stress-related condition with deleterious effects on the physical and emotional health of classroom teachers. The experience of teacher burnout is empirically related to numerous organizational and personal variables that can include gender, age, years of experience, and type of school. Evidence exists to suggest that burnout may have a negative impact on relationships between students and teachers in both general and special education settings. This knowledge warrants a continued effort to understand characteristics and behaviors of those teachers who experience burnout and further investigation of the magnitude of influence that teacher burnout may exert on

classroom-based behavioral interventions. This chapter will begin with a summary of descriptive findings related to teacher characteristics, followed by a discussion of pertinent findings of this study as they relate to each research question. Next, the implications of this study's findings will be presented, and finally, recommendations for future research will be suggested.

Discussion of Findings

Descriptive Findings Related to Teacher Characteristics.

The determinants of burnout are numerous and stem from both organizational and personal origins (Byrne, 1991). The identification of common variables among those who experience burnout helps to further direct the ongoing investigation of how the effects of burnout may impact teacher behavior. The following discussion is reflective of individual characteristics reported by the sample of teachers who participated in this study.

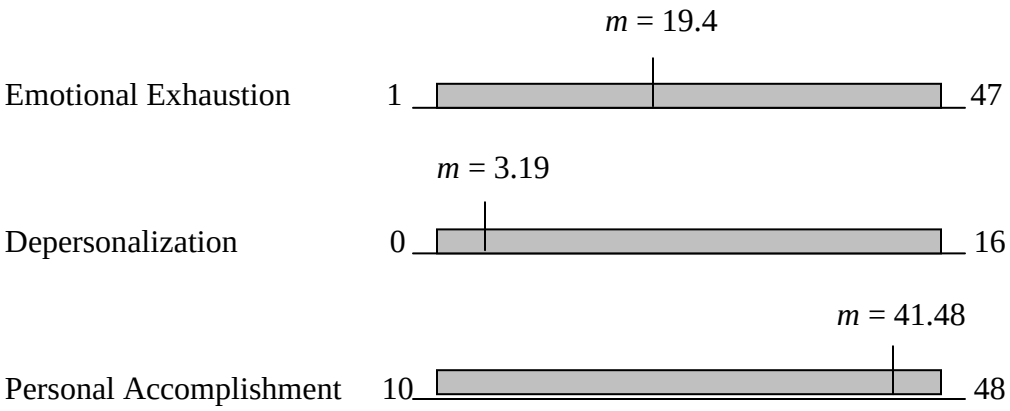
Demographics. The number of years of teaching experience reported by this sample ranged from 1 to 32 years, with half of the teachers reporting 10 or fewer years of experience in the classroom. Nearly half of the participants were special education teachers, with the remaining teachers reporting general education or nonspecified teaching assignments. Seven of the participants were male, 36 were female. All teachers worked with students who met the eligibility criteria for being at risk for severe behavior problems as identified by the Systematic Screening for Behavior Disorders (Walker & Severson, 1992).

The experience of burnout is universally reported by both male and female teachers across all areas of education and can begin within any phase of a teaching career. The onset of symptoms related to burnout is most often seen within three to five years

after initial teacher induction (Maslach et al., 2001) and has been found to increase with years of experience (Schwab & Iwanicki, 1982); however, years of experience were uncorrelated with burnout in this sample. For example, teachers with 10 or fewer years in the classroom reported a mean score of 20.17 (in a range of 0 – 47) for the most prevalent of the three burnout factors; Emotional Exhaustion. Teachers with more than 10 years in the classroom reported a mean score of 19.29 for Emotional Exhaustion. Type of classroom has been linked to higher levels of teacher burnout (Male & May, 2003), with special education teachers reporting levels of job-related stress that surpass those reported by general education teachers. Special education teachers in this sample reported higher scores for Emotional Exhaustion (22.94) than did teachers in general education (15.92) or other areas of teaching (19.14). Gender has been included among variables differentiated by teacher burnout. For example, Schwab and Iwanicki found that male teachers reported a greater frequency of negative attitudes toward students. The mean score for Emotional Exhaustion reported by male teachers in this sample (19.20) was nearly identical to the overall group mean (19.48).

Burnout Factors. All teachers indicated some level of burnout in one or more of the burnout factors. Scores for Emotional Exhaustion varied evenly across the full range of possible scores, but it is interesting to note that in this sample, despite variability in Emotional Exhaustion, scores for Depersonalization were clustered in low ranges and alternately, scores for reduced Personal Accomplishment were clustered in high ranges (See Figure 5).

Figure 5. Range of Scores for Burnout Factors



Burnout scores for this sample are similar to burnout scores reported in a previous study conducted by Jackson, Schwab, and Schuller (1986). In a sample of 248 teachers, with a median of 11 years of teaching experience, group scores for Emotional Exhaustion 22.00 (*SD* = 10.20), Depersonalization 6.73 (*SD* = 5.17), and Personal Accomplishment 36.24 (*SD* = 6.74) were similar to group scores for our sample, which included 45 teachers. Despite differences in sample size, both sets of data reflect varied levels of Emotional Exhaustion, low levels of depersonalization, and high levels of satisfaction with Personal Accomplishment.

As described in previous research, teachers who report low levels of burnout are likely to a) adapt teaching to special needs (Maslach et al., 2001; Patterson et al., 2004), b) take greater responsibility for their own actions (Patterson et. al., 2004; Tournaki & Podell, 2005), c) persist when faced with obstacles to learning (Gibson & Dembo, 1984), (d) tend to value preventative rather than restorative approaches to undesirable student behavior, and (e) report higher levels of teacher efficacy (Tournaki & Podell, 2005).

Conversely, teachers who report higher levels of burnout are more likely to a) employ one-dimensional approaches to special needs, b) accept minimal responsibility for a student's lack of achievement, c) implement treatment with low fidelity or resort to nonimplementation (Telzrow et al., 2000; Witt et, al.,1985; Yeaton et al., 1981), (d) show preference for consequence over antecedent-based behavior management strategies (Evers et al., 2002; Mavropoulou & Padeliadu, 2002; Pisecco et al., 2001; Tournaki & Podell, 2005), and (e) report lower levels of teacher efficacy (Tournaki & Podell, 2005). The methods employed by this study created an opportunity to directly observe teachers' adoption and implementation of intervention strategies over time relative to their self-reports of burnout.

The pattern of scores reported in this study speculates that teachers in this sample are engaged with their students on a personal level, acknowledge the individual needs of their students, and recognize the responsibility they have as educators to meet individual student needs. They also report what may be high levels of confidence in their ability to carry that responsibility and perceive their efforts to do so as valuable and predictive of student success. The varied levels of Emotional Exhaustion evident among these participants may reflect individual differences in response to stress, degree of effort exerted to meet student needs, and the number of classroom students who are at risk for severe behavior problems.

Descriptive Findings Related to Treatment Adherence

Adherence is defined by Bramlet (1994) as a reference to the general commitment of a practitioner to both implementation and procedural fidelity. The term implies synchrony between the prescribed frequency of implementation and the quality with

which the implementation is delivered. This study included the direct observation of teacher behaviors as they related to the two elements of Adherence: frequency of implementation and the quality of fidelity with which implementation occurred. The number of observations documented for each teacher ranged from 2 to 18, with an average of 7 observations per teacher. Teachers were asked to implement the intervention at least 10 minutes per day, so it is important to note that the data account only for instances of direct observation and do not reflect all instances of implementation. With each scheduled observation of treatment implementation, consultants dichotomously scored whether the teacher implemented or did not implement the 18 core elements of the Good Behavior Game (Core Implementation) and rated the quality with which each core element was executed. Over half of this sample consistently implemented at least three fourths of the core elements with each observed instance of implementation of the GBG. Procedural monitoring and performance feedback were provided to teachers each week with the goal of improving or maintaining high levels of implementation of core elements. These types of supports are known to increase the likelihood that an intervention will be sustained after initial implementation (Han et. al., 2005; Witt et al., 1997).

There is a difference between simply implementing and implementing *well.* Adherence requires a commitment to both aspects of implementation (Bramlett, 1994). Evidence from the literature suggests that the implementation of all core elements of an intervention may not be necessary to achieve optimal outcomes; however the quality of implementation bears critical influence on outcomes. Kovaleski et al. (1999) studied high and low implementation by student support teams and found that effects of partial quality

of fidelity to a student support intervention designed to increase student performance were nearly equal to controls in which no student support was provided. In this study, teachers implemented with moderate quality of fidelity overall and implemented an average of 75% of all core elements. Teachers with high efficacy demonstrate the flexible use of interventions and may make decisions to minimize the number of core elements in an intervention design or to modify the delivery of instruction for reasons that are intended to increase adaptability of an intervention to student needs and environmental contexts; however, as these teachers apply modifications to an intervention, they are likely to continue to implement with quality (Datnow & Castellano, 2000; Yeaton & Seacrest, 1981). Adherence in this case is relatively uncompromised. However, teachers with low efficacy may make these same programmatic changes, but for reasons related to stress, low expectations of the intervention, or perceived personal inadequacy, they may implement with low quality or tend toward nonimplementation (Gusky, 1988, Henggeler et al., 1997; Henggeler et al., 1999, 2002). Teachers in this study indicated an overall moderate level of Emotional Exhaustion which may correspond with the moderate levels of reported adherence.

Descriptive Findings Related to Teacher Attitude

A 14-item open-response teacher survey was specially designed to explore teacher attitudes toward the value and utility of a multi-component treatment package implemented through the larger research project. Of specific interest in this study was the value attributed by teachers to the Good Behavior Game GBG), a classroom-based intervention designed to prevent undesirable student behavior. Over half of the

respondents (68%) indicated confidence in anticipated benefits related to implementation of the GBG.

Previous studies have linked teacher acceptance of new interventions to levels of teacher burnout. Guskey (1988) found that teachers with low efficacy were found less likely to rate the practice of mastery learning as valuable or congruent with their philosophies. On the other hand, efficacious teachers tended to rate the practice as important and congruent with their current teaching practices. While teacher burnout was not formally measured by Guskey, traits empirically related to burnout were evident among teachers with low efficacy in the author's reported results: specifically, a tendency toward nonacceptance and low confidence in the value of a novel intervention.

Teachers in this study were asked whether they felt confident that the Good Behavior Game would be of value to their classrooms and if they anticipated the continued use (acceptance) of the intervention after project completion. Through qualitative open-ended response, just over half (68%) of the teachers in this study indicated confidence in the utility of the Good Behavior Game, stating, for example, that the game "allows students to be successful…," that students "love playing [the game] and ask frequently to play," and that as teachers they would "probably continue to play the game." Remaining teachers indicated that they were not confident with the utility of the intervention stating, for example: "I would not continue the Good Behavior Game because I can accomplish the same goals without playing a game," and "other than tutoring, [a component of the larger treatment package] I really don't like any other component of the program, to be honest." Teacher responses on this survey were not correlated with levels of burnout or to adherence, suggesting that beliefs stated by the

teachers about the Good Behavior Game at the onset of implementation were not reliable predictors of adherence to the intervention.

Question #1: Is there a relation between teacher burnout and teacher adherence to intervention implementation?

Within this sample, the burnout factors of emotional exhaustion and personal accomplishment were identified as predictors of adherence to interventions. As with previous studies investigating the same three-factor model of burnout as it relates to teacher behavior (Maslach et. al., 2001), much of the work to date has relied on indirect observation of teacher behavior through self-report and subjective measures of teacher attitude, teacher perception, and teacher efficacy (Evers et. al., 2004; Friedman, 1991). Self-report is a necessary method of assessing teacher perceptions and attitudes. Used in isolation of direct observation, however, there is no way to assess how perceptions and attitudes affect teacher behaviors or further, how to arrange conditions that help teachers learn to change their behaviors. This study extends the methods used in earlier work(s?) to incorporate direct observation of actual teacher behavior relative to extending our understanding of how burnout may directly or indirectly influence teachers' adherence to intervention strategies.

Teacher behavior, defined as Adherence for this study, was observed and rated by consultants within the context of a prescribed classroom-based behavioral intervention. For example, results from a previous study conducted by Evers, Brouwers, & Tomic (2002), found a significant relation between teacher burnout and attitudes toward new instructional practices in a large sample of randomly selected teachers, as measured through three questionnaires; however, they did not include findings related to the

implementation behaviors that followed the inquiry into attitude. Though it has been demonstrated that burnout may affect teacher attitudes, which, in turn may influence teacher reception of a new strategy (Schaufeli & Van Horn, 1995), little is known about the effects of teacher burnout on implementation behaviors in the classroom setting. The benefits of direct observation include the enhanced accuracy of reporting and the ability to record data in synchrony with a naturalistic environment. In this study, teacher burnout, defined by the factors of Emotional Exhaustion, Depersonalization, and Personal Accomplishment was observed through separate subscale scores for each factor, which were each then included as predictors in a model that contained outcome variables derived from direct observation. With regard to the primary research question, these results indicate that levels of emotional exhaustion and feelings related to personal accomplishment reported by this sample of teachers bear direct influence not on self-reports of teacher behavior or a time-lagged recollection of teacher perception, but on the *actual* observed behavior of the teachers as intervention occurred within the natural environment of the classroom.

Influences of burnout factors on Adherence. Empirical evidence linking burnout to adherence has not been previously examined. Burnout has been directly examined in relation to negative behaviors that influence adherence (Day et al., 2005). Analyzed as multiple predictors in a multivariate regression model, significant main effects were found for two of the three burnout factors, Emotional Exhaustion and Personal Accomplishment on Adherence to intervention. The burnout factor of Depersonalization was nonsignificant as a predictor of Adherence. Previous research supports that teachers who experience burnout are likely to invest low amounts of effort in instructional

behavior. However, in this study, despite reports of high levels of Emotional Exhaustion, teachers did invest effort in their instructional behaviors and were observed demonstrating moderate-to-high quality adherence.

Question #2: Does preintervention teacher belief mediate the influence of teacher burnout on adherence?

If teachers perceive interventions as valuable, they are more likely to be implemented, and a greater quality of fidelity is likely to accompany teacher effort (Tournaki, 2005). Teacher burnout, though significant as a determinant of receptivity to novel interventions, is only one of numerous factors known to influence teacher acceptance to intervention. However, the consequential gravity of teacher burnout should be considered separately and with critical importance. The effects of burnout appear to be related to the preimplementation beliefs a teacher may hold regarding the value and utility of an intervention (Day et. al., 2005; Yeaton et. al., 1981). This study examined the mediating effect of preintervention beliefs about the Good Behavior Game on the relation of burnout to Adherence.

A test of mediation requires the presence of separate and significant relations between the mediating variable and corresponding independent and dependent variables. In this case, two preliminary questions were considered: a) Is there a significant relation between Teacher Burnout and Teacher Belief? b) Is there a significant relation between Teacher Belief and Adherence? If both relations had been confirmed, a final question would have been asked; What effect does the mediating variable have on the relation between the independent and dependent variables? Main effects were nonsignificant for Emotional Exhaustion and Personal Accomplishment scores on Teacher Belief, as were

main effects of Teacher Belief on Adherence. Therefore, Teacher Belief, though conceptually related, did not function as an empirical mediator between the observed effects of Teacher Burnout on Adherence. Though these findings run counter to claims made in the literature presenting burnout factors as significant determinants of teacher attitude and acceptance of intervention, these findings do confirm evidence that the value placed by teachers on novel interventions may be subject to alternate influences and that preintervention beliefs related to a novel intervention may not necessarily influence adherence to intervention.

Limitations

Several limitations should be considered when interpreting the results of this report. This study provides a description of a small sample of teachers randomly assigned to implement a treatment as part of a larger treatment-control comparison of a packaged set of interventions. While use of the MANOVA accommodated the small sample size, demonstrated sufficient power when evaluating effects, and aided in controlling for Type I and Type II errors, generalizations of these findings to a larger population are cautionary. This is a study of a single group of participants with results that are intended to illuminate a specific inquiry into the influence of one set of variables on another and speaks only to what we can know about this particular group of teachers. In addition, while the classrooms of participating teachers were randomly assigned to treatment and control groups in the larger project, which in turn influenced which participant data would be used in this complementary study, participants were not randomly selected for inclusion in this study. Data used in this study were preexisting and subject to the flaws and omissions characteristic of large data sets collected by multiple observers. As

exceptions were identified, they were systematically checked for accuracy and corrected when possible. Further, the dependent variables, Frequency of Implementation and Quality of Fidelity, are considered mixed variables. Frequency of Implementation, a continuous variable, was reported by first summing the total weeks of observed implementation for each participant and then calculating a group percentage by dividing the grand total for weeks of observation by the number of possible weeks of observation. Quality of Fidelity, was reported through summation of scores derived from a rank-ordered scale of discrete nominal values. Spearman's correlation was determined to be most appropriate with regard to the ordinal nature of Quality of Fidelity, but caution is suggested in the interpretation of results that include correlation coefficients of mixed (continuous and discrete nominal) variables. In addition, data for the measures of Frequency of Implementation and Quality of Fidelity were collected through direct observation, implying possible confounds related to the presence of an observer during implementation and no reliability data were available for consultant observations. It should be noted that summative scores for adherence are reflective of overall implementation of the intervention and do not represent patterns of adherence over time. Whether there were initial bursts of adherence with diminishment over time or low adherence which increased with frequency and quality of fidelity is unknown.

Within the post hoc analysis scores indicating high, medium, and low group membership for Emotional Exhaustion were relative to the range of scores for this sample but not necessarily to the scale of the measure.

It is important at this point to state a reminder that all the data used in this complimentary study were gathered from participants who originally agreed to take part

as volunteers in a larger research project. The act of volunteerism implies the remittance of time and energy, both of which carry personal cost to those who agree to volunteer and are referred to in the literature as commodities that are not readily sacrificed by those affected by burnout.

Implications

Research on teacher acceptability of new technologies provides a variety of hypotheses to explain why some teachers are more likely to receive and successfully implement novel interventions. While teachers may be initially willing to implement new classroom management interventions, a number of factors may impact the effective continued use of those interventions. Among those documented are ease of use, teacher perception regarding the fit of the intervention to the desired outcome, cost-to-benefit ratio, and latency of expected desirable outcomes (Tournaki, 2005; Greene, 1995; Comer, 1988 as cited by Tournaki, 2005). This study's examination of one hypothesis related to burnout factors that may influence a teacher's effective use of a novel intervention lends support to the notion that in addition to other validated influences upon intervention implementation, teacher burnout may also be expected to significantly impact the effective use of an intervention and the quality with which the intervention is executed. This study does not imply that high levels of burnout correspond with low levels of teacher performance with regard to intervention; rather in some teachers, the presence of burnout may predict the quality and frequency of implementation behaviors referred to as Adherence. In addition, it should not be implied with any certainty that burnout is developmental or continuous in nature. The developmental nature of burnout remains as

a hypothesis. It is possible that burnout may be less continuous and more prone to break points akin to the analogous straw-that-broke-the-camels-back.

Consistent with the results of this study, previous studies, despite differences in sample size, report measures of Emotional Exhaustion that tend to vary among samples of teachers, producing group means in moderate ranges. Interestingly, these studies also report consistently low levels of Depersonalization and high levels of Personal Accomplishment. Similarity across these multiple studies implies that while teachers report varied scores of Emotional Exhaustion, commonality within the ranges of Depersonalization and Personal Accomplishment suggest: a) the general acknowledgment and willingness of teachers to respond to the individual needs of their students and b) confidence among most teachers that efforts to address those needs will yield results that are personally rewarding and predictive of student success.

High burnout, high adherence?

Naturally, one would expect that teachers who are burned out would also demonstrate poor implementation. The literature empirically supports evidence validating the negative effects of high levels of *teacher-reported* burnout on *teacher-reported* implementation behavior (Brouwers et al., 2000; De Mesquita et al., 1994; Gusky, 1988). This study suggests, however, that *teacher-reported* burnout, specifically emotional exhaustion, may be positively linked to greater levels of *observed* implementation behavior. An initial analysis examining the relation between burnout factors and adherence reported significant main effects for factors of Emotional Exhaustion (EE) and Personal Accomplishment (PA). To investigate directionality of these results, a post hoc analysis was performed wherein profile plots of low, moderate, and high group

membership for both EE and PA were examined in relation to mean scores for separate elements of adherence. A significant directional relation was observed between higher levels of emotional exhaustion and higher mean scores for both Frequency of Implementation and Quality of Fidelity.

Nearly half of the teachers in this study were special education teachers, with the remaining teachers identified as general education teachers. All teachers were working with one or more students identified as at-risk for severe behavior problems. These results suggest that teachers who work with students who demonstrate challenging behaviors may find it necessary to exert greater amounts of time, effort, and physical energy at greater personal cost. Most teachers reported low levels of depersonalization and high levels of satisfaction with Personal Accomplishment, but teachers who reported the highest levels of emotional exhaustion were also those who demonstrated the greatest adherence to intervention. In summary, effort may mediate the relation between emotional exhaustion and adherence.

The cost of implementing new interventions represents a significant amount of human and fiscal resource. Best practices for embedding new evidenced practices into the classroom include initial training, coaching, and feedback through first stages of implementation and some level of ongoing support to ensure sustained use and optimal results. Once the support is no longer available, the likelihood that teachers will practice adherence to the prescribed intervention for a sufficient length of time and with adequate fidelity is determined by numerous variables. It is necessary that interventionists understand how those variables might predict adherence to intervention, thus optimizing the success of the intervention and the justification of cost. The study of adherence, as

defined by Bramlet, requires the examination of a teacher's commitment to both frequency and fidelity as combined constructs of a single concept and may be instrumental for providing deeper understanding of implementation behavior. The initial analysis conducted for this study included a Multivariate Analysis of three teacher variables (burnout factors) on the combined constructs of Adherence, confirming a relation between burnout and adherence but providing limited understanding as to *how* burnout is related to elements of adherence. A post hoc analysis was employed to examine the directional relation between burnout factors identified as significant predictors and the separate elements of adherence. Once the elements of adherence were partitioned, directional correspondence between Emotional Exhaustion and each element of adherence were observed in separate means plots. As well, correspondence was observed between Personal Accomplishment and separate elements of adherence. While the use of concrete definitions is essential to the integrity of a research design, it may be beneficial to study elements of adherence as separate rather than combined constructs. Existing implementation research suggests that frequency of implementation, while critical to the sustained use of an intervention, may be secondary to the quality with which the intervention is delivered (Kovaleski et al., 1999). Examination of the elements of frequency and fidelity as separate constructs may be a more useful approach as we work to indentify which variables are most likely to affect adherence and to what degree those variables may impact adherence behavior. For example, in this study preliminary univariate analyses of individual burnout factors on separate factors of adherence suggested greater influence of emotional exhaustion on frequency of implementation over quality of fidelity. In addition, the study of patterns of adherence over time and

differences in implementation behavior between general education and special education teachers may contribute to our understanding of additional variables that impact implementation behavior.

All teachers in this sample reported some level of burnout, which would imply correspondent levels of teacher efficacy (Tournaki & Podell, 2005). It is appropriate to remember that scores from the burnout factor of Depersonalization for this sample were low, indicating overall concern among the participating teachers for the achievement and well-being of their students. Scores for the burnout factor of Personal Accomplishment were also consistently high, indicating satisfaction with the return on their efforts to address the individual emotional and academic needs of their students. Scores for Emotional Exhaustion, however, were revealing of a number of teachers who reported weekly and sometimes daily symptoms of physical and emotional overload. These results present the following implications. First, we cannot assume that teachers who are emotionally exhausted cease to be concerned about student achievement. Burnout scores for this sample are reflective of teachers who indicate high levels of personal investment in student success and in some cases at great emotional and physical cost. Second, we cannot assume that teachers who are burned out are incapable of high quality implementation. Despite reported levels of emotional exhaustion, teachers in this sample implemented core elements with high frequency (75%) and were rated by observers to have implemented with moderate quality of fidelity over multiple observations. Those reporting the highest levels of Emotional Exhaustion implemented with greater frequency and were rated by observers to have implemented with greater fidelity. This sample of teachers demonstrated acceptable frequency and quality of implementation, essential

elements asserted by Bramlet, which ensure adherence. Third, it is important to question how long an intervention might be sustained by teachers who are emotionally exhausted. Sixty-three percent (20 out of 32) of the participating teachers who completed the Teacher Survey indicated they were likely to continue to use the Good Behavior Game, despite the removal of consult support. Data confirming sustained use of the Good Behavior Game by this sample are not included in this study, but it is reasonable to suggest that the design of an intervention may influence consistent procedural adherence. It may be essential that an intervention include support and performance feedback through initial stages of implementation to the point of independent mastery, after which the monitoring of adherence may fade in frequency but remain consistent over time. Not only do these components preserve the function of an intervention, but mastery of the intervention enables teachers to contact reinforcements inherent in well-designed interventions—a dynamic known to increase the sustainability of an intervention (Haan et. al., 2005; Witt et al., 1997). Unfortunately, the nature of these supports may be prohibitive due to the frequent lack of resources available for districts to provide consultant support. With no imminent end to strained educational funding, interventionists must consider ways to embed essential features of program monitoring and performance feedback into interventions in ways that that are low cost, flexible, adaptable to the school environment, and sustainable once initial supports have been removed (Han et al., 2005).

Recommendations for Future Research

Research examining the effects of teacher burnout on the essential duties of teaching is limited in comparison to those studies that seek to validate new evidence-

based interventions. A concurrent priority, during this time of central focus on educational standards and student outcomes, should be explorations of factors influencing the performance of those responsible for the implementation of those evidence-based practices. The goal of this study was to examine the behavior of teachers as they implemented a novel intervention and then to observe whether the effects of burnout demonstrated influence on their implementation. Though the literature on burnout has contributed significantly to our understanding of the syndrome, the study of teacher burnout as it relates to observed intervention behavior is limited. Those in the field of burnout research have been successful in isolating consequences of teacher behaviors that not only indicate burnout but also appear to be predictive of nonimplementation. Adherence to intervention is reliant upon teacher behavior and the commitment to implement with quality and to persist through obstacles to learning. Despite evidence that teachers in this sample demonstrated acceptable levels of adherence over a period of several weeks, a large body of existing research confirms the probable decrease of frequency and quality of implementation when teacher behaviors are affected by extended periods of fatigue, insufficient resources, and lack of reinforcement for instructional effort. In light of these known variables, the following questions should be addressed:

1. What additional variables, when paired with emotional exhaustion, predict the probable decrease of frequency and quality of implementation over time? Does emotional exhaustion manifest with or in isolation of other variables more or less powerfully as a predictor of adherence?

2. How might the elements of adherence be best defined, observed and measured? If adherence is defined by observable teacher behavior, is direct observation a more accurate measure of that behavior?

Counter to previous research suggesting that teachers who experience burnout are likely to implement with low quality or resort to nonimplementation, this study suggests that teachers who are experiencing burnout may concurrently demonstrate quality adherence to an intervention plan. Further explorations of the conditions that influence adherence in the presence of varying levels of burnout are warranted. This study asserts that for some teachers, emotional exhaustion may be a consequence of greater levels of effort expended to reach those children with the greatest need. Emotional Exhaustion may also be an impetus, for some teachers, to seek out and access alternative training and resources. These teachers may be key individuals in building or district-wide initiatives to implement new technologies. In the context of the larger intervention study, teachers were offered extensive support and technical assistance each week throughout their efforts to implement the intervention package. Future research is needed to examine the role that type of support may play in relation to adoption and adherence to new interventions, as well as how to build the capacity to deliver that type of support within schools and classrooms. As future research into the types of opportunities that attract teachers toward the revitalization of professional efficacy is applied to what we know about designing and sustaining effective classroom interventions, we might come closer to knowing more about what can be done to reverse and eliminate the long-term effects of teacher burnout and thus increase students' chances for social and academic success.

CHAPTER VI

SUMMARY AND CONCLUDING REMARKS

The amount of time spent in structured, well-designed, and appropriately prescribed instructional activities is directly related to student success. Teacher burnout imposes a threat to student success through the decline of a teacher's ability over time to create and maintain an environment that supports these critical elements. As student behaviors change and present new challenges, it is important that the teacher is able to effectively apply appropriate interventions and adhere to prescribed procedures for implementation. Procedural adherence makes it possible to systematically modify an intervention to fit specific student needs and to later assess the role any one element of the intervention design may have contributed to the outcome. Several important findings in this study suggest that while dimensions of teacher burnout may be expected to negatively influence implementation behavior, the presence of burnout may not predict low adherence.

1. Emotional Exhaustion was statistically significant as a predictor of adherence. A post hoc analysis was conducted to examine the directionality of that relation, revealing a significant correspondence between high levels of emotional exhaustion and higher levels of adherence. This result may imply a link between the extent of student need (all classrooms had children identified as at risk for severe problem behavior) and the degree of effort some teachers choose to exert to meet those needs despite personal cost.
2. With the exception of one teacher, all participants in this study reported scores indicating high levels of satisfaction with Personal Accomplishment (scores of 37 or above). Despite the range of these high scores, a directional link was evident

between higher levels of Emotional Exhaustion and lower levels of Personal Accomplishment. Though statistically nonsignificant, this correspondence was evident in the means plot of Personal Accomplishment scores over group levels of Emotional Exhaustion, suggesting that as those who report greater emotional exhaustion may demonstrate greater adherence to intervention, the impetus to persist over time may be affected by decreased confidence that their efforts will result in favorable student outcomes.

3. Teacher Belief regarding the value of a novel intervention was not significantly influenced by burnout factors, nor did this variable demonstrate statistically significant influence on Adherence.

Burnout is a documented threat to effective classroom management. These findings suggest that levels of teacher burnout may influence the degree to which a teacher adheres to prescribed procedures of implementation. Future research is needed to substantiate the impact of burnout on behaviors related to adherence and the magnitude of its effect on a teacher's ability to successfully implement and sustain the benefits of evidenced-based classroom behavioral interventions.

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APPENDIX A

Demographic Data for Participating Schools by Site.

State	*n* = schools	Mean Enrollment	%Free/ Red. Lunch	% Asian	% Black	% Hispanic	% Am. Ind.	% White
Tennessee	17	396.88	76.4	2.52	53.56	14.14	.1	29.65
West Virginia	7	431.28	86.14	0	96.88	.14	0	.02
Minnesota	7	400.14	73.15	10.62	38.62	11.2	14.2	20.91
Overall	31	408.88	77.86	3.72	59.99	10.43	3.16	20.97

APPENDIX B

Measurement Protocol for Maslach Burnout Inventory – Educators Survey.

Educators Survey

How Often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How Often

0 – 6 Statements:

1. _____ I feel emotionally drained from my work.
2. _____ I feel used up at the end of the workday.
3. _____ I feel fatigued when I get up in the morning and have to face another day on the job.
4. _____ I can easily understand how my students feel about things.
5. _____ I feel I treat some students as if they were impersonal objects
6. _____ Working with people all day is really a strain on me.
7. _____ I deal very effectively with the problems of my students.
8. _____ I feel burned out from my work.
9. _____ I feel I'm positively influencing other people's lives through my work.
10. _____ I've become more callous toward people since I took this job.
11. _____ I worry that this job is hardening me emotionally.
12. _____ I feel very energetic.
13. _____ I feel frustrated by my job.
14. _____ I feel I'm wording too hard on my job.
15. _____ I don't really care what happens to some students.
16. _____ working with people directly puts too much stress on me.

(Appendix continues)

Appendix B. (continued)

17. _____	I can easily create a relaxed atmosphere with my students.
18. _____	I feel exhilarated after working closely with my students.
19. _____	I have accomplished many worthwhile things in this job.
20. _____	I feel like I'm at the end of my rope.
21. _____	In my work, I deal with emotional problems very calmly.
22. _____	I feel students blame me for some of their problems.

APPENDIX C.

Classroom behavior game daily treatment integrity form.

CLASSROOM BEHAVIOR GAME
DAILY TREATMENT INTEGRITY FORM

Teacher: **Observer:**

School: **Date:**

Week of:

	Observed Check yes or no		**Quality Rating:** Rate the degree to which you observed teachers implementation of each component				
	Yes	**No**	**Not Implemented**	**Minimal Fidelity**	**Half/Partial Fidelity**	**Good Fidelity**	**Full Fidelity**
1. Announce game before beginning.			1	2	3	4	5
2. Announce group members before beginning.			1	2	3	4	5
3. Read the classroom rules.			1	2	3	4	5
4. Explain the classroom rules.			1	2	3	4	5
5. Explain the requirements to win.			1	2	3	4	5
6. Explain the rule violation process.			1	2	3	4	5
7. Set the game timer.			1	2	3	4	5
8. Announce the start of the game.			1	2	3	4	5
Handle disruptive behaviors by:							
9. Responding immediately.			1	2	3	4	5
10. Responding with a normal tone of voice.			1	2	3	4	5
11. Identifying the child.			1	2	3	4	5
12. Praising the other team.			1	2	3	4	5
At the end of the timer:							
13. Review scores.			1	2	3	4	5
14. Review rules			1	2	3	4	5
At the end of the game or later that day:							
15. Record each team's performance on data sheet			1	2	3	4	5
16. Hand out prizes or deliver other reinforcers			1	2	3	4	5
17. Erase game board for the following day			1	2	3	4	5
18. Inform students that the game will be played during some days of the week, and that there will be a weekly winner.			1	2	3	4	5

APPENDIX D

Results for Independent and Dependent Variables Based on Raw Scores.

	Burnout			Adherence	
Teacher	EE	DP	PA	Implementation	Fidelity
27	14	6	37	.57	1043
38	7	0	45	.07	158
46	19	0	42	.34	409
51	15	8	43	.38	735
52	---	---	---	0	0
58	11	0	41	.42	791
75	42	6	45	.53	873
83	16	5	32	.23	448
88	14	1	48	.26	630
109	1	5	43	----	----
123	24	3	47	.57	179
124	47	16	40	.50	733
134	39	4	47	.57	925
135	35	0	37	.07	93
169	28	1	41	.19	311
183	8	0	40	.34	401
186	20	3	45	.30	498
189	29	4	34	.26	280
196	11	3	44	.07	114
204	19	5	43	.07	131

(table continues)

Appendix D. (continued)

	Burnout			Adherence	
Teacher	EE	DP	PA	Implementation	Fidelity
207	31	5	38	.26	343
208	15	2	48	.30	460
214	34	10	40	.15	216
217	27	0	10	.07	132
225	8	0	41	.07	33
226	18	4	43	.11	163
228	9	1	45	0	0
229	19	2	41	0	0
230	16	6	40	.19	90
231	12	2	41	0	0
235	----	----	----	.34	456
237	5	0	46	.26	349
251	3	0	45	.19	328
252	6	0	45	.26	745
254	13	4	48	.53	1224
255	26	1	44	.11	104
261	32	9	38	.07	60
262	11	0	46	.38	603
263	30	0	41	.53	786

(table continues)

Appendix D. (continued)

	Burnout			Adherence	
Teacher	EE	DP	PA	Implementation	Fidelity
264	27	2	40	.53	910
271	16	1	36	.30	79
272	15	1	43	0	0
273	24	10	46	.26	467
276	22	4	41	.46	705

Note. Chart reflects full and partial data sets for 45 participants